NAB2002 PREVIEW ISSUE

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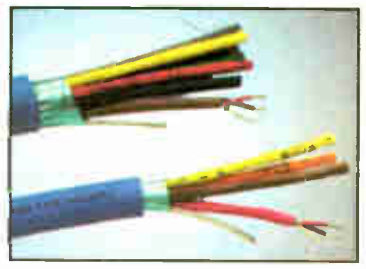

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DIGITAL NEWS

Ibiquity: Time to Roll Out IBOC

by Leslie Stimson

Is in-band, on-channel digital audio broadcasting finally going to happen this year after more than a decade of promise and tests?

Several companies with a stake in the outcome hope so. IBOC technology developer Ibiquity Digital Corp. believes the upcoming NAB2002 convention marks an important point of passage for IBOC — the event at which its transmission manufacturing partners begin a hardware rollout.

Real gear

Three transmission manufacturers, Harris, Broadcast Electronics and Nautel, plan to show IBOC transmitters and exciters at the April show in Las Vegas. Though Ibiquity is working with other transmitter and transmission-related manufacturers to develop equipment, Harris, BE and Nautel are the only transmission companies so far that are licensed to make IBOC gear.

Ibiquity officials prefer to start their rollout with a few select companies and increase the number of manufacturers licensed to make equipment as the rollout progresses.

Will IBOC demand the attention of radio owners and managers in coming months, leading to a sweeping technology change?

Comments to the FCC indicate that radio groups are indeed paying attention (see page 7), although several sources said the poor economy and ad sales have caused managers to focus on getting money in the door rather than a possible digital conversion.

One measure of radio's belief in IBOC could come from traffic at NAB booths.

"I think what we'll see is people who are starting to configure their systems now," said Tim Bealor, vice president of RF Systems for Broadcast Electronics.

"We'll see people who are starting to figure out which stations to convert. While they may not actually write out a

See IBOC, page 6 ▶

Photo: Las Vegas News Bureau

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World Radio History

◆ NEWSWATCH ◆

XM Repeater Patent Draws NAB Ire

WASHINGTON XM Satellite Radio has patented a process that would allow its repeaters to transmit locally originated material.

XM says patenting the discovery was routine, while NAB has urged the FCC to prevent XM from using the patent and to preclude XM from using its terrestrial repeaters to transmit local programming.

In a letter to the commission, NAB stated, "To put it bluntly, while XM was telling the commission that it had no plans to use the repeaters other than to fill gaps, it was actively developing technology specifically intended to provide locally differentiated material."

NAB President/CEO Eddie Fritts stated he was "astonished" to learn of the patent. "This development indicates that the FCC International Bureau has either dropped the ball, or that XM believes it does not have to play by the rules. Regardless, XM's lack of candor suggests it is time for Chairman Powell and the individual FCC commissioners to put a halt to this ruse of a terrestrial repeater network."

XM spokesman Charles Robbins said, "As scientists discover items they consider important intellectual property they apply for a patent. This was among those. We have numerous patents."

As to NAB's characterization of XM's "lack of candor" with the commission, Robbins said, "We've been forthright from the beginning. We've said from the beginning that we would do a national service."

No such patent was found for XM competitor Sirius Satellite Radio.

The Special Temporary Authority for both XM's and Sirius' terrestrial repeater networks was due to expire March 18 unless the companies received an extension, or the commission issued final rules governing the repeaters by that time. An FCC official said in late February the agency was trying to get the rules out on time.

DOJ Outranks FTC On Radio Deals

WASHINGTON The Department of Justice will now have sole oversight over the antitrust portion of radio mergers. The DOJ and the Federal Trade Commission have finalized a new division of labor for each of the industries each agency regulates. The DOJ and the FTC will review proposed transactions for potential anticompetitive practices. The point is to shorten the time it takes to review proposed transactions.

Although both the FTC and DOJ have expertise in reviewing media mergers, FTC Chairman Timothy Muris stated primary enforcement in media and the entertainment industry would go to the DOJ "because its expertise in this area far outweighs that of the FTC."

The FCC's jurisdiction is unaffected by the agreement. The commission will still look at radio transactions to determine if they meet the public interest. The DOJ weighs in when the dollar amount of the potential merged entity meets a threshold that triggers antitrust review.

The DOJ and FTC delayed putting the plan into effect until Congress had been apprised, though Senate Commerce Committee Chairman Fritz Hollings, D-S.C., opposed the plan.

See NEWSWATCH, page 10 ▶

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World Radio History

NFCB Takes LPFM to Next Step

by Naina N. Chernoff

SAN FRANCISCO Low-power FM advocates are applauding a move by the National Federation of Community Broadcasters to focus efforts on the burgeoning radio service.

A new full-time staff person at NCFB, expected to be hired in April, soon will be helping new LPFM broadcasters get on the air by taking the stations through the steps needed to build a facility.

LPFM staffer

Through a combination of grants from the Ford Foundation and the John D. and Catherine T. MacArthur Foundation over the next two years, NFCB has acquired about $200,000 to hire a staffer to focus on LPFM issues. The new staff person is expected to serve the LPFM community for at least one year and possibly longer while LPFM applicants launch stations.

Welcoming the newest crop of small radio broadcasters seems natural for an organization known as an advocate for small, community-based radio stations for 27 years.

"We're really excited about the prospect of having a lot of new voices on air," said NFCB President and Chief Executive Officer Carol Pierson.

Already, Pierson said the organization has taken steps to advise LPFM applicants. In a legal handbook for noncommercial stations expected to debut on NFCB's Web site in April, the publication will include a section addressing LPFM legal issues.

The new staff person, whose salary is expected to range from $40,000 to $45,000, will also be tasked with producing a manual that includes LPFM start-up advice and policy issues as well as giving guidance on how to fill out the forms to request an LPFM license.

NFCB has acquired about $200,000 in grants to hire a staffer to focus on LPFM issues.

"Our assumption is that much of the work will be in the first two and a half years since (LPFMs) must get on the air within 18 months of the construction permit being issued and there are no extensions," Pierson said. NFCB will continue to work with LPFM stations after the initial period, she added, but membership dues are expected to cover the cost of the staff time. "We are assuming that they will require less staff time after they get on the air."

Many LPFM supporters see the current role of NFCB as taking over at a point where several LPFM activists are no longer needed. Though only six of the 180 applicants to be granted construction permits by the FCC are on air, the future of LPFM is protected by rules governing the new service. Many applicants are currently waiting for word from the commission on whether their applications will be approved.

Handing over the reins

Several organizations, including the Prometheus Radio Project, Media Access Project, Microradio Implementation Project and the National Lawyers Guild, played a role in helping to secure the regulatory future of LPFM and are now handing the reins to NFCB.

Andrea Cano

Previously active in getting non-profits and individuals to apply for LPFM licenses, Prometheus now is supporting LPFM broadcasters by helping them launch stations.

In what he called a "barn raising," Prometheus staffer Pete Tridish, a former pirate operator who uses a pseudonym, said the group is holding weekend conferences in the hometowns of those who hold LPFM construction permits. The "barn raisings" have a two-fold objective — to help get a station on the

See LPFM, page 8 ▶

NEWS ANALYSIS

Congress Watching Media Mergers

Lawmakers May Act if TV Mergers Turn Into Consolidation Frenzy to Match Radio

by Leslie Stimson

WASHINGTON Congress will likely hold hearings to look at all media ownership rules in light of recent federal appeals court decisions about TV ownership. The U.S. Court of Appeals for the District of Columbia ordered the FCC to justify or eliminate its 35-percent TV national audience cap and struck down the rule banning a company from owning both a cable system and TV station in one market.

The ruling may open the door to a further round of media mergers, experts believe, as the media ownership rules may be relaxed. The 35-percent rule in particular has come under fire from FCC Chairman Michael Powell.

Regulators will be watching television transactions for the kind of massive

See OWNERSHIP, page 10 ▶

Photo by Leslie Stimson

Sen. Trent Lott, R-Miss.

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World Radio History

These Pages Are Open to All

From the Editor

Paul J. McLane

A member of the pro-IBOC community took me to task for publishing Skip Pizzi's comments about the digital radio technology in our March 1 issue.

Although preferring not to be quoted, this industry executive, who is intimately involved in Ibiquity's technology and development, challenged Pizzi's facts and said his technical, business and regulatory analysis was poor, "presumably to drive an agenda." Skip missed major pieces of the story, he said, and suggested that the column was not fair, accurate or productive.

I disagree, and I invited the official to rebut in print the points Pizzi raised. He declined. But the exchange prompts me to share with you my views about how we cover this most important of industry topics.

Few technology stories could have more sweeping impact on how the U.S. radio industry works than in-band, on-channel digital radio. No publication — not one — has published even a fraction of the stories that Radio World has on this topic in the past 10 years.

Just in the past few months, we have offered readers several summary stories aimed at informing managers who have not followed IBOC closely until now; IBOC NAB session previews; several stories about transmitters and IBOC-compatible RF support gear at the convention; Richard Fry's excellent IBOC cost worksheet; a series of Q&As about implementation written by Jeff Detweiler of Ibiquity; commentaries about the data possibilities of IBOC and its possible downsides; a commentary from NRSC Chairman Charlie Morgan in support of FM IBOC; two columns about IBOC by Pizzi; and several editorials about the regulatory process and licensing structure.

Given that the bulk of Radio World's revenue comes from equipment manufacturers, one might assume that we would be an unquestioning supporter of a technology that will drive capital expenditures. But that's not the case.

Yes, as a matter of editorial opinion we are a supporter of IBOC, based on all the facts currently available to us. But an unquestioning one? No.

I'm committed to giving space to *all* facets and all issues being discussed, which is my overall philosophy as editor of this publication. For instance, I feel that Skip Pizzi reflects voices in the industry that continue to ask mature questions about the IBOC approach at this important time in its development. Certainly he is not the only responsible party who expresses such views to me. I do believe he is the most cogent writer on that side of the fence.

It is only responsible of Radio World to offer space for such views, as well as space for those who speak in favor of IBOC. Certainly the questions raised by critics are not "nonsense," to use the description of Skip's column by the unnamed critic. And it seems to me that a public debate or discussion is exactly what is called for in 2002, as practical questions of IBOC hit home with broadcasters for the first time.

Ibiquity engineers and managers have done superb work in developing a system that could be the next historic step for terrestrial radio. They have done a remarkable job of creating a nearly united front among broadcasters, no mean feat.

At times, however, the company also has not been as forthcoming as it could be about the impact of that rollout, in matters such as licensing fees. Ibiquity can appear prickly about questions that I consider legitimate points of discussion.

Radio World supports IBOC and its prompt rollout. We also urge Ibiquity and its supporters to reply to responsible critics and to take part fully in the industry debate in these pages.

★ ★ ★

Speaking of NAB2002, here are two events you won't find on any official session list.

Barry Mishkind's Lunch Gathering was organized 10 years ago to bring broadcasters together to discuss common problems, especially involving computers. It has grown into a popular meeting place for all. As Barry puts it, who doesn't use a computer these days?

A high point of the social gathering is the awarding of cool door prizes; sponsors this year include Orban and Prophet Systems. Some attendees bring "swag" to swap, including bumper stickers, hats and pens, coffee cups and software.

The 10th Annual Lunch Gathering is Tuesday, April 9, at noon at the Buffet Restaurant in the Riviera Hotel across from the Las Vegas Convention Center.

By the way, Barry's Broadcast Archive at *www.oldradio.com* is a premier site on the Net for accurate broadcast history, as well as current information like the Broadcast FAQ list. Started as a result of articles in Radio World, oldradio.com has grown over seven years to contain articles on the history of stations, networks, manufacturers and the people at the core of broadcasting.

Much of the site is a labor of love by Mishkind, but other respected authors are represented including several RW contributors. You can find plenty of treasure: tech tips, pictures of vintage equipment and tower disasters, war stories and more. Recently, a section on San Francisco radio history was added thanks to John Schneider, who donated a copy of his research and photographic library.

★ ★ ★

Also during the show, the National Association of Gay & Lesbian Broadcasters holds its annual dinner party at Cozymel's Coastal Mexican Grill off Paradise on Flamingo on Tuesday, April 9. "Cash andcarry" social hour begins at 6:30, with dinner being served at 7:30.

Lyle Henry invites all and seeks volunteers to help with the group's Web site at *www.poboxes.com/naglb*. RSVP to him at *naglb@attbi.com*.

2002 Radio World READERS' CHOICE Sweepstakes

Congratulations to Kevin Strehle of Salem Communications in Cincinnati; you're the next winner in our Reader's Choice Awards Sweepstakes.

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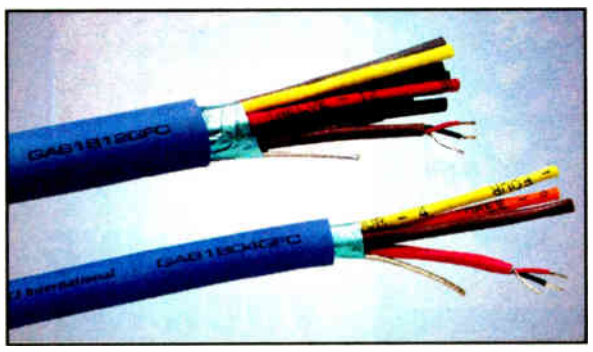

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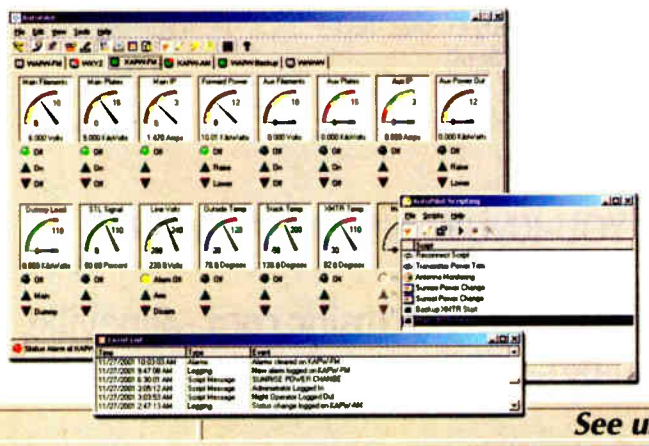

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World Radio History

Joint Show Reflects the Times

Exhibitors Cross Fingers and Hope for Combined Attendee Purchasing Power at RTNDA@NAB

by Naina N. Chernoff

WASHINGTON The opportunity for engineers and news directors to do one-stop shopping is touted as a benefit of concurrent NAB and Radio and Television News Directors Association shows.

Suppliers and news directors contacted by Radio World generally approve of the recent decision to hold the shows at the same time in Las Vegas next month.

They cite a trend among many industry groups to co-host conventions and the potential buying power that comes with the confluence of news directors, station managers and engineers.

A win-win?

"It could turn out to be a win-win situation for both groups with increased attendance for RTNDA and the stabilization of attendance numbers for the NAB," said Sarah Foss, director of marketing for Harris Broadcast Communications.

Though Harris executives plan to exhibit solely in the NAB hall and not rent another booth in the RTNDA area, the company hopes to benefit from the inclusion of news people.

"A definite bonus for us would be an increase in newsroom automation decision-makers getting 'hands-on' experience with our Harris Automation Solution systems," she said.

NAB attendees will be able to tour the RTNDA exhibit areas and RTNDA attendees will also be able to go into the NAB exhibit halls by paying the same prices normally set for exhibit area passes at both shows, said NAB Media Relations Manager Stacy Perrus.

Attendees will be able to reach both exhibit areas using a skywalk that links the NAB exhibits in the Las Vegas Convention Center and the RTNDA exhibits in the Las Vegas Hilton.

Other broadcast engineering companies said the strength of RTNDA@NAB is the opportunity it creates assembling many players. "By bringing the shows together, there's more of a likelihood that all the different people from a station will tour the exhibit hall together," said Robin Wang, director of marketing for Dalet Digital Media Systems. "The partnership is good because it shows journalism and technology are related."

Conventions focusing on the marriage between technology and news are showing up in Europe, Wang said, pointing to shows sponsored by Newsworld International in the United Kingdom. For four years, Newsworld has sponsored conferences for news personnel and broadcast engineers to discuss media issues.

But the opportunity to meet with both news and engineering staff will not ensure success in Las Vegas, Wang said. The benefit of a shared location for exhibitors depends on how closely the organizations tie the shows together, he said.

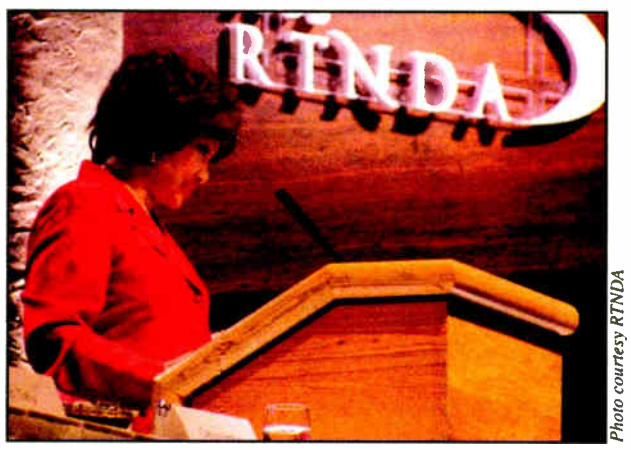

Photo courtesy RTNDA

Carole Simpson of ABC News delivered an address about diversity in the newsroom at RTNDA2000 in Minneapolis.

While he supports both shows being able to keep their distinctive flavor, he hopes that NAB and RTNDA will develop ways to attract attendees to both show floors.

Despite the difference in size between the two conventions, NAB and RTNDA share many exhibitors. NAB has about 7,600 members while RTNDA boasts about 3,000 total members.

According to RTNDA Communications Director Noreen Welle, 50 percent of its 140-160 exhibitors also rent booths at NAB annually.

During three conventions in 1998-2000, RTNDA attendance averaged approximately 4,100, she said.

According to RTNDA, 50 percent of its 140-160 exhibitors also rent booths at NAB annually.

In recent years, NAB attendance has been around 110,000 and rose to more than 113,000 last year, said Perrus.

The joint venture between NAB and RTNDA is not unique. Other organizations, including the National Cable and Telecommunications Association and the Cable & Telecommunications Association for Marketing, plan concurrent conventions this spring.

The upcoming Streaming Media West 2002 convention will be co-located with Internet World Spring. The two shows also were merged in the fall.

Though some groups may merge for economic reasons, Perrus said the reasons for joining the NAB and RTNDA shows did not involve a projected financial gain for NAB. Its board recently acknowledged that the weak economy has affected the organization somewhat, but its financial outlook remains strong.

The new approach "allows us to offer our attendees a new conference and new exhibits," she said. "And RTNDA members get to see everything at NAB."

The organizations have a revenue-sharing agreement, Perrus said, but declined to discuss exact figures or revenue expectations for this year's show.

Welle also said financial information on this year's conference revenues and projections was proprietary and did not comment on how much the RTNDA convention earns for the organization.

Last September, RTNDA reported that it faced a $2 million shortfall after canceling its 2001 conference, following the terrorist attacks.

Between 1994 and 1996, the NAB and RTNDA took part in the World Media Expo, an umbrella convention format, along with the Society of Broadcast Engineers and the Society of Motion Picture and Television Engineers. That format did not survive.

The economic climate has changed since then, said RTNDA Regional Director Condace Pressley, assistant PD at WSB(AM), Atlanta.

"I know then the math did not work for all parties involved," she said. "Now, with all of us working to maximize the use of all available resources, I think this new arrangement is better for both RTNDA and NAB."

Other factors play into expected show traffic this year. Wang said Dalet realizes stations don't have the money to send people to two shows.

At Harris, the staff believes shows will garner lower attendance this year because of the effects of consolidation, Foss said. Station groups are electing to send fewer staffers to industry trade shows this year in both radio and television.

Buddy system

RTNDA Regional Director Mark Miller, the news director of WBAL(AM) in Baltimore, has noticed the trend at his employer, the Hearst Corp. At the group, which owns two radio and 27 television stations, approximately one-third to one-half of news directors usually attend RTNDA, he said.

The group has set up a buddy system in which news directors who attend report back to their counterparts.

Depending upon the station's budget, Miller hopes to tour the exhibit halls with his staff engineer to look at items such as digital playback equipment and field gear. He believes the joint format will allow him to do his job better.

"I appreciate the value of having an engineer around when it comes to looking at hardware.

"I think RTNDA and NAB will be able to maintain their own identities," he said. "Conventions serve as a reminder to people that associations do more than just host a convention."

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World Radio History

IBOC

▶ Continued from page 1

P.O. (purchase order) at this show, they'll figure out what they need to buy ... which is the next step down the road from where we are today."

Bealor said it's a big step that Ibiquity has released sufficient technology to the licensed manufacturers to enable them to build the base IBOC gear and get standard products in the field.

"We're done demonstrating technology. We're going to start demonstrating products."

DAB experts said this is what broadcasters want to see — that IBOC is ready. Yet no one knows how quickly or willingly broadcasters will lay their money on the counter for IBOC conversion, with costs ranging generally from $27,000 to $215,000.

Trained ears believe Ibiquity's FM IBOC system is better than FM analog. In the months since the last NAB radio convention in the fall, the standards-setting National Radio Systems Committee has endorsed Ibiquity's FM IBOC system.

Comments

In a report reviewing tests results, the NRSC urged the FCC to adopt Ibiquity's FM system as the DAB standard in this country. NAB and several broadcast groups, including both investors in Ibiquity and non-investors, have since filed comments with the commission. Many agreed with the NRSC and NAB and have supported IBOC.

The NRSC was reviewing Ibiquity's AM system in March and hoped to have a report ready for release at the NAB show.

The FCC has said that once it receives the AM report, it intends to seek public comment quickly, as it did for the FM report.

Ibiquity hopes the commission will endorse its system in some fashion this summer, continue to review public comments about IBOC and then develop rules to allow station conversion.

Photo by Leslie Stimson

At a recent NAB show, ERI President Tom Silliman demonstrated an IBOC combiner.

We're done demonstrating technology. We're going to start demonstrating products.

— Tim Bealor

The company and the FCC are discussing a mechanism for allowing stations to transmit both an analog and digital signal before DAB rules are finalized.

Just as subscription digital satellite radio initially rolled out in key markets, Ibiquity has planned a gradual rollout.

It is targeting six markets to implement the technology by the end of this year: New York, Los Angeles, Chicago, San Francisco, Miami and Seattle, chosen for their large populations and high receiver and other consumer electronics sales.

Ibiquity hopes to put IBOC on enough stations to reach at least half of the radio listeners in the initial markets.

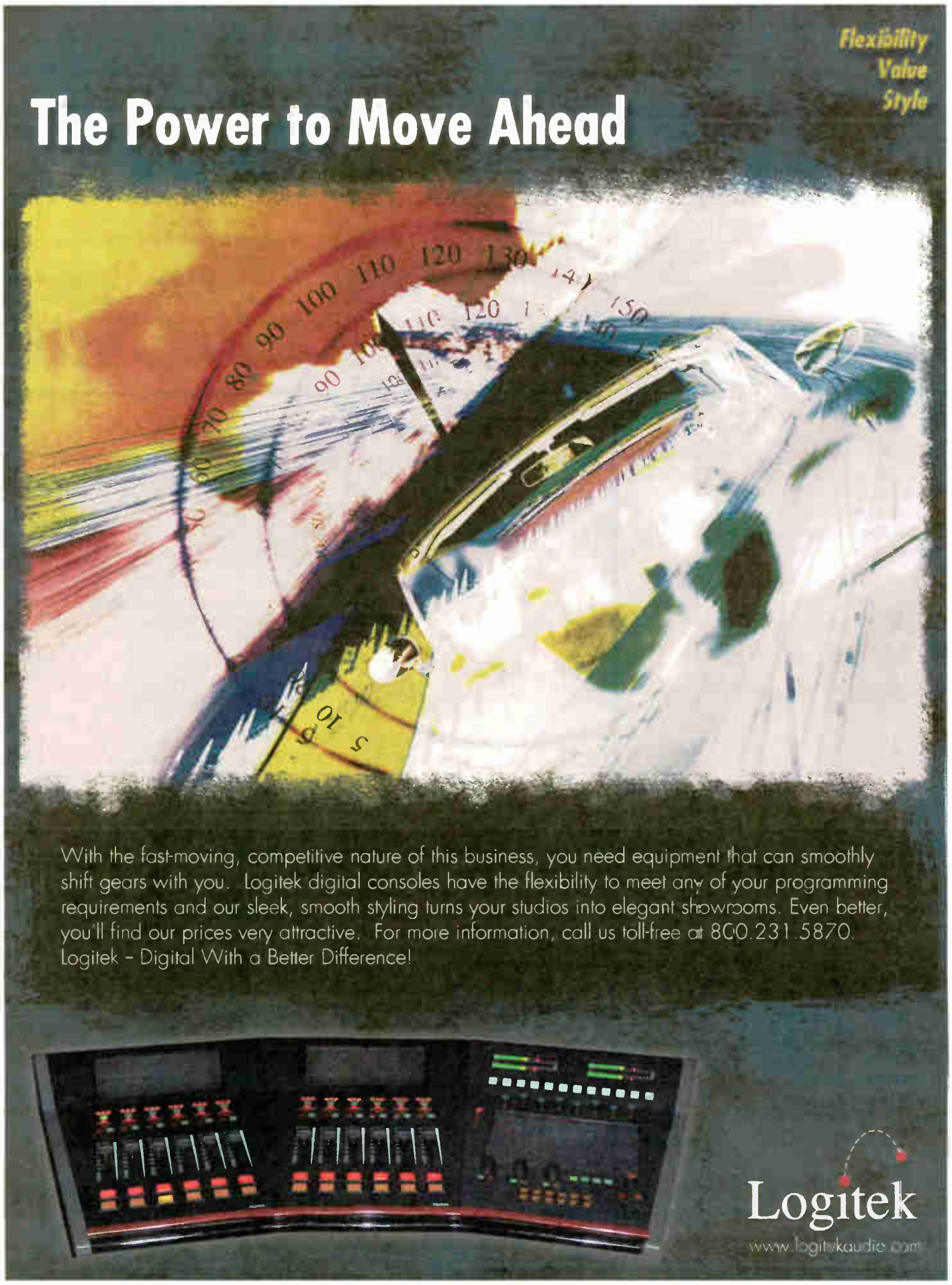
Another unknown is how radio station managers will react to Ibiquity's plan to charge licensing fees for the technology, based roughly on station class and separate from the cost of new equipment. A fee-based approach is not widely used in radio broadcast technology sales.

Assuming IBOC is a go, with all the years and money spent on its development, will consumers hear the difference? What will spur them to purchase IBOC receivers?

The greatest benefit of digital may be to AM stations, where the promised jump in quality is substantial.

"We broadcast 10 kHz now but no one hears it. Car receivers now hear 3 kHz," said Hal Widsten, general manager and partner of a standalone AM, KWED,

See IBOC, page 7 ▶



See us at NAB2002 Booth #L2937

World Radio History

Sounding Off On IBOC

About 100 entities submitted public comments to the FCC in regard to the National Radio Systems Committee report on Ibiquity Digital Corp.'s FM in-band, on-channel digital audio broadcasting system. Station groups, both commercial and non-commercial, made up the bulk of the filings, along with a smattering of transmission and receiver manufacturers, trade associations and public interest groups. Most of the remarks were positive, although some criticisms were lodged. Radio World will excerpt several comments over the next few issues.

"Several of Infinity's radio stations, including KLLC(FM), San Francisco; WHFS(FM), Annapolis, Md.; WJFK(FM), Manassas, Va.; KLUC(FM), Las Vegas and WNEW(FM), New York participated in tests of the Ibiquity IBOC system.

"WHFS, for example, presents particularly severe second-adjacent channel interference issues in the Washington market, whereas WJFK (Manassas, Va.), has one of the most severe first-adjacent channel-interference situations in the country. WNEW (New York) offered the opportunity to assess IBOC performance using a combined antenna and very low power broadcasting from the Empire State Building. ...

"Infinity is particularly encouraged by the NRSC's conclusion that, during the hybrid stage of IBOC implementation, there will be no additional analog co-channel interference, that listeners within a station's protected contour should not perceive any additional interference on a first-adjacent analog channel, and that only a very limited number of listeners in a limited area will receive some interference on a second-adjacent analog channel."

Steven Lerman, Counsel
Infinity Broadcasting Corp.

"My first major concern regarding IBOC is its inability to provide me the chance to offer more programming. ... Radio must evolve away from the "push" model of programming (in which radio provides one program to listeners when the radio station expect listeners to listen) to the "pull" model of programming (in which listeners gather and listen to the programs they want to hear on their own timetable).

Anthony Hunt, GM
Indiana Public Radio,
Ball State University

"Our primary concern is the apparent rush to adopt a system that by its nature benefits every FM broadcast service except for subcarrier users. Currently, there is no industry-wide plan to bring reading services from analog subcarriers into the digital transition until the end of the 'hybrid' phase. ...

"Until (further) testing is complete and the data carefully studied, IAAIS reserves comment on the compatibility of the proposed IBOC system with subcarrier radios employed by reading services and the listeners to those services. ...

"For IAAIS members on FM subcarriers there will be no benefit in the proposed system unless the subcarriers are digitized during the hybrid mode. Furthermore, it is likely that subcarriers at 92 kHz may be substantially and negatively impacted by the presence of an IBOC signal on the host station. Therefore, we urge the commission to require testing of the auxiliary data capacity of the proposed IBOC system to allow reading services as well as other community services on the analog subcarriers to migrate with main channel broadcasters in serving their communities as a digital stream."

David Noble, Immediate Past President
and Chairman, Government Affairs
International Association of Audio
Information Services

"At the January 2002 Consumer Electronics Show, Kenwood announced 17 of the 21 aftermarket mobile radios offered for sale in the United States this year would support IBOC at IBOC's introduction. ... To meet the CES 2003 introduction, Kenwood is currently expending significant research and development resources, is beginning to prepare retailers for the impending launch of IBOC products, and must make production commitments to its factories by no later than Oct. 1, 2002. ...

"It is important for the FCC to clarify the approach to be adopted in the United States and to eliminate any question about any ongoing consideration of out-of-band approaches. Specifically, Kenwood encourages the FCC to explicitly endorse IBOC technology and the Ibiquity system as the DAB system to be implemented in the United States."

Robert Law, Vice President
Kenwood USA Corp.

IBOC

▶ Continued from page 6

Seguin, Texas, near San Antonio and a member of Ibiquity's rollout advisory board.

He said in the hybrid mode, the AM analog bandwidth would be 5 kHz and the digital would be 15 kHz.

Widsten said, "Even if it reverts to analog once in a while, I know enough about receivers to know it will sound better."

Some broadcasters have expressed concern over the narrowed analog bandwidth planned for AM IBOC, down from the allowable 10 kHz to 5 kHz for the analog portion of the signal in the hybrid mode.

Also, when the NRSC endorsed FM IBOC, members stated in their report that there could be some interference to neighboring stations in some situations when facilities begin to convert. They believe the amount would be negligible, while IBOC doubters aren't so sure.

"We won't have definitive answers until some stations go digital," said one vendor. "I think these six markets will tell us a lot about what the future of IBOC will be."

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LPFM

▶ Continued from page 3

air and to teach other would-be LPFM broadcasters what they need to do to launch their stations.

Recently, about 100 participants from as far away as Japan, Canada, Oregon and Louisiana were on hand at a "barn raising" conference Prometheus held near Annapolis, Md., in mid-February. Tridish helped WRYR(LP) install an Internet-based studio transmitter link, allowing the station to stream audio over the Internet using a broadband connection. The new station was expected to go on air this month, he said.

Tridish said he expects to hold three more "barn raisings" throughout the year and the group will also head up five LPFM workshops at the upcoming NFCB conference in April.

While he acknowledges that Prometheus' current efforts are benefiting LPFM, Tridish said NFCB's new staff person will help push the service even further.

Low-budget stations

"NFCB brings more experience to bear," he said. "They are used to building stations on a low budget."

The NFCB has experience in helping a large number of new stations run by volunteers get on the air, said Cheryl Leanza, deputy director of the Media Access Project. Translating the FCC's regulations into understandable rules is something NFCB has done for non-commercial stations and will be able to do for LPFMs, she said.

Leanza said the Media Access Project, which was responsible for many of the lobbying efforts to get the LPFM service established, will continue to advise and assess LPFM applicants regarding policy and alert applicants and construction-permit holders to policy changes. In addition, the non-profit law firm is also urging the commission to also issue plain-language regulations to "make sure applicants have a fighting chance."

LPFMs On the Air

Calls	Licensee	Location	Freq.
KEFC(LP)	Evangelical Free Church of Turlock	Turlock, Calif.	100.5
KPFZ(LP)	Lake County Community Radio	Lakeport, Calif.	104.5
WCWC(LP)	College Wesleyan Church	Marion, Ind.	94.3
KCJM(LP)	M&M Community Development Inc.	Alexandria, La.	107.9
WRFR(LP)	Penobscot School	Rockland, Maine	93.3
WRYR(LP)	South Arundel Citizens for Responsible Development	Sherwood, Md.	97.5

Note: LPFMs on the air as of Feb. 27

Smaller field

Another major supporter of LPFM, the Microradio Implementation Project, soon will wrap up its efforts and hand over its list of contacts to NFCB.

The Ford Foundation, the MacArthur Foundation and the Open Society Institute, a private grant-making foundation, similarly funded the two-year-old Microradio Implementation Project, which was created to assist faith-based groups, community organizations, ethnic groups as well as other organizations.

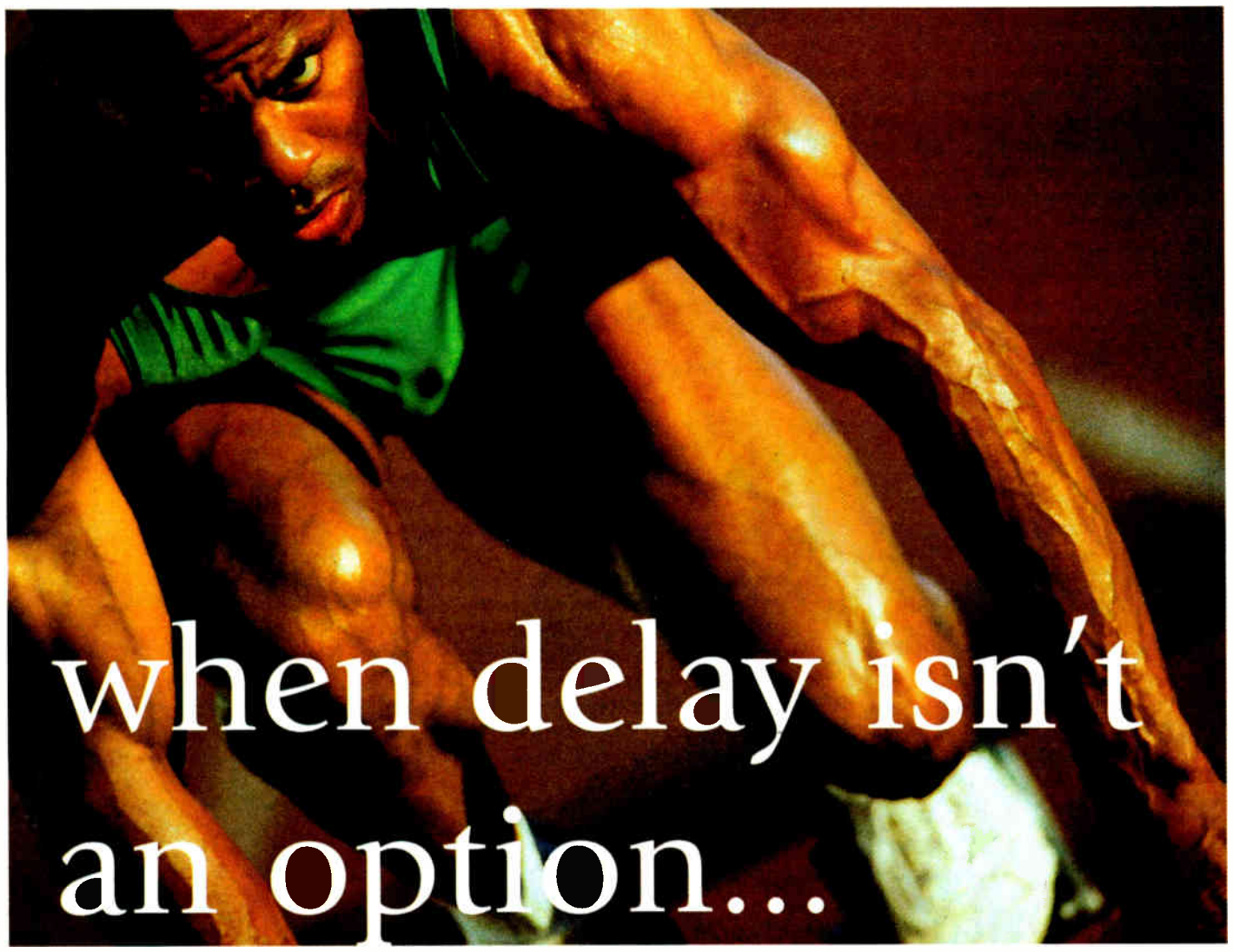
As the number of applications for LPFM grew, the role of the Microradio Implementation Project also changed, said Director Andrea Cano. Starting in September 2001, the group voluntarily became a policing organization, analyzing all 3,400 applicants to determine how and why they wanted to use a piece of the radio spectrum in an effort to help the stations get on air.

Ultimately, the group found that 1,000 of the applicants were "bogus," with discrepancies on their applications, Cano said. Some applications were not submitted by the actual applicants but other parties, while others were not filled out completely or were filled out falsely, she said.

Cano and her team examined each community individually to determine the motives behind the applicants' need for an LPFM license by interviewing residents and other applicants. They then worked on persuading community groups within the region of the contested applicants to file petitions to deny with the FCC. In addition, together with the other LPFM groups, the Microradio Implementation Project filed 60 to 70 informal objections against the suspect applicants.

In June, when the project is over, Cano said all of the information collected on the applicants would be passed along to the NFCB, Prometheus Radio Project and the National Lawyers Guild, another organization that has been aiding the LPFM effort.

Now that the field of competition has shrunk, Cano said applicants need the help NFCB can provide, especially in terms of community collaboration. She expects that individual applicants new to the world of radio will definitely benefit from NFCB's help. "What NFCB is going to do will help LPFM move along."



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World Radio History

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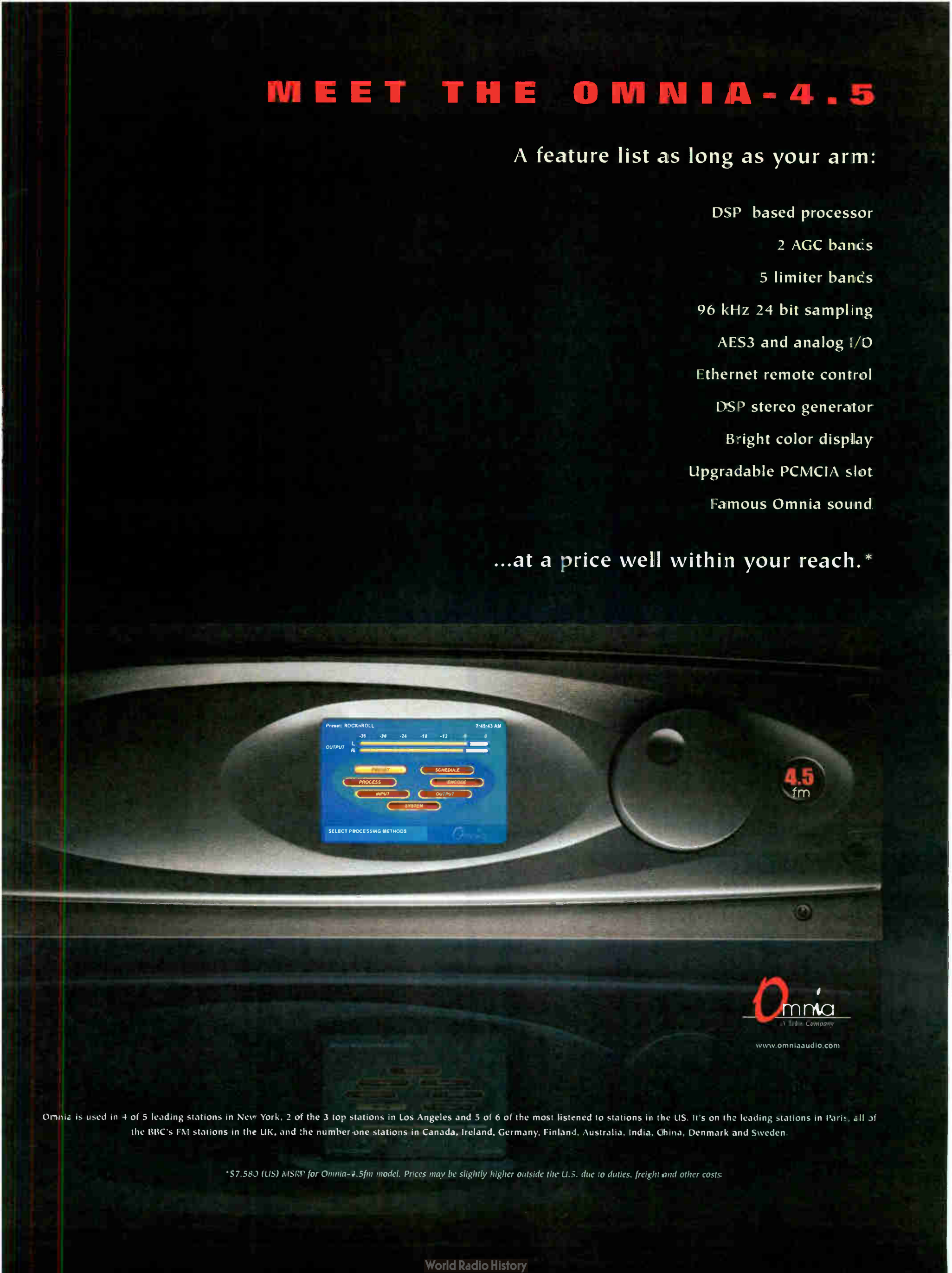

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*$7,580 (US) MSRP for Omnia-4.5fm model. Prices may be slightly higher outside the U.S. due to duties, freight and other costs.

World Radio History

◆ NEWSWATCH ◆

▶ Continued from page 2

"I believe this is in violation of appropriations law, which states that we be consulted," stated Hollings, who also chairs the Senate Appropriations Subcommittee in charge of both the DOJ's and the FTC's budgets. "They just moved forward on their own. It's a tricky way to forego consultation. We have our tricks, too."

FTC and DOJ officials said there had been several discussions with Hollings' staff.

Hollings and consumer groups also complain the agreement was reached in private.

In the past, the two agencies had fought over which mergers to challenge.

According to figures released by the FTC, there were disputes between the two agencies in about one-quarter of all deals in the past 17 months and they took an average of three weeks to resolve.

Amber Plan Code Added to EAS

WASHINGTON The FCC has added several event and location codes to the Emergency Alert System, including a child abduction emergency event code called Amber. The Amber Plan is a voluntary partnership between law enforcement agencies and the media used to alert the public of serious child abduction cases, where police believe that the child is in danger of bodily harm or death.

Under the Amber Plan, stations interrupt programming to disseminate information concerning serious child abduction using the EAS. Adoption of the new Child Abduction Emergency event code responds to concerns that the current practice of using the Civil Emergency Message event code to activate Amber alerts has resulted in confusion about the intent of the alert.

The revised EAS rules permit, but do not require, stations and cable systems to modify their EAS equipment so that the gear may transmit and receive the new event and location codes. However, new EAS equipment installed after Feb. 1, 2004 must be able to receive and transmit the new codes.

The FCC also increased the time period within which the required monthly EAS tests must be retransmitted from 15 to 60 minutes to give stations programming flexibility.

Low-power FM stations are exempt from the requirement to install EAS decoders until the commission certifies those boxes.

Also, satellite radio and repeater stations do not have to install EAS equipment, as they rebroadcast 100 percent of their programming from their hub station.

The new rules were to go into effect 30 days after publication in the Federal Register.

Peninsula Faces Revocation, Fine

WASHINGTON The FCC has fined Alaska licensee Peninsula Communications $140,000 for apparent translator violations and is moving toward revoking all of Peninsula's broadcast licenses.

Enforcement Bureau Chief David Solomon said it was the largest single broadcast enforcement violation fine ever.

The FCC ordered Peninsula to stop operating its seven translators in May.

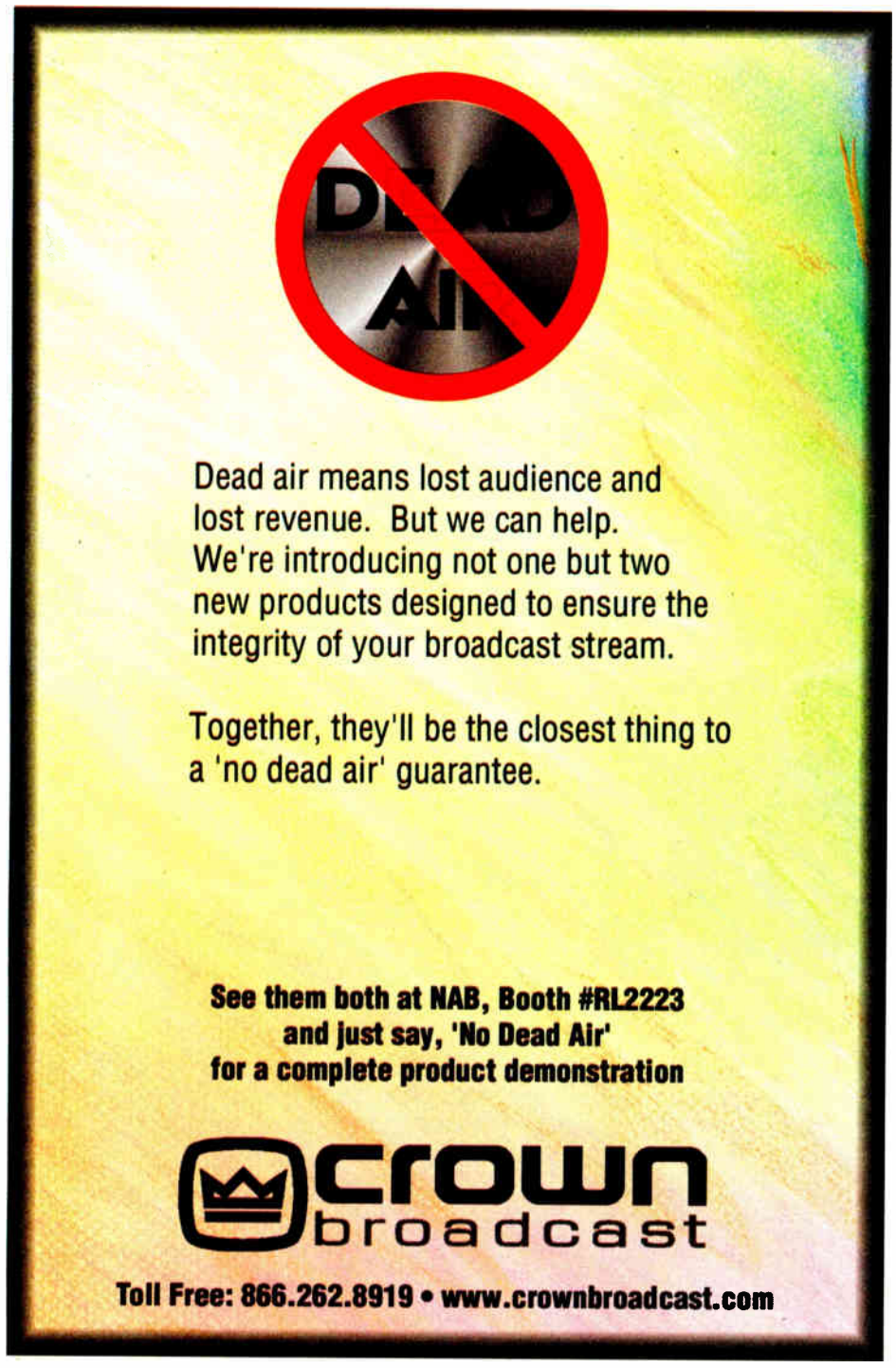
Peninsula stated it is not required to shut down the translators until a federal appeals court rules on its appeal. The commission said the group's refusal to shut down the translators makes it unfit to hold a broadcast license, so the agency has taken the first step in the revocation process.

Essentially, Soloman said, Peninsula had simply said "no, thank you" to the FCC.

A pre-hearing conference was set for March 12. That's also when Chief Administrative Law Judge Richard Sippel was expected to set a hearing date. Peninsula Attorney Jeffrey Southmayd of Southmayd & Miller told the commission that Peninsula was prepared to participate in the hearing and defend its licenses.

The commission stated authorization for "non-fill-in" translators is not granted to persons interested in or connected with the commercial "primary FM station" that the translator will rebroadcast.

Peninsula's seven translators were rebroadcasting primary stations licensed to Peninsula, the FCC stated. Peninsula said it had waivers to do so, according to published reports.



Ownership

▶ Continued from page 3

consolidation that has occurred in radio. If that happens, they're likely to act, some congressional leaders told those attending NAB's conference for state broadcasting association members in late February.

The FCC is reviewing all media ownership regulations, including radio ownership limits, and specifically, how it defines a market for ownership purposes.

House Commerce Committee Chairman Billy Tauzin, R-La., called the TV cap archaic, although, in general, he said, his only problem with media consolidation "is when it bumps into advertising and that's where smaller players get hurt."

A Senate staffer for the Senate Judiciary Committee said of radio consolidation, "If you have fewer places to place advertising, rates will go up." That's what regulators will look at, he said, referring to the commission and the Department of Justice.

'Some cap'

Senate Minority Leader Trent Lott, R-Miss., said of the Telecom Act, "We thought we were visionaries when it passed. What I had hoped for from that bill was more competition." He said he supports "some cap" on ownership.

"I want to make sure radio stations are not slowly consumed," he said.

Some experts do not believe the court ruling automatically means the media ownership rules will be relaxed. Senate Commerce Committee Chairman Ernest "Fritz" Hollings, D-S.C., does not favor further media ownership deregulation, so the FCC could face opposition over changing the rules.

Radio attendees disagreed about whether radio ownership rules should be relaxed or tightened. Industry executives in any case do not expect blockbuster deals to be crafted until the economy and the advertising market improve.

FCC staffers also updated attendees on broadcast issues currently before the agency.

Roy Stewart, long-term FCC Mass Media Bureau chief and now chief of the Office of Broadcast License Policy, urged broadcasters to retain local programming so "the FCC and Congress continue to care what happens to you," in relation to other industries the commission regulates.

Delivery system

Referring to satellite radio, Stewart said that without localism, broadcasting is just another delivery system and in the future, other delivery systems may be able to deliver what broadcasters can now.

FCC staffers also touched on common station rules violations.

The FCC is looking for patterns of enforcement violations among ownership groups since consolidation. The commission is "looking for compliance across the board," said Enforcement Bureau Chief David Solomon.

For broadcasters' Equal Employment Opportunity compliance, the FCC is encouraging stations to use the Internet to fulfill EEO paperwork requirements. "Some stations don't accept paper résumés," said Susan Eid, mass media adviser to FCC Chairman Michael Powell.

In a lighter moment, Lott related his belief in the power of radio. Lott said he doesn't like the price he has to pay for TV campaign ads, so he prefers radio spots. "I still believe you get the most bang for your buck in radio."

In high school, Lott worked on-air on a school sports program at the radio station where his mother was an announcer, WPMP(AM/FM) in Pascagoula, Miss.

World Radio History

EPISODE 1 - "THE BIRTH OF STUDIOHUB"

HUBTOWN

WRSI

WHEN A STATION NEEDS INSTALLING, ENGINEERS GET NO SLEEP...

WHERE'D YA PUT MY IRON?

HEY! THAT HEATS UP FAST!

I CAN'T CRIMP ANOTHER MOLEX

PEPPERONI, PINEAPPLE AND SARDINE PIZZA?

HOW DO THEY EXPECT ME TO PULL OFF THIS MARKET "MOVE-IN" WHEN THEY DIDN'T EVEN LET ME MOVE IN THE BUILDING 'TIL YESTERDAY?

CHIEF ENGINEER

SYSTEMS

THE VERY NEXT DAY (IN ANOTHER PART OF TOWN)...

YES, I REALLY AM HIS MOTHER!

SIGH, NOT ANOTHER MEETING

JOE'S NETWORK SERVICES

HOW ABOUT AN MP3 OPTIMOD® PHONE INTERFACE AUTOMATION SYSTEM?

I WONDER WHAT'S FOR LUNCH...

CONFERENCE ROOM

New Products Meeting Today

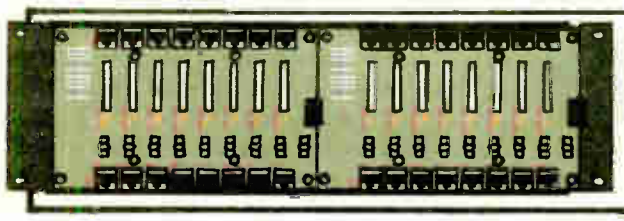
WE DON'T NEED ANOTHER NEW PRODUCT, WE NEED TO GIVE OUR CUSTOMERS A WAY TO WIRE UP ALL THE GEAR THAT THEY ALREADY HAVE! THE SYSTEM SHOULD SUPPORT ANALOG AND DIGITAL AND TAKE THE HASSLE OUT OF WIRING. WHAT I'M TALKIN' ABOUT HERE IS PLUG AND PLAY FOR BROADCAST.

SORRY TO INTERRUPT, BUT THE NETWORK IS UP AND RUNNING!

ALREADY!?

HMMM...

TO BE CONTINUED...



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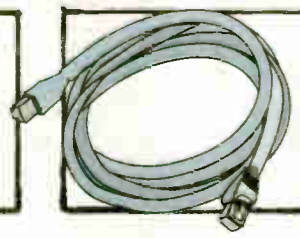

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WorldRadioHistory

Building Radio's Digital Future

by Randy J. Stine

LAS VEGAS After enduring months of advertiser apathy and Wall Street heartbreak, NAB2002 could come as a relief for radio managers.

If industry sales numbers begin to pick up, the NAB's convention in Las Vegas April 6-11 might even give them a chance to have fun while getting some work done. Meanwhile, engineers who come to the show will have a lengthy list of sessions about IBOC and facility management to pick from.

What is billed as the world's largest electronic media show will give broadcasters a look at new technology and revenue-generating opportunities through workshops, sessions, seminars, conferences and exhibitor showcases.

Public anxieties

Despite the economic slowdown and public anxieties in the wake of Sept. 11, the NAB is hoping for 117,000 to attend before the last booth closes. About 113,000 people took part NAB's showcase in 2001, with 30,000 of those from abroad.

"The good news is that we are hearing positive reports about the ad markets. First quarter is bouncing back and certainly second quarter will be even better for radio," said Dennis Wharton, NAB senior vice president of corporate communications.

Wharton described NAB2002 as a communications convention that caters to the entire electronic media marketplace. The "big tent," as NAB President and CEO Eddie Fritts calls the convention, includes streaming, broadband, satellite, wireless, radio and television.

Radio and audio exhibitors remain clustered in the North Hall. New this year is the Las Vegas Convention Center South Hall. The hall, which opened in January, will give visitors plenty of exercise while giving vendors room to spread out. The LVCC now has more than 3.2 million square feet of meeting and exhibit space.

Photo: NAB

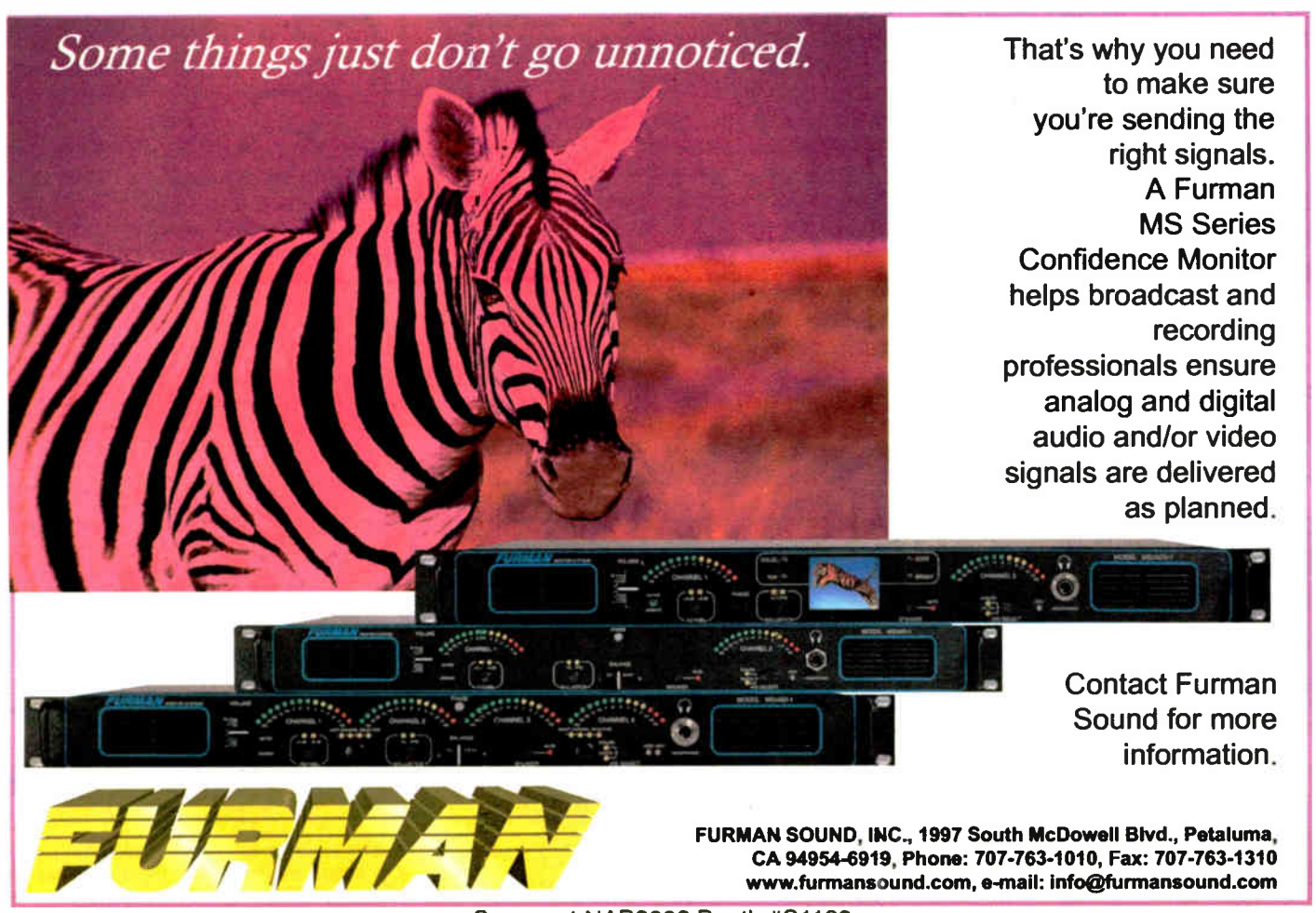
While most radio suppliers are in the North Hall, many exhibitors will be in the new South Hall across Desert Inn Road. NAB President/CEO Eddie Fritts, third from right, joined officials of Sony, Avid and the LVCC for a handshake last year when the hall was under construction.

Space stats

The new South Hall is a two-story exhibition hall and has 51 meeting rooms, a 500-seat restaurant and eight concession stands. A new lobby and meeting-room bridge spanning Desert Inn Road join the South Hall expansion to the existing facility. Expanded bus service will provide transportation from convention hotels to several spots around the LVCC, and for the first time, busses also will run from hall to hall.

Prominent among those in LVCC

See NAB2002, page 22 ▶



See us at NAB2002 Booth #S1132

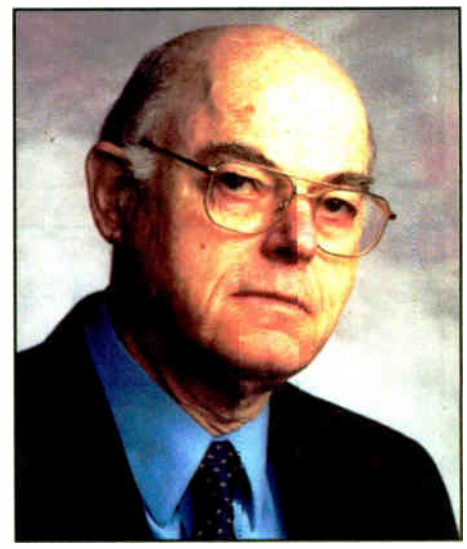
Transmission Marvel Recalled

Session at Engineering Conference to Offer a Visual History of the World Trade Center Broadcast Facility

by Susan Ashworth

Patrick Walsh knows what it was like to be on the 110th floor of the World Trade Center when the building started to shake.

Back in 1979, Walsh was the assistant on-site project manager of the World Trade Center antenna complex and had offices on that floor of the north tower when Hurricane David struck the city.



Dr. Oded Bendov

The 1,368-foot-tall building swayed and jolted under 70-mph wind gusts. Walsh made an agonizing 20-minute trip down the many flights of stairs that day when all of the North Tower's 103 elevators were shut down.

Nature's turmoil

The building withstood nature's turmoil that September afternoon, and since the 1970s faithfully served as home to hundreds of banking conglomerates, real estate offices and insurance professionals.

It also served home to a master TV and radio antenna, recognized as many as an engineering marvel.

On Sept. 11, Walsh watched his former office fall, able to envision with horrifying first-hand clarity what it must have been like for those making their way down the stairs from the top.

The city lost almost 3,000 people, including six broadcast engineers. New York also lost much of its information dissemination infrastructure when the

See KEYNOTE, page 17 ▶

World Radio History

Rave Reviews!

"Excellent Product" — Doug Walker, Clear Channel, Cincinnati

"Telos has taken two great products [the Zephyr and the Zephyr Express] and made them better. They listened to the customer." — Raul Velez KNBR, KFOG, Susquehanna Broadcasting of San Francisco

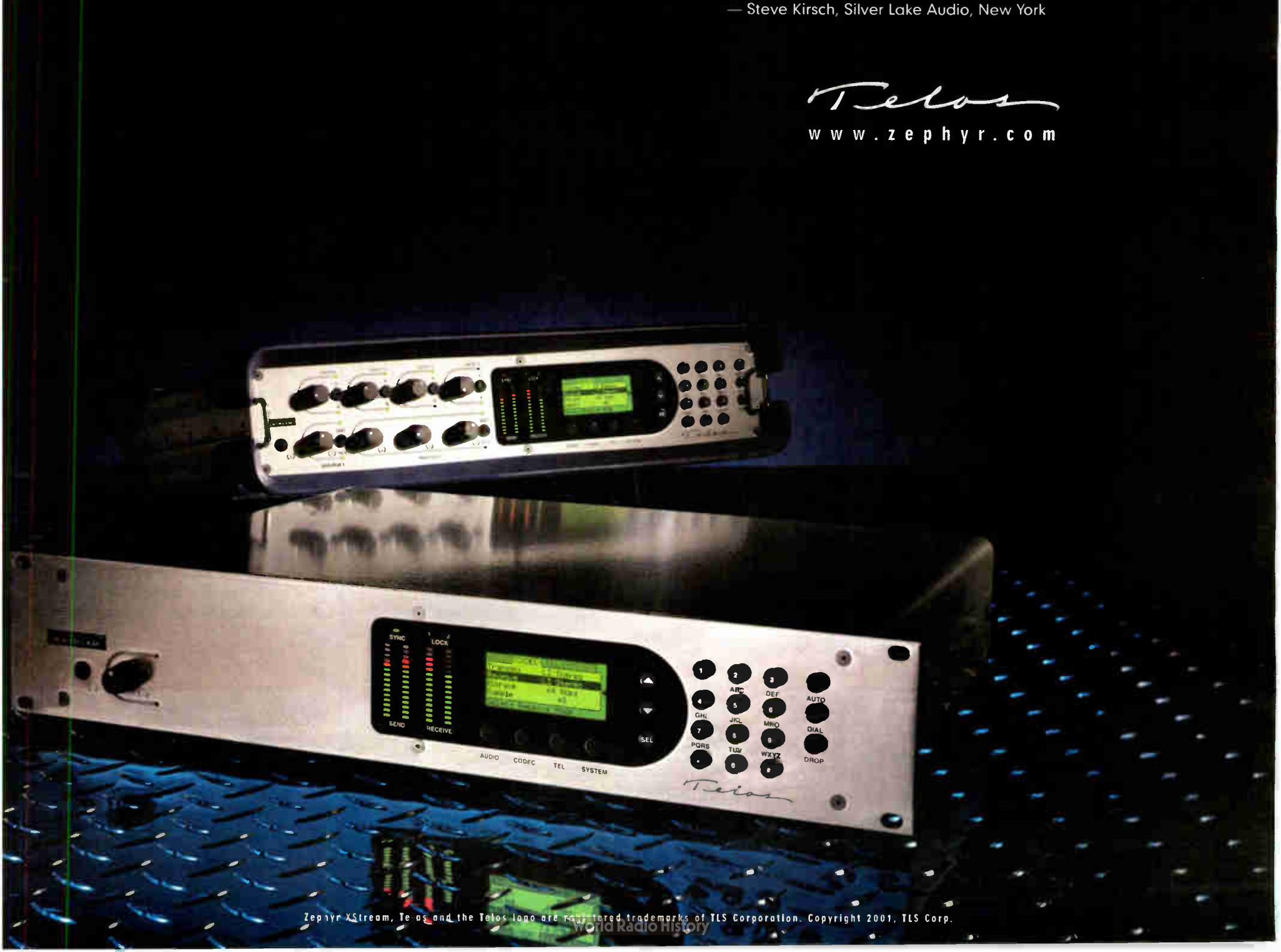
"Telos asked us what we wanted and they put it in there... you can't ask for anything more than that." — Paul Burt, Clear Channel, New Orleans

"It's even easier to use than the original Zephyr." — Michael Black, WEOS, Geneva, New York (NPR affiliate station)

"The most popular ISDN digital transceiver in the country has a fresh new look... Zephyr Xstream, a slick, updated version of [the] familiar Zephyr." — Steve Kirsch, Silver Lake Audio, New York

Telos

www.zephyr.com



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World Radio History

Digital Dreams, Zoning Realities

Engineers' Confab Also Looks at Streaming, Facility Management, Phonetic Processing

by Scott Fybush

Sure, the NAB show is a great place to go and gawk at the latest in digital gear. And of course it's an opportunity to learn from colleagues around the country. The nightlife's not bad, either.

But none of that makes a bit of difference if your station doesn't have a place to transmit from.

For an increasing number of radio operators, that will be a big concern at April's NAB convention.

"Any number of federal, state and local authorities have pre-empted the FCC's authority to regulate the spectrum by imposing regulations that broadcasters can't technically meet," said Fred Baumgartner, founder and chairman of the National Antenna Consortium.

His group was formed last year to push for a national solution to the "not in my backyard" issues that have made it almost impossible for broadcasters to erect new towers or improve existing sites, even as the DTV conversion puts new strain on already-limited vertical real estate.

Now, Baumgartner said, there's yet another obstacle to new towers.

Tower wars

"The Fish and Wildlife people have just declared towers over 200 feet are illegal because they hurt birds," he said.

It may sound like a joke, but new interpretations of federal rules are causing headaches for some tower projects.

Baumgartner is participating in a session on Monday morning, April 8, called "Regulating Antennas and Towers: The Zoning and Siting Wars." It will include a presentation on the difficulties experienced by KRKO(AM) in Everett, Wash., as it tries to build a new eight-tower array.

David Baden of Radio Free Asia will speak about the Engineering-Friendly Documentation initiative.

As Baumgartner's group builds strength, he anticipates court challenges in the next few years to overturn some of the restrictive local rules that are preventing broadcasters from constructing the facilities they need.

In the meantime, he's hoping for some action from lawmakers as well.

Legislative agenda

"What you do is, you push for a legislative agenda," he said. "You have to put together a set of guidelines that make sense. Once it's out in the field, you push to have it legislated."

Among the conference highlights is an all-day session on Tuesday, April 9, about Radio Facilities Engineering. It includes several papers on FM master antenna and combiner systems.

Once limited to a handful of big cities such as New York and Chicago, master antennas are becoming an increasingly popular solution to the shortage of tower space.

"We've done more combined master antennas lately than in the past," said Jeff Littlejohn, Clear Channel's senior vice president for engineering services and moderator of the Wednesday morning portion of the facilities sessions.

His company is involved in master antenna projects in Dallas, New Orleans, Baton Rouge and Washington, in addition to the continuing work at the Empire State Building to accommodate broadcasters displaced by the World Trade Center attack.

The echoes of Sept. 11 will resonate in other sessions at the Engineering Conference.

On Thursday morning, April 10, Troy Pennington, chief engineer of Cox Radio's cluster in Birmingham, Ala., and new president of the SBE, will lead a session on "Emergency Preparedness and Security for Broadcasters."

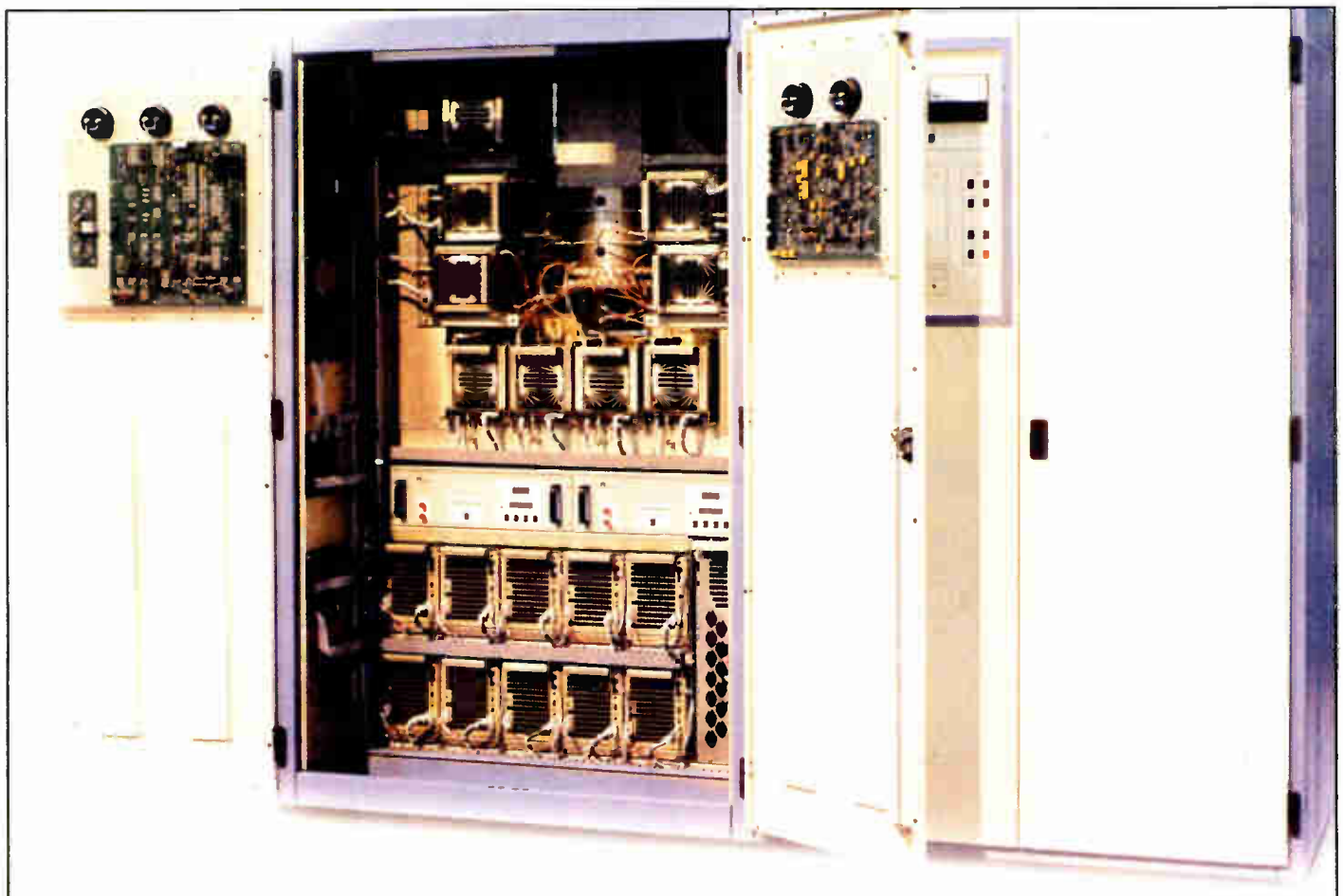
"It's an increased sense of security," Pennington said of the atmosphere after Sept. 11. "At my facility, we've always had security in place, but now even more so."

For broadcasters, he said, there are two challenges: keeping their own facilities and employees safe, while at the same time continuing to provide emergency information and communication to the public at large.

There will be opportunities to hear about the cutting edge of digital technology.

Among them: an all-day "Streaming for Broadcast Engineers" tutorial jointly

See BEC, page 24 ▶



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World Radio History

'You Don't Need Gimmicks'

Management & Law Conferences Focus on Security, Technology and Making Money in a Down Economy

by Bill Ryan

Organizers of the Radio Management Conference and the Business, Law and Regulation Conference at the NAB show hope to attract visitors with sessions on effective management, equipment updates and purchases and new FCC rules. Here are highlights of those two tracks. They are indicated as "Management" or "Law" sessions, respectively.

Every advertising copywriter's worst fear is drawing a blank. A Management session on Sunday afternoon April 7 aims to help.

"Managers train their sales people to sell ads, but they don't train them to write commercials," said Dan O'Day, a seasoned account exec. "When you have a clear message, like a man in a firefighter's suit ringing your doorbell at 3 a.m. to tell you get out, you don't need gimmicks. Your commercial should be a clear, honest message."

One reason people come to the show is to network. The broadcast job outlook certainly has not been helped in the past year by the economy and the first decline in commercial radio revenue in a decade.

"It's important for students to start networking and making career contacts early," said Patty Talahongva, a panelist at the convention career fair on Sunday.

Better than ever

"With RTNDA meeting in conjunction with the NAB convention, students and others looking for changes will have a better chance than ever."

How about federal equal opportunity laws on hiring?

Dan O'Day emphasizes the importance of a clear message in radio ads.

"After seeing its previous attempt thrown out by the courts, the FCC last December released proposed rules on this subject," said Larry Walke of NAB, who will moderate an EEO discussion as part of the Law track on Monday morning, April 8. "The panel is designed to educate broadcasters on what the future might hold in establishing quotas on hiring minorities and females."

Roy Stewart of the FCC and several EEO experts take part.

Managers may worry about being sued or discredited because of programming that some listeners feel is offensive. A Monday-afternoon Law panel will take on the legal aspects of controversial programming and what kind of risks the broadcaster faces when airing material

Patty Talahongva, vice president of the Native American Journalists Association, is a panelist at the convention career fair.

that might be libelous, invade someone's privacy or cross the line of good taste.

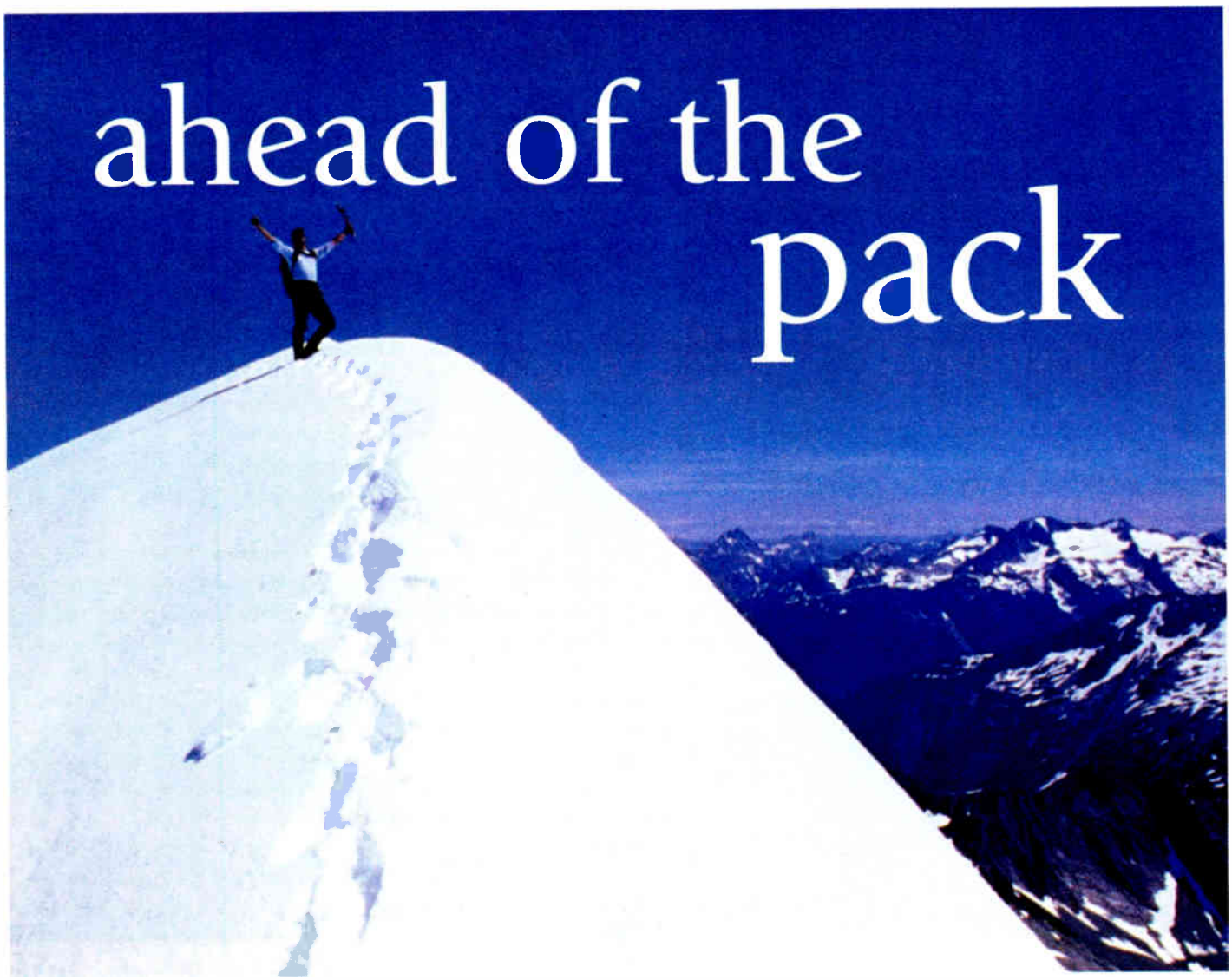
"We will discuss programming that pushes the envelope and might present local risks," said moderator Jerianne Timmerman of the NAB. "We'll show how station managers and owners can reduce the risk of being sued as a result of their programming."

Ten years ago, voice-tracking as we know it barely existed. Thanks to consolidation and new computer and phone technologies, it's hot. But can listeners tell?

The session "Cyberjocking: Sound Live Every Time, No Matter Where You Live" takes place on Monday afternoon, with tips from moderator Tom Zarecki of RCS and Buck Head, air talent with Clear Channel Communications in Los Angeles. It is part of the Management track.

See MANAGERS, page 26 ▶

ahead of the pack



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World Radio History

ERI®

The Source

A Newsletter from Electronics Research, Inc.

Spring 2002
Vol. 2 – Issue 1

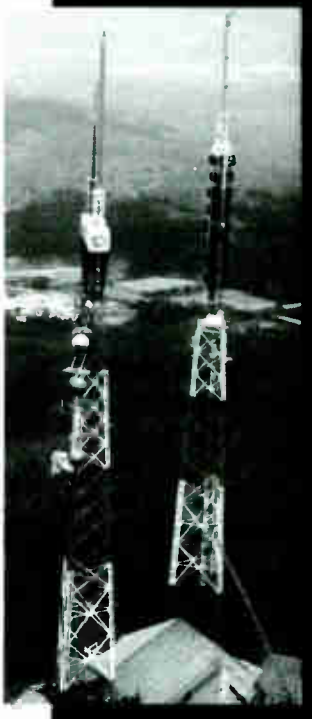
ERI Climbs to the Top of the Tall Tower Market

ERI is the recognized leader in the design and construction of quality towers and antennas. However, recent innovations have blasted ERI to the top of the exclusive, tall tower market. These innovations include the co-development of **ERI Tower,** a comprehensive software program that helps **ERI meet growing demand by effectively designing superior tower structures faster and more efficiently.** This software has been customized by ERI's engineering team with the help of consultants Dan Horn of C-Concepts and Dr. Jim Lott. With this tool, engineers at ERI can expediently design towers that meet all current standards as well as the newly proposed G-standard.

ERI Tower enabled ERI engineers to design and fabricate the 12-foot face, 1288 foot AGL candelabra tower, complete with elevator, in **Nashville, Tennessee** in 3 1/2 months. Installation time for this tower was six weeks.

Another tall tower project scheduled for a June completion is a 10-foot face, 1534 foot tall tower for **Knoxville, Tennessee.** This tower also incorporates an ERI Cogwheel antenna in the design. A third project, in **Farmville, North Carolina,** will be a strong testament to ERI's ability to set itself apart from the competition. This 10-foot face, 1170 foot tall tower is located in a wetlands area that poses several geographical challenges. That's another reason why ERI was chosen for the job. ERI's skillful **Project Management team** has earned a reputation for its ability to make potentially challenging projects proceed with efficiency and cohesiveness. **Project management and precision fabrication have made ERI a preferred supplier for major installers including Seacom Erectors, Inc. and Coast to Coast Tower Service, Inc.**

A third reason customers look to ERI is our **"single source" service,** which translates into the ability to save money. The structural team at ERI offers customers everything they need for their tall tower projects. This means the team that designs the antenna also designs the tower, thus eliminating communication errors and inefficiencies. **The complete design and fabrication process takes place at ERI,** which means savings for the customer. They, in turn, get peace of mind from knowing that they have chosen a company with the resources to get the job done right. **Innovative design methods, experienced engineers, and comprehensive problem solving techniques** are three of the many reasons ERI should be your tower supplier.



Tom Silliman on the candelabra tower, Nashville, Tennessee

INSIDE:

- *Trivia*
- *Employee Spotlight*
- *Technical Features*

ERI - Your IBOC Source, page 3

ERI®

www.ERIinc.com

World Radio History

Employee Spotlight

Ernie Jones

Ernie Jones, vice president of Engineering-Structural Division, is instrumental in keeping ERI the industry leader in tower design, structural analysis and tower reinforcing. With his experience and years of research in full-scale antenna testing, our structural engineers have the unique ability to design towers that enhance an antenna system's capabilities rather than interfere with coverage goals.

The introduction of bigger antennas in the 1980s brought the need for larger structures for pattern testing. Ernie, a mechanical engineer, assisted ERI as a consultant in the design and construction of these larger structures. Ernie's structural experience opened up new opportunities for the company. As he became more involved with structural projects, he went back to school for civil engineering with an emphasis on structural. Today he is registered in nearly twenty states as a professional engineer in both mechanical and civil engineering.

In 1990, Ernie joined ERI full-time to start the company's structural division. With his additional expertise, ERI began manufacturing a new product, the Lambda system for side mount antennas. Without special screening, a tower can significantly affect the pattern of an antenna; the tower is therefore part of the antenna system. The combination of the antenna element and the Lambda section significantly reduces the influence of the mounting structure on the antenna's performance. The result is an increased omni-directional signal without holes in the coverage area. The market embraced this new product and it became highly successful.

Manufacturing the entire system - the antenna and the tower - requires a high degree of structural precision as well as special fabrication techniques. Ernie and ERI have shared their expertise and, in collaboration with C-Concepts, Inc., developed one of the best structural design software packages on the market, ERI Tower. Designed specifically for the telecommunications industry, this program automates much of the analysis and design required to meet the TIA/EIA 222 Standard. For more information, log on to www.c-conceptsinc.com.

Regarding changes to the broadcast industry, Ernie notes, "Years ago a station would install a side mount antenna on any tower and accept whatever pattern and signal that antenna provided. Today, the conglomeration of radio stations means a better-educated buyer with higher expectations. ERI can meet these expectations."

In this competitive market, a station needs to achieve a predictable broadcast area before investing in a new system. Performance and durability are critical. ERI's uncompromising dedication to quality promises dependable delivery of its products and services.

New Appointments/Hires at ERI

Jim Thomason has joined the ERI staff as Area Sales Manager, assuming responsibility for sales of all ERI products and services in the Southeastern U.S., including Florida, Louisiana, Georgia, North Carolina, South Carolina, Mississippi and Alabama. Jim started his broadcast career while still in high school, and worked in virtually all facets of the business. In 1994, he joined Harris Broadcast, quickly advancing to Digital Product Specialist. In 1998, Jim was appointed to the position of District Sales Manager, primarily focusing on Harris transmitters and associated RF products. Jim has been active with NAB papers, as a panelist in national and regional shows and workshops, and in presentations for several SBE chapter programs on the latest technology. Jim enjoys a partnership with his customers, helping them with planning, execution and service for their facilities. He will continue to build on that tradition as he assumes similar duties for ERI products and services, particularly since towers and antennas have figured prominently in his experience.

ERI Announces Relocation of Western Region Sales Manager Max Brown

Longtime ERI employee and Western Region Sales Manager Max Brown has relocated to Colorado Springs, Colorado. Max oversees sales in all states west of the Mississippi River. In his twenty-one years with ERI, Max has had many responsibilities, including managing the installation division from 1990 to 1995. Since 1995, Max has been in the sales division at ERI and the Western Region Sales Manager for the past three years. Thanks to Max's years of experience with towers and antennas, he has obtained a thorough knowledge of ERI's superior products and the tower market as a whole. Through Max's relocation, he will provide close interaction with his Western sales team and be personally available for his customers, which allows ERI to serve its clients more effectively. Max's experience and professionalism are the embodiment of ERI's commitment to providing unmatched quality in the tower and antenna markets.

World Radio History

ERI Provides Multiple IBOC Solutions

In-Band On-Channel (IBOC) digital radio is underway in several major metropolitan areas, and ERI is a major part of it. ERI is working with broadcasting groups across the nation to assess the needs of their sites and to provide the best IBOC solution to get them operating quickly and efficiently. ERI not only provides you with the best filter and combiner products available, we also design the system that is best for your station.

The most talked about approach to IBOC implementation is the 10-dB hybrid high power combining approach. However, other methods such as low power combining for common amplification, as well as the possibility of using a separate antenna for the digital signal, also provide viable alternatives in some situations.

If you would like more information about ERI IBOC solutions or would like to receive updates of ongoing investigations, just email your request to Eric@ERIinc.com.

Attend the Broadcast Engineering Conference at NAB on the afternoon of April 8th to see ERI's Eric Wandel give a presentation on FM IBOC implementation and the dual antenna combining approach.

10-dB Hybrid High Power Combining

The high power hybrid combining method has generally specified the use of a 10-dB hybrid, meaning that the digital signal coupling to the antenna output is 10-dB down from digital input. This results in 90% of the digital power being directed to a reject load. The analog signal suffers a smaller 10% loss to the reject load and has a coupling level to the output port that is 0.46-dB down from the analog input. While this seems like a wasteful approach, it is one of the best ways known to combine two signals that are essentially at the same frequency. Isolation between input ports is achieved by cancellations due to phasing in the hybrid.

Separate Antenna Combining

On the transmitter end, isolation between transmitters is an important metric for high power combining, and the use of separate antennas provides a broadband, robust means of achieving isolation. Measurements on separate arrays comprised of ERI sidemount Rototiller® antennas show isolation in excess of 40 dB with less than two wavelengths of separation between the closest elements of the arrays. ERI Panel Antennas can also provide excellent isolation between separate arrays - one installed site was measured at 50 dB of isolation across the FM band with only 10 feet between the closest elements of the two arrays.

So the isolation is solved (and without the 10-dB loss!), but now the antenna coverage patterns may be different due to the difference in elevation. We have been able to show that the variation in signal strength due to separate antennas can be made negligible for a number of antenna arrays and mounting configurations. One obvious problem could occur in the case of antenna array nulls that fall at different locations on the ground. Theoretically, the analog-to-digital ratio could become infinite at these nulls. While this would probably not be the practical result, using properly designed vertical plane patterns with null fill can mitigate the possibility.

At the time of this printing, ERI is in the process of preparing field tests using separate antennas that will provide data to support the feasibility of the separate antenna method.

Mask Filters

Transmitter linearity is a challenge with limitations due to out-of-band emissions created by the transmitter. ERI's optimized filter configurations provide excellent suppression of out-of-band emissions, while maintaining superior amplitude and group delay characteristics in the pass band. Mask filters for IBOC implementation are commonly used for the digital transmitter in separate amplification high power combining. They may also be necessary in many cases for low power combining with common amplification.

ERI Mask Filters accomplish the task for either configuration.

Contact us:

ERI
Phone: (812) 925-6000
Fax: (812) 925-4030
info@ERIinc.com
www.ERIinc.com

Sales

Western U.S.
Max Brown 719-593-7188
max@ERIinc.com

Eastern U.S.
Terry Becht ..... ext. 208
terry@ERIinc.com

Southeast U.S.
Jim Thomason 352-873-8111
jthomason@ERIinc.com

Northeast U.S.
Dan Rau 978-425-2470
danrau@ERIinc.com

CA, NV, OR, WA, AK, HI
Al Jason 530-676-0766
aljason@ERIinc.com

Sales Assistant
Diana Combs ..... ext. 281
dcombs@ERIinc.com

Customer Service

V.P. Customer Service
Bill Elmer ..... ext. 225
bill@ERIinc.com

Technical Support
Kenn Martin ..... ext. 224
kenn@ERIinc.com

Customer Service Assistant
Jackie Kinney ..... ext. 267
jackie@ERIinc.com

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Please send any address corrections or other newsletter - related comments to TheSource@ERIinc.com or mail comments to the attention of "The Source" at the address shown below.

ELECTRONICS RESEARCH, INC.
7777 Gardner Road
Chandler, Indiana 47610
USA
(812) 925-6000
(812) 925-4030 (fax)
www.ERIinc.com

ERI Antenna Broadcasts HDTV in NYC

"I can't thank you enough...for giving WNYE the opportunity to demonstrate the power of Digital Television in so many ways," writes Mike McMackin, Chief Engineer of WNYE-TV in New York City, the largest market in the country.

An ERI-built DTV antenna was provided to WNYE-TV for their use in DTV testing. The antenna became operational in February 2001. We're particularly proud of the benefits to New York City's Public Schools.

"Since February 2001, WNYE has achieved several milestones, all under the umbrella of an experimental educational DTV service, which was facilitated in part by the generous support of ERI. We've delivered the first 24-hour all High Definition broadcast channel in New York City...and are developing at least three separate projects to deliver high-bandwidth educational data and on-demand video to the students, parents and teachers.

DTV, though, holds tremendous promise in many areas. "Equally importantly, WNYE was instrumental in the successful demonstration of a next-generation Digital Emergency Broadcast System using the ERI-supplied DTV antenna. This project was coordinated under the auspices of the US Department of Defense in response to the attack on the World Trade Center in New York. The project was a highly successful proof-of-concept, and further government testing is planned."

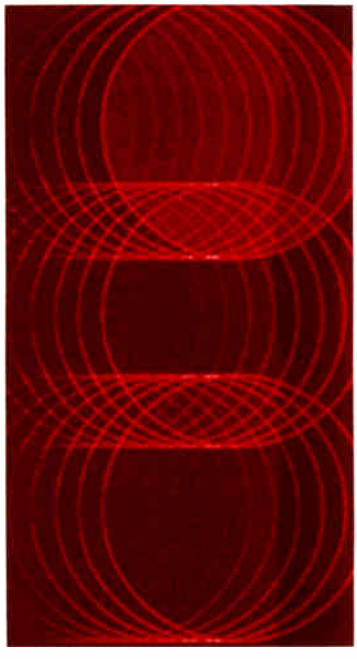
Broadcast Trivia Challenge

In this edition of "The Source," we have an easy one for you! What is the significance of the January 1939 edition of Electronics magazine to the field of RF engineering? *Hint: An article in this edition was authored by a descendant of Eli Whitney, the inventor of the cotton gin.*

Be one of the first to respond with the correct answer and win a t-shirt! For a bonus prize, bring a copy of the January 1939 edition to our booth at NAB! Send contest email to trivia@ERIinc.com.

Please include shirt size (L, XL, XXL) and a mailing address.

For answers to the last Trivia Challenge and a list of winners, go to ERIinc.com.



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World Radio History

Keynote

▶ Continued from page 12

master antenna on the roof of the North Tower, which was shared by four radio stations and 14 NTSC and DTV television stations, was destroyed.

A behemoth, the master antenna was on one of the world's tallest buildings. For those who participated in building the antenna, it remained an engineering feat worthy of awe and marvel.

As project manager of the WTC antenna installation, Walsh was one of those who knew what toil and struggles were involved in building and installing the WTC antenna. Dr. Oded Bendov was another.

New York lost much of its broadcasting infrastructure when the master antenna system on the World Trade Center was destroyed.

One of the original designers of the WTC facility, Bendov served as principal engineer for the analysis and design of antenna installations on the World Trade Center and now is senior vice president and chief scientist for Dielectric Communications.

Both will be speaking in Las Vegas at the NAB Broadcast Engineering Conference opening session, on Sunday morning April 7.

They will be joined by Dr. William F. Baker, president of Thirteen/WNET in New York, and Lynn Claudy, NAB Science & Technology senior vice president, to share a visual history of the design and installation of the World Trade Center antenna system.

The keynote presentation is dedicated to the memory of the six broadcast employees lost on Sept. 11. All were station engineers or technicians working at television station technical sites at or near the 110th floor of the North Tower. Local radio stations with transmitting facilities at the World Trade Center were operated from remote locations.

As one of the structure's original designers, Bendov will discuss how the system was conceived and designed.

"It was a massive structure, 360 feet high and nearly 400 tons, and was a tremendous structural challenge," he said.

30-ton sections

Some of the unique issues involved with installing the antenna included handling the unique interference issues caused by a stacked antenna and carefully guiding sections of the master antenna, some which weighted more than 30 tons, up 110 stories, said Walsh, a partner with Global Teledata, which provides testing services to cable television systems.

How heavily did the loss of these towers affect radio and TV in New York?

"It was a devastating loss," said Baker. "New York television is a $1.5 billion a year industry, though the actual dollars lost as a direct result of the incident are probably impossible to calculate.

"But, in terms of the quality of life of the people of the New York metropolitan area, the disaster sent shock waves through the community, and those tremors have yet to subside."

Interim facilities for some radio and TV antennas are in place, and plans for a permanent New York transmission facility for television broadcasters are underway, led by the Metropolitan Television Association. The four radio stations on the World Trade Center have resumed, or applied to resume, full-power operations from the Empire State Building.

As chairman of the MTVA, Baker will update attendees on the progress and challenges of replacing the World Trade Center broadcast facilities.

Four FM stations — WKTU, WNYC, WPAT and WKCR — were affected, and are still searching for new main transmission sites. The radio stations have operated on low power from auxiliary locations after emergency installations, with the exception of WKTU, which switched to its full-power backup on the Condé Nast building at 4 Times Square.

The unprecedented darkening of the airwaves continues to affect millions who depend on radio and over-the-air television transmissions.

For example, before Sept. 11, said Baker, television station WNET/Thirteen reached a population of more than 18 million people in New York, New Jersey and Connecticut over the air and through carriage on cable systems in the region.

While those with cable were unaffected by the disaster, Thirteen estimates that approximately 38 percent of its viewers lost access to the station on Sept. 11. Thirteen began broadcasting from the Empire State Building and estimates that the loss of over-the-air viewers, which originally numbered close to 3 million, now is around 600,000.

Thirteen lost three full-power transmission facilities — two analog and one digital — bringing the signal down and leaving the station unable to provide any kind of service over the air.

As head of the coalition working to restore radio and TV to the New York area, Baker hopes stations will be ready for the unprecedented cooperation and ingenuity necessary to bring competitive stations together for a mutually agreeable solution.

One thing is for certain, said Douglas Land, the MTVA's executive director.

"We'll never again find ourselves in the same position of not having redundancy" in the form of a backup location for both radio and TV, he said.

NAB Gets In-Depth With DAB Technology

by Leslie Stimson

Ibiquity Digital Corp. wants to roll out in-band, on-channel digital audio broadcasting technology later this year in six markets and it plans a major transmission equipment push at NAB2002.

Numerous papers and sessions in the Broadcast Engineering Conference cover conversion specifics, from the intricacies of the AM and FM IBOC waveforms, to methods for combining the analog and digital signals and the nuts and bolts of facility conversion for AM and FM with cost estimates.

Photo by John Casey

Ibiquity hopes this is the year its IBOC systems become reality. Several engineering sessions focus on how stations will be affected.

"It works, it's ready," is what NAB told the FCC in February about Ibiquity's FM system. NAB and many station groups radio must start its terrestrial digital conversion now, to enable free radio to compete on with new subscription satellite digital radio services.

IBOC endorsement

Ibiquity hopes the FCC will issue an endorsement for IBOC this summer and craft final rules by the end of the year, and NAB and some owners have urged the commission to do just that. NAB has encouraged the FCC to adopt an IBOC standard, to avoid what it described as the "folly" that occurred in the AM stereo process.

At this show, Broadcast Electronics, Harris and Nautel are showing IBOC-compatible transmitters on the floor. These companies have licensing deals with Ibiquity for their transmitters and exciters. Other manufacturers also offer IBOC-oriented gear, and soon, Ibiquity says, it will strike licensing deals for other equipment such as STLs, filters and combiners.

Kicking off the IBOC sessions is a series of presentations under the title, "Domestic DAB Developments," on Sunday morning April 7. Milford Smith, vice president of engineering for Greater Media, moderates. He is chairman of the DAB

See IBOC, page 19 ▶

World Radio History

FIRST PERSON

Hoofing It at the Expanded LVCC

by Craig Johnston

Going to NAB? Remember this: P.P.P.P.P.P. — Prior Planning Prevents Poor Performance.

I know there are six Ps and only five words that start with P, but this *is* a family-friendly newspaper.

"But I always do my planning for the conference," you protest. "What could possibly be different?"

Your humble servant has done some legwork for you, literally. In mid-January, I took a walk through the new facilities at the Las Vegas Convention Center, and I'm here to report to you that you're in for a surprise at NAB next month. Follow along.

To help you orient yourself, imagine you've gotten off the bus from your hotel and are going in the front door of the LVCC. If you were to look to your left, you would see the Las Vegas Hilton. But turn to your right instead. That's where the surprise lies.

Now walk into the LVCC and head for the huge exhibition hall to your right, the one that used to be named "S" for South. If you walked from the upper end of that giant hall — where Harris and Philips were last year — all the way to the far end, you would have walked a little less than a quarter mile.

This next part may panic you a bit, but if you read to the end, I think I can calm your nerves.

Instead of walking to the other end of that huge hall, turn right, away from the Hilton, and walk out a door in the front corner. Just outside, you'll see an entrance door, which leads into an enclosed concourse.

That concourse takes you across Desert Inn Road, a little less than a quarter mile directly away from the Hilton.

It includes a ride up a long escalator or a trip via stairs or elevator. There, you'll discover a new huge hall, running the same direction as the old huge hall.

This new "S" (for South) hall is even longer than the old hall, now named "C," with which you are probably familiar. And oh yeah, almost forgot: it's got an upstairs *and* a downstairs.

The hallway you walked is the only way to get between the "C" and "S" halls on foot, unless you want to walk along the sidewalk where the busses pull up. That won't save you any time.

Know your alphabet

Fortunately for radio attendees, the "N" or North Hall, where many radio exhibitors reside, has not changed.

Busses from the hotels will stop at both the entrances to halls "C" and "N," and at the new "S" hall. Those busses will stop first at the Sands, as they have in the past.

Bus service will be available between the two LVCC entrances, and NAB has put in an LVCC loop bus route that will stop at designated points around the LVCC complex.

Now let's talk about planning. For NABs in the past, I've always separated my days at the Sands from my days at the LVCC. But once I was inside the LVCC, I knew I could get from any location to my next appointment in five minutes if I hustled and didn't stop to talk with anybody. I might leave a trail of destruction in my path like a rogue bowling ball, but I could make it anywhere in five minutes.

Guess what? If you're at the extreme far end of the "C" hall and you have to get to the extreme far end of the new "S" hall, you're talking about close to three-quarters of a mile. Five minutes isn't going to cut it.

And I wasn't even trying to deal with the North Hall, where radio/audio companies are clustered

I don't know about you, but I'm going to have to plan a little more carefully than I have in the past.

Fortunately, NAB's got some tools on its Web site to help both of us do that.

Read the map

"We're using a new mapping system this year," NAB's Web guru Pete Ratkevich told me.

"ExpoCAD's VR2 module, the Internet component of our internal exhibitor management system, allows us to keep the floor plan completely up-to-date, and it has so far proved to be a much faster download than previous online floor plans."

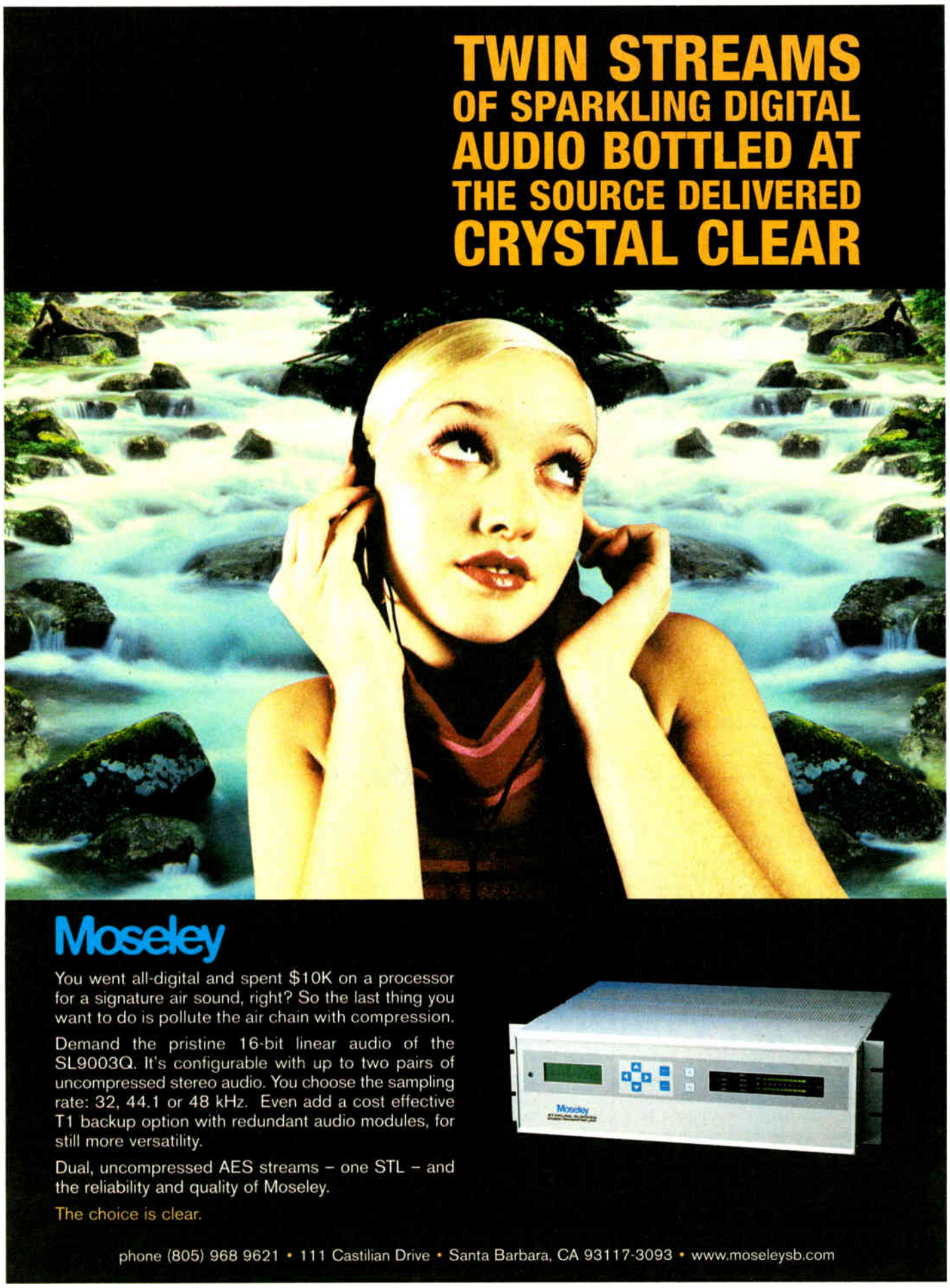
It's been my experience that the printed exhibit floor maps provided at the show have just too much detail in too small a typeface to help you navigate easily. Instead, I'd go online to NAB's site before leaving home, call up the maps they provide, locate exhibitors of interest and print out the customized map.

How do you find the right exhibitors? Not to worry, said Ratkevich.

"We will have a number of new search vehicles for our exhibitor listings, by far the most popular part of the site," he said.

"In addition to name and business category searches, visitors will be able to search by geographic location (state and country), international business interest (export status, global marketing regions), as well as an open text search on all

See HOOFING IT, page 26 ▶



See us at NAB2002 Booth #L2505

World Radio History

IBOC

▶ Continued from page 17

Subcommittee of the standards-setting National Radio Systems Committee.

Attendees will learn more about Ibiquity's field test platforms. Denny & Associates Senior Engineer Alan Rosner will showcase an evaluation of the first-adjacent-channel compatibility of future hybrid IBOC FM stations with existing analog stations.

The NRSC is hoping to complete its review of the Ibiquity AM system and issue a report by its meeting on April 6.

Detailed review

David Layer, director of advanced engineering for NAB science and technology, plans to detail the NRSC's review of Ibiquity's lab and field test and explain how the NRSC arrived at certain conclusions.

Texas Instruments Digital Radio Marketing Manager John Gardner will address the question of an IBOC standard. Many broadcasters argue that a standard would be a clear roadmap to address cost and power issues, which also would enable the broadcast of a variety of data.

Impluse Radio is working with Ibiquity on an open data protocol. Impulse' David Maxson and Paul Signorelli plan to discuss the protocol and opportunities the data capabilities of IBOC will present to broadcasters.

On Sunday afternoon, Smith moderates a two-hour session on "Worldwide DAB Developments," including a progress report on the Digital Radio Mondiale system, a report on Japanese BSS system development, a discussion of 3G networks and DAB on the Isle of Man, and a look at implementing a DAB contribution network using IP.

IBOC information becomes more facility-specific on Monday April 8.

In the Monday afternoon session "IBOC Implementation," presenters will offer a package of information detailing what an engineer should know about plant conversion for both AM and FM systems.

Many of the sessions and papers focus on AM now that Ibiquity has completed its AM tests and sessions.

NAB Science and Technology Vice President John Marino said many older AMs with directional antenna arrays designed and built in the 1940s or '50s have limited bandwidth. For these stations, transmitting an IBOC signal will be a challenge because the AM IBOC waveform takes more bandwidth than some AM directionals are able to transmit.

"AM is a little more difficult (than FM). When you talk about doing upgrades to AM directionals, it gets expensive," said Marino.

Conversion costs for single-tower AM systems would likely be lower than for stations using directional arrays.

Ibiquity has estimated conversion costs for AM at between $27,000 and $187,000, depending on the age of the equipment.

How to get more impedance bandwidth out of an AM antenna system will be addressed by W. C. Alexander, director of engineering for Crawford Broadcasting and a Radio World contributor. G. Michael Patton, owner of Michael Patton and Associates, plans to discuss why AMs with narrow bandwidth will need to implement corrections in order to achieve the data rates for AM IBOC that Ibiquity has proposed.

Ibiquity engineer Steven Johnson will detail characteristics of Ibiquity's AM IBOC waveform.

Benefits of broadband

Bobby Cox, staff engineer at Kintronic Labs, plans to show case studies for both Ibiquity and Digital Radio Mondiale's digital AM system to demonstrate the benefits of broadband design including moment method modeling, advanced circuit design tools, multiplexing considerations, and system tuning.

Engineers Glen Clark and Scott Metker of Glen Clark & Associates plan to highlight an overview of AM IBOC installation.

While converting an FM plant may be easier than AM, costs vary depending on equipment age. Ibiquity has estimated FM conversion costs at between $68,000 to $118,000 using low-level combining and $94,000 to $215,000 with high-level combining.

One of the main challenges of combining the analog and digital signals for transmission is to maintain isolation to prevent spurious emissions. Eric Wandel, director of product development for Electronics Research Inc., will showcase a dual antenna approach to combining the analog and digital signals from a common site, covering typical issues such as coverage replication and isolation.

For those interested in FM plant conversion, Ibiquity engineer Paul Peyla will give details of the structure of the FM waveform. Simon Factor, sales manager for Audio Processing Technology, plans to cover the potential effects of audio coding on the signal and the listener, and highlight methods for maintaining the integrity of audio program material through the IBOC broadcast transmission chain.

Ibiquity Broadcast Technology Manager Jeff Detweiler will define equipment requirements and guidelines for cost-effective conversions.

"It's a top-level view of both AM and FM. We'll go through elements of the air chain from the studio to the antenna and discuss the subsystems of a station, the studio system, the STL, transmitter site and antenna," he said.

Andy Laird, vice president for radio engineering at Journal Broadcast Group, will moderate the Monday sessions. Laird is a key participant in the NRSC.

All of the above events are part of the Broadcast Engineering Conference.

The Radio Management Conference session "Going Digital" is set for Tuesday morning April 9. It's a chance for attendees to ask practical station IBOC implementation questions of Ibiquity President and Chief Executive Officer Robert Struble, NRSC Chairman Charles Morgan and Clear Channel Worldwide Senior Vice President/Capital Management Bill Suffa. Radio World Editor Paul McLane is slated to moderate.

World Radio History

News People Take Part This Year

by Peter King

RTNDA@NAB could be a news/talk manager's dream, a chance for the management and engineering team to network and check out new equipment together, rather than scattering to separate conventions at different times of the year.

Not everyone will be able to benefit. One major market news manager, for instance, who asked that his name and station not be used, said that with the soft economy, budgets are tight and he won't be able to attend RTNDA for the first time in years.

He says the story is similar for many other news managers, in all market sizes.

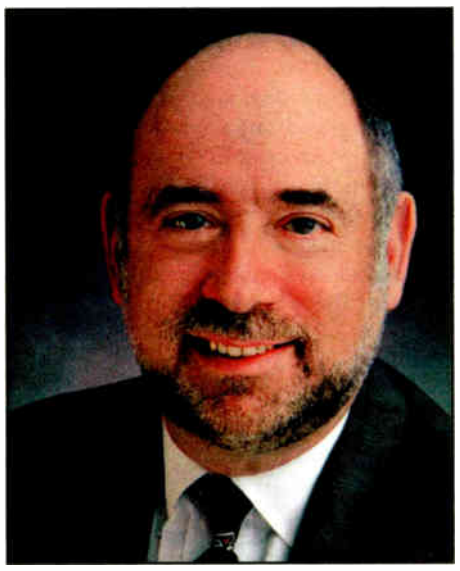
Short lead time

Will the numbers be down from past RTNDAs? A month and a half before the event, the association's chairman, Dave Busiek, said, "It's a little hard to predict attendance right now. We had a short time to market the convention because the decision to partner with NAB was only made in January."

Busiek commended the convention planning committee for its work in assembling sessions, marketing and promotion in the short time allotted them.

He hopes the joint convention will be an easier "sell" for news people to be allowed to attend.

"The NAB attracts terrific speakers, exhibitors and puts on great programs. RTNDA members will have access to all of those," Busiek said.



CBS News Radio Vice President Harvey Nagler

In addition, he said, the timing of the convention is better for managers making decisions on new equipment.

"Companies usually have next year's capital budget in place by the time we've traditionally held RTNDA in September." He expects general managers, news directors and engineers to spend time on the various exhibit floors together.

For news managers, the confab will retain its distinct identity. As a bonus, RTNDA attendees will be able to attend NAB sessions.

Busiek said RTNDA sessions will be at the Las Vegas Hilton, convenient to those shuttling back and forth to NAB at the adjacent Las Vegas Convention Center.

CNN Radio Vice President Robert Garcia

As in past years, many sessions will be devoted to radio, some dealing with how news has changed since Sept. 11.

RTNDA and NAB will combine for a Super Session on "The State of Local News" on the afternoon of Tuesday April 9.

RTNDA Chairman-Elect Bob Salsberg

ics and ratings trends, technology and a host of other issues.

A perennially popular session is "Radio: Small Staff, Big Sound." Salsberg said most news directors are on tight budgets with limited resources.

The session, on Monday morning, will focus on how to better use resources, like state and national networks and television partnerships, to sound bigger than you really are.

At least one panel participant has had perennial success in this area. Ed Perry is president and GM of WATD(FM), Marshfield, Mass.; his station has won six Edward R. Murrow Awards in the small-market category.

Wednesday morning brings back a yearly favorite for radio managers, "Promos That Grab Your Audience and Bring 'em Back for More." The session highlights ways to sell and promote your product, featuring some of the best station promos, which are entertaining and can spark debate.

A highlight of the RTNDA event is a 'summit' of radio news managers.

Panelists will discuss the new financial, competitive and journalistic pressures on management, producers and reporters alike for radio and TV.

News Radio Summit

RTNDA Chairman-elect Bob Salsberg said a "News Radio Summit" on Tuesday morning will be "can't-miss" for radio attendees.

ABC Radio Vice President for News Chris Berry will moderate the session. Joining him will be several of the industry's heavy hitters: CBS News Radio Vice President Harvey Nagler, CNN Radio Vice President Robert Garcia and WTOP Washington News Vice President Jim Farley.

Salsberg said the session will be "a unique, perhaps unprecedented event focusing on the future of news-intensive radio formats, with an emphasis on all-news and news-talk formats."

Up for discussion will be demographics and ratings trends, technology and a host of other issues.

Attendees from a past session still talk about sparks flying after promos from competing stations "dissing" each other were played by their respective representatives.

Managing Editor Bill Roswell of KYW(AM) Philadelphia is producing the promo session and at press time was still seeking contributions.

Also on the docket are sessions about how to make campaign coverage stand out, covering hoaxes, news vs. sales issues, journalism education, weather, staff coaching and developing a crisis plan.

And at the show, RTNDA will hold its Paul White Award Reception and Dinner. The award is named after the pioneer who became CBS's first news director; it is presented to honor lifetime achievement in broadcast journalism.

This year's recipient is "NBC Nightly News" anchor and managing editor Tom Brokaw.

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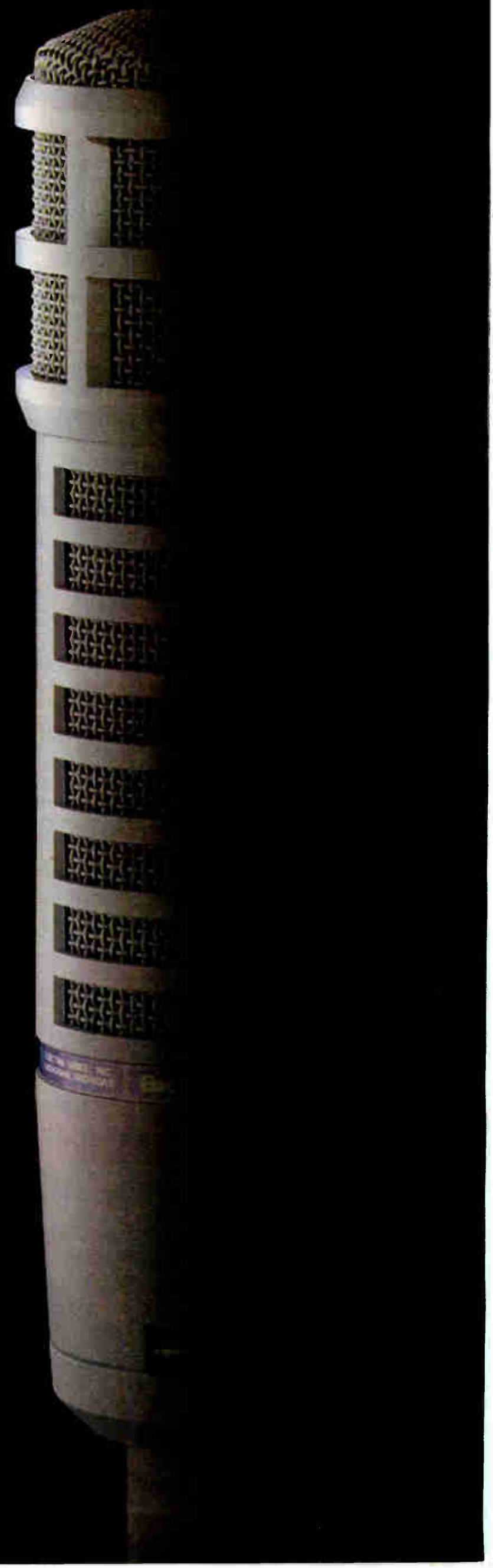

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World Radio History

NAB2002

▶ Continued from page 12

South will be Sony, Panasonic and Microsoft. A total of 1,400 exhibitors will occupy about 950,000 square feet of exhibit space. Exhibits will be open April 8-11, with the new hall opening early, on Sunday afternoon.

Digital news and facility management are of interest to engineers this year.

"Anything that will make our jobs easier and make our stations sound better will catch our attention," said Gary Kline, corporate director of engineering at Cumulus Broadcasting Inc.

"IBOC DAB and digital equipment will be of interest. All of our planned studio projects this year are mostly digital facilities."

Mike Starling, vice president of engineering at National Public Radio, said integrated digital control surfaces with the full measure of audio resources a fingertip away will be among the items on his shopping list.

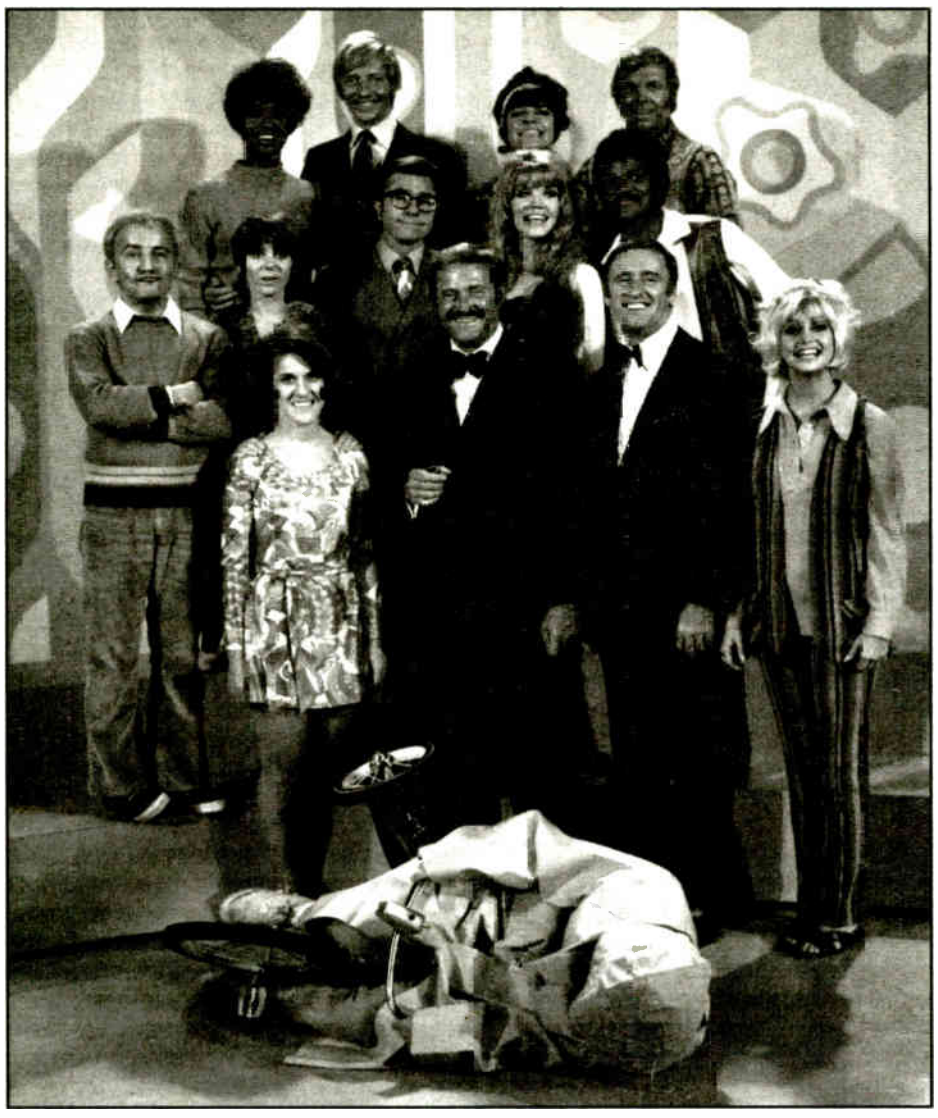
"Finding an ingenious innovation tucked away into a nook of one of the exhibit halls is always fun," Starling said.

Powell and Schafer

Among the notable events at the show, the FCC Chairman's Breakfast is slated for the morning of Tuesday April 9 at the Las Vegas Hilton. Michael Powell will join ABC newsman Sam Donaldson to discuss key radio and TV issues and reflect upon his first year at the FCC helm.

If you are seeking more regulatory news, FCC commissioners will gather for a regulatory face-off later that same day. Ownership, equal opportunity and digital radio and television will be among the topics.

The Radio Luncheon will honor those who strived for outstanding results on the air and in their communities, also on Tuesday April 9, at the Las Vegas Hilton Barron Room. DDB Worldwide Communications Group Inc. Chairman Keith Reinhard is the featured speaker.



'Laugh In' brought a new irreverency to broadcast comedy; its impact lingers today on TV and on radio morning shows. The program will be honored at the NAB show.

NAB will present its Radio Engineering Achievement Award to automation innovator Paul C. Schafer at the Technology Luncheon on Wednesday, April 10.

With the rollout of digital in-band, on-channel radio possibly later this year, Ibiquity Digital Corp. will have a substantial presence.

"This is now ready for prime time. We're right on the cusp of this digital radio revolution. That's good timing for us as pay radio service tries to live up to some of its hype. It's going to be a big year for digital radio," Wharton said.

While neither Sirius Satellite Radio nor XM Satellite Radio will be exhibiting at NAB2002, the topic of satellite radio service will not be ignored, Wharton said.

"We will have several panels looking at ways terrestrial radio can react to the new competition."

IBOC DAB will be a huge topic for stations, and the Broadcasting Engineering Conference has several papers and sessions, detailed on page 17. They include a Sunday-morning session moderated by Milford Smith, vice president of engineering at Greater Media Inc., who also chairs the National Radio Systems Committee DAB Subcommittee. Attendees can learn what Ibiquity Digital Corp. has to offer broadcasters and what implementation questions it raises.

"For the first time, at least three transmitter manufacturers will have real hardware on the floor, with promises of delivery during calendar 2002," Smith said. The three companies are Broadcast Electronics, Nautel Maine and Harris.

The Broadcast Engineering Conference Opening on Sunday will examine what the loss of the master antenna on the World Trade Center means to New York-area broadcasters. Lynn Claudy, NAB senior vice president for science and technology, will moderate.

"The World Trade Center master antenna was really one of the broadcast engineering marvels of all time," he said.

The Radio-Television News Directors Association will host its annual conference here on April 8-10. RTNDA@NAB replaces last fall's convention in Nashville, Tenn., which was canceled following the terrorist attacks. NAB officials estimate that 5,000 people will attend the RTNDA conference.

Technologies specifically geared toward radio and television news directors will be on display in the Las Vegas Hilton Pavilion. Events at RTNDA@NAB include the Paul White Award and Reception Dinner on Monday April 8. Tom Brokaw, anchor and managing editor of NBC Nightly News, is the recipient.

Streaming and Leno

The NAB Super Session "XStream Expectations — Opportunities and Challenges for Streaming Media" looks at ways to muster additional streaming media revenue at a time of more bust than boom for many broadcasters. That happens in the Venetian on Wednesday afternoon April 10.

Another new Super Sessions of note is "Creating Content for Anyone, Anywhere, and On Any Device" on Tuesday afternoon April 9. It promises insights about technologies for delivering streaming media content in the new world of network publishing for wireless mobile devices.

"Tonight Show" host Jay Leno will make a live appearance exclusively for attendees on Sunday night April 7.

Other notable events at the show include the Radio Opening Reception on Sunday afternoon; the All-Industry Keynote Address on Monday morning by Richard Parsons, AOL Time Warner's co-chief operating officer; the New Media Keynote on Monday afternoon by Marc Andreesen, co-founder and chairman of Loudcloud and past Netscape innovator; and the Amateur Radio Operators Reception on Wednesday evening.

Philip Langsdale, chief executive officer of BBC Technology, will keynote "The Financial Outlook for the Technology and Media Industries" Super Session on Wednesday April 10.

Fans of 1960s television may wish to attend the All-Industry Television Luncheon on Monday when "Rowan & Martin's Laugh-In" is honored with the NAB Broadcasting Hall of Fame Award.

See NAB2002, page 23 ▶

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World Radio History

NAB2002

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Participating will be creator and producer George Schlatter and comedians including Dick Martin, Gary Owens, Henry Gibson, Arte Johnson, Ruth Buzzi, Jo Ann Worley and Alan Sues.

Attendance at this year's convention could be affected by the economic climate, although the NAB Web site projects 117,000 this year in its prospectus material for exhibitors.

Wharton said NAB never predicts what exact attendance will be.

"I think attendance at most conventions of any sort has been down. I know attendance at the Consumer Electronics Show in January in Las Vegas was down 20,000 from a year ago," Wharton said. "I'd be surprised if attendance at our show was up, even with the help of the RTNDA. We are realists."

Smaller turnout?

Even before the recession, some exhibitors reported in recent years that the number of engineering buyers at the show has declined thanks to consolidation. Sources at some major groups say that will be the case this year; off the record, some said they expect a smaller turnout because of the recession.

At industry giant Clear Channel Communications, Jeff Littlejohn, senior vice president for engineering services and a session moderator, said his company expects to send 20 to 30 engineers, compared to 75 to 100 last year.

At Infinity, another leading radio group, it is harder now for engineers and managers to attend. Employees reportedly were not allowed to participate officially or serve on NAB committees after the company pulled out of NAB membership last year.

Wharton said the pullout by CBS Television and Infinity did not have a major impact on show attendance in 2001.

"The place you go to kick the tires is the NAB show. I think many of their engineers and managers still attended and will be back this year," Wharton said.

The decision by parent company Viacom Inc. to withdraw its two subsidiaries from the trade group centered around a dispute over Viacom's opposition to a federal cap that prevents it from owning stations that reach more than 35 percent of U.S. households. NAB supports the cap.

According to NAB, 26 percent of the show's attendees are owners or corporate managers. About 15 percent are general managers and another 15 percent are engineers.

Divided by media, 36 percent of attendees consider their primary business to be in television, 14 percent in radio. That would translate to about 16,000 radio attendees at last year's spring show.

Wharton declined to say how much money the annual convention generates. "Safe to say it is a huge money generator that helps us keep dues down," he said.

Sometimes the cost of doing business at the NAB show proves to be too much for small broadcast equipment manufacturers, so some seek alternative venues in Las Vegas during the show.

Officials with WireReady NSI said the studio automation software company will lease a conference room at the Las Vegas Embassy Suites.

"So many large corporations are involved now that the smaller ones get pushed further out of the mainstream exhibit areas," said Jeff Loneberger, director of marketing and sales for WireReady. "A small company can't get into the LVCC anymore."

Loneberger said WireReady would have been forced to exhibit in the less-desirable Sands Expo Center.

"Sony can afford to spend a half-million dollars for exhibit space and a huge display. We can't afford to do that and hope to survive," Loneberger said.

Because of recent budget cuts at some of the major broadcast groups, more radio professionals are looking for employment. The Radio and Television Career Fair could prove valuable. Slated for Sunday afternoon April 7, the career fair presents networking opportunities and a chance to meet with recruiters.

Many industry organizations, whether business or social, use the NAB show as an excuse to gather. One such is an annual lunch gathering held by Barry Mishkind. Originally organized to bring broadcasters together to discuss common problems, especially involving computers, it has become a popular meeting place and includes door prizes from various industry suppliers.

This is the 10th annual meeting, and will be held Tuesday at noon at the Buffet Restaurant in the Riviera Hotel across from the LVCC.

The effects of Sept. 11 will mean added security at NAB2002, though Wharton does not expect the extra precautions to slow attendees down much.

"We are beefing up security a bit. I don't think it will be stifling in any way. Everyone is more security-conscious. We want to move people quickly and safely to ensure it's a safe show."

NAB's Web site at *www.nab.org/conventions* has information on seminars and conferences, and allows online registration.

Cost for the conference registration package for a NAB member is $495 prior to April 3. If you wait to register in Las Vegas, it will cost $595. Fees for nonmembers are substantially higher. You can cruise the exhibits only for a mere $150. Many exhibitors offer free floor passes to their better customers.

Most hotels are offering special packages for NAB attendees. If you stay at an official NAB2002 hotel you can skip the car rental and enjoy complimentary shuttle bus service to the LVCC and Sands Expo.

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World Radio History

BEC

▶ Continued from page 14

presented by Institute of Electrical and Electronics Engineers and the NAB on Saturday, April 6.

"This is the second time we've done a streaming tutorial," said David Layer, director of the NAB's advanced engineering science and technology department.

The first tutorial, at NAB's annual broadcast symposium last October, was only a half-day; this time, Layer says, engineers wanted to spend a full day hearing about several exciting developments in streaming.

It's growing increasingly hard to find the lines that separate radio from television and the Internet, and this session won't make those distinctions any clearer. Among the presentations on tap is a paper from Gomer Thomas of Triveni Digital on the new technology of datacasting over DTV signals.

"DTV can actually accommodate the transmission of the Internet," Layer said.

Familiar front

On a more familiar front, at least to radio engineers, Rizwan Kassim of the University of California at Los Angeles will present his experiences from the now-defunct Comedy World Webcasting service.

Presenter Fred Huffman, a senior engineer for digital video at WorldCom, says in some ways, broadcasters have an easier time dealing with streaming than their counterparts from the IT world, who are accustomed to a world of discrete bits and packets.

"The classic radio engineer or TV engineer — people who have experience in analog transmission — get it quicker than the digital people do," he said.

The Tuesday facilities-engineering session, moderated in the afternoon by Bert Goldman, will turn to interactive digital technology in the afternoon, with a series of papers that includes a presentation from Seattle's KEXP(FM), operated by the University of Washington.

From a typical student-run station, KEXP has evolved, with the help of funding from the university and from Microsoft founder Paul Allen, into a laboratory for new technology, including the only uncompressed, CD-quality audio stream currently on the Web.

Bert Goldman moderates a portion of the all-day radio facilities track.

"We're trying to enrich the experience of the listener with the Web site," said KEXP Chief Engineer Michael Wellings of the site he has developed at *www.kexp.org*.

Michael Miller of Fast-Talk Communications will discuss his company's technology that allows broadcast monitoring via high-speed phonetic processing. It has been used for batch-oriented searching and retrieval in digital media asset management systems. This process can monitor the audio tracks of 10 media channels using one PC.

Radio-related

Other notable radio-related sessions in the Broadcast Engineering Conference include an SBE Broadcast Networking Tutorial; a presentation about designing in 3D for complex antenna installations; a discussion of the Engineering Friendly Documentation initiative with David Baden of Radio Free Asia; help with troubleshooting POTS lines; and John Bisset's annual transmitter workshop.

Of interest to engineers as well will be a display of vintage TV cameras from the private collection of Chuck Pharis. It will be co-located with the membership booth of the IEEE Broadcast Technology Society in the lobby of the LVCC.

Of course, any seminar is only worthwhile if it can put engineers in the seats, and the economic turmoil of the past year has many groups cutting back on attendance at NAB.

At Clear Channel, Littlejohn said, the company expects to send only 20 to 30 of its engineers.

"Last year," he said, "we had a hundred engineers there, which was 25 to 30 percent of our total engineering staff."

For those who do attend, though, Littlejohn still believes the learning opportunities at NAB are unmatched.

"The unfortunate thing is, we're not getting more people in the business," he said, "so you've got to take advantage of any opportunity you've got."

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(ok, movie monsters are rare and unusual ...but it could happen)

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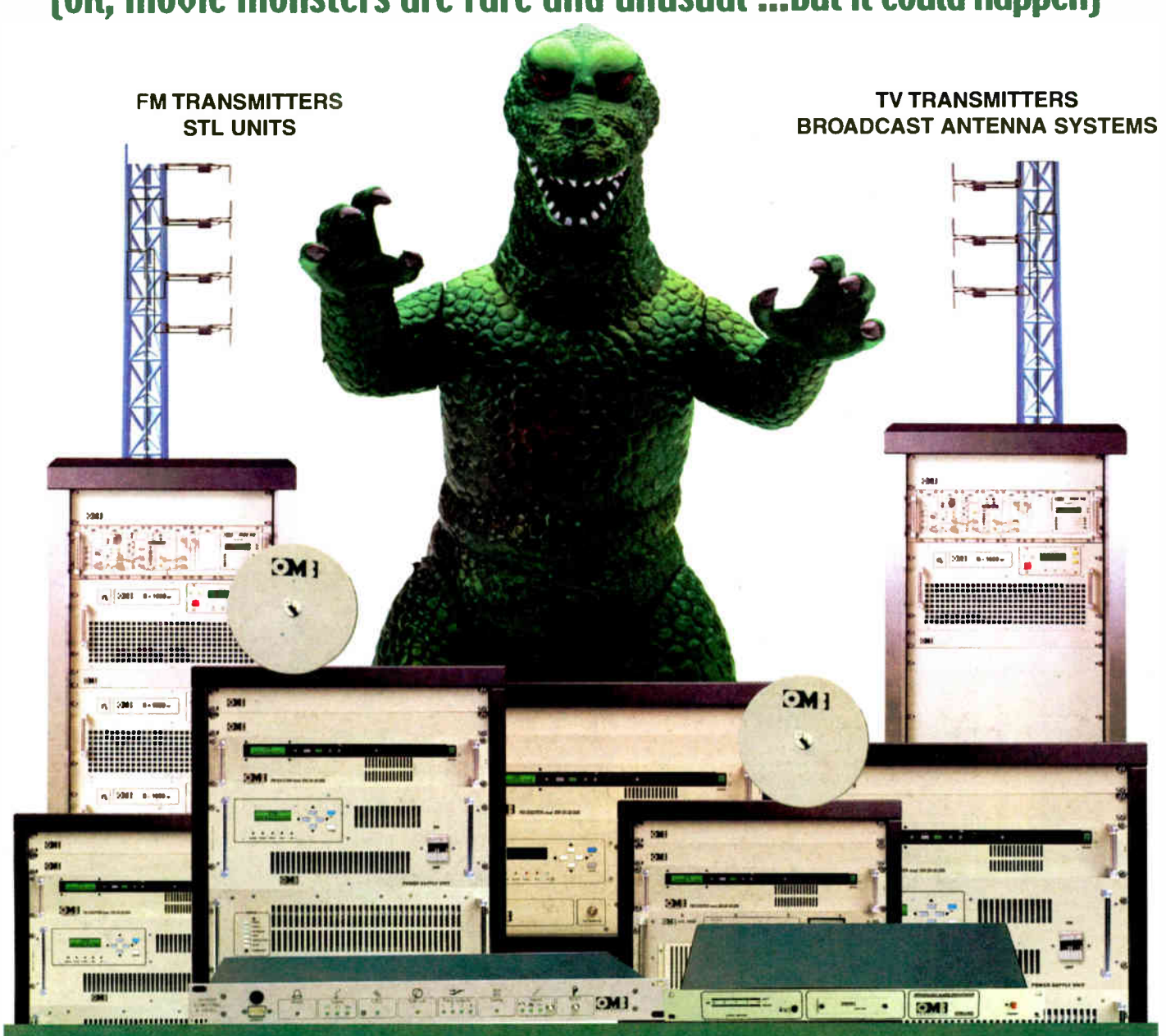

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World Radio History

"It's rock solid."

Ron Crider of Radio Colorado Network has some pretty cool things to say about BSI's digital automation...

August 21, 2001

Broadcast Software International
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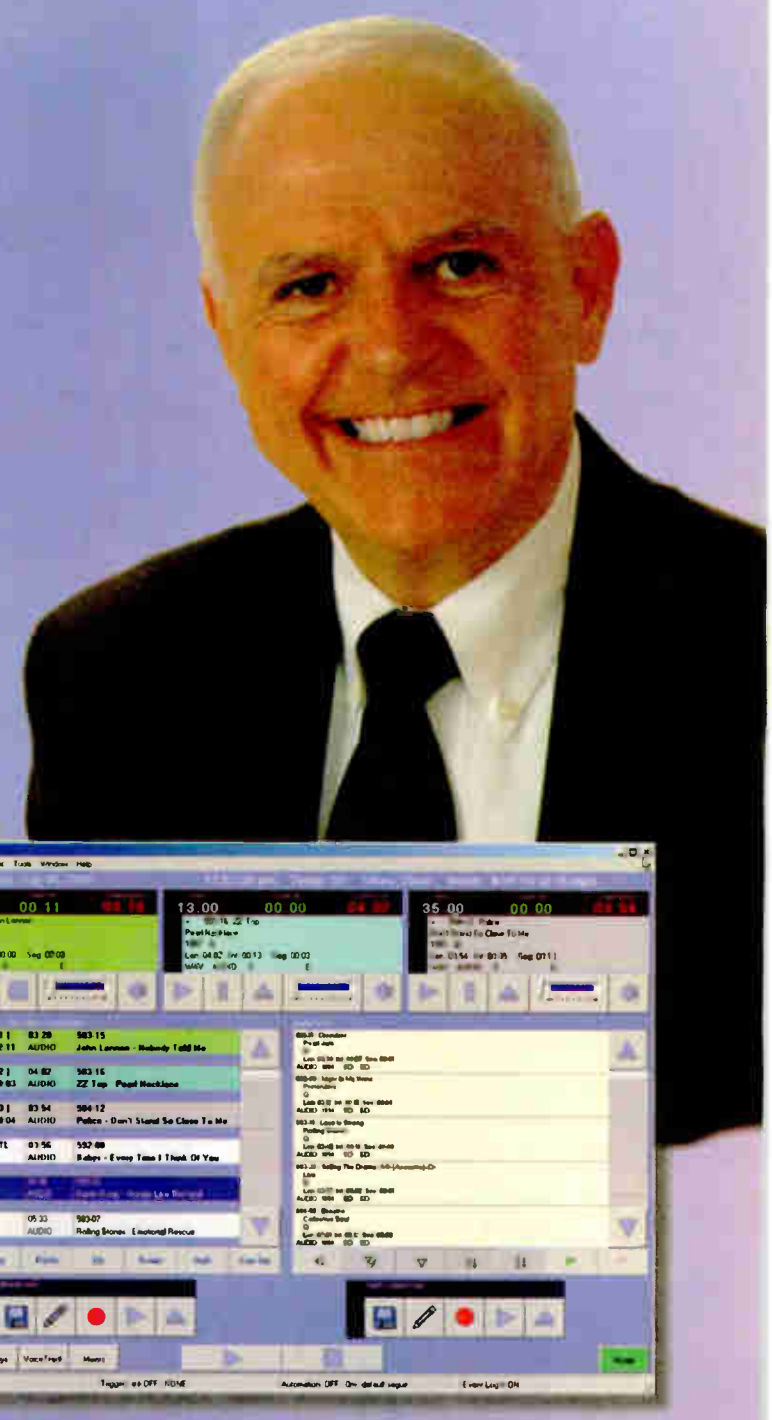
Seldom do I take the time to write a letter to a manufacturer praising a product. In the case of BSI, this note is long overdue. January of this year, I installed BSI's digital automation to operate AM 1060 KLMO Denver/Longmont. The reliability using Windows 2000, "well it's rock solid". The multi-tasking is the best. We have numerous delayed programs, as well as live joins to 14 different satellite receivers every day.

BSI has done a job above and beyond our expectations. The WebConnect permits our Indianapolis News Department to e-mail our weather reports as well as our local news directly into BSI's digital automation program without an operator here in Colorado. The temperature is frequent and always correct. Our imagination seems to be our only limitation to what we can do with BSI's digital automation. Since KLMO coming on line, we have installed another BSI automation program on KWYD Colorado Springs for its Christian format and are now installing BSI's digital automation to operate the entire Radio Colorado Network.

I have been in broadcasting for 40 years. The BSI systems are cutting edge, easy to operate, and reasonably priced.

Thank You BSI.

Ron Crider
President
Radio Colorado Network



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World Radio History

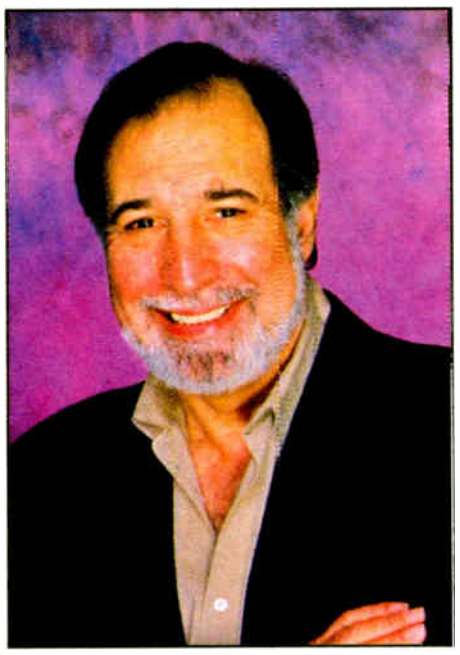
Managers

▶ Continued from page 16

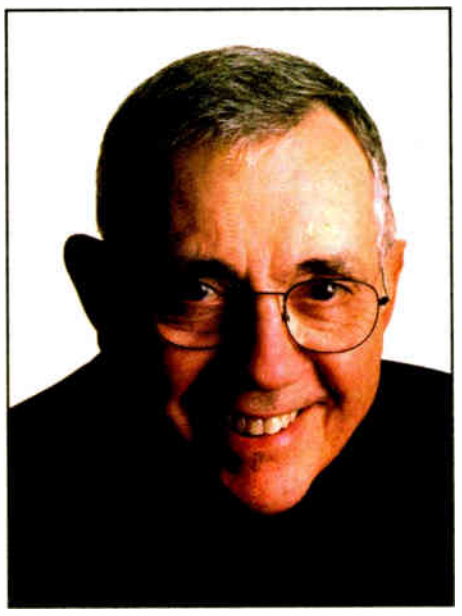
Most radio folks are willing to share success stories with others outside of their markets. Listen and learn or describe your prouder moments in sales or programming or whatever you desire. This small-market idea roundtable Management discussion will take place Monday afternoon.

Broadcasters will be brought up to date on the status of music licensing by Keith Meehan, director of the industry's Radio Music License Committee.

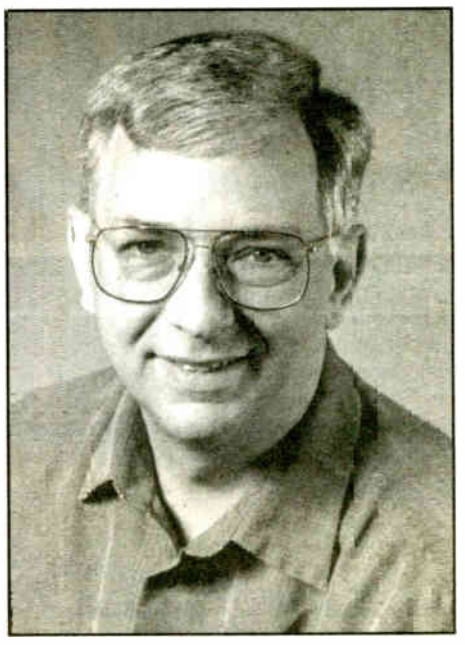
"BMI was conceived by the broadcasting industry to compete with the monopolistic ASCAP," Meehan said. "Now, it's ironic that the industry is in litigation with BMI because of the fees it is demanding." Hear about it as part of the Law track on Monday afternoon.



Dick Orkin will be inducted into the NAB Broadcasting Hall of Fame.



Keith Reinhard of DDB Worldwide Communications Group is chairman of the largest agency in the United States.



Al Kenyon of Clear Channel will take part in a roundtable about station security.

Disciplined radio

Early risers can attend the FCC Chairman's Breakfast on Tuesday April 9. ABC newsman Sam Donaldson will ask Chairman Michael Powell about the status and future of broadcasting under the Bush administration.

How to succeed on the AM dial is the subject for Rick Sellers, who came up with what he calls radio's three Rs: ratings, revenue and respect. He is president and general manager of KMRY in Cedar Rapids, Iowa, and will moderate the Tuesday-morning Management panel "You Can't Spell America Without AM."

Some broadcasters feel their on-air people must push the envelope in order to appeal to a mass audience. But the cop on the corner, the FCC's enforcement arm, is watching and listening. Legal experts talk about FCC enforcement in a Law panel on Tuesday morning that includes David Solomon of the FCC and Radio World columnist Barry Umansky.

Perhaps the most important technical decision all radio managers will make in the coming year is whether to convert to in-band, on-channel digital radio. The costs could be substantial; the promised benefits many.

Radio World Editor Paul McLane moderates a Management discussion on Tuesday morning with Robert Struble of Ibiquity Digital Corp.; Charles Morgan of the NRSC and Susquehanna Radio Corp.; and Bill Suffa of Clear Channel Communications.

Tidbits and tributes will be dispensed at the Radio Luncheon on Tuesday. Keith Reinhard of DDB Worldwide Communications Group and producer Dick Orkin of the Radio Ranch are featured.

Reinhard said, "Radio has expanded to the point that there is a format for virtually every possible taste. Downsides include the fact that we're now up to 18 minutes of commercials per hour, in some cases 30. The industry will have to exercise some discipline."

Orkin is to be inducted into the NAB Broadcasting Hall of Fame.

A spectrum of questions awaits FCC Commissioners Michael Copps and Kevin Martin plus Nancy Victory of the National Telecommunications Information Administration when they meet broadcasters and their lawyers in a Law session on Tuesday afternoon. If you've wondered what's the biggest beef today with the feds, you'll probably find out here.

Security

Since Sept. 11, security has been a factor that has concerned most broadcasters.

"It is unfortunate but inevitable that more stations and groups will have to learn about concepts like ID badges, levels of access, activity logs, building searches and background checks," said McLane, who moderates a Tuesday-afternoon Management session on the subject. "This is the cost of doing business in our society, and smart managers should educate themselves about this."

The session on station, transmitter and equipment security will look at the issue from a human safety point of view. Panelists include Al Kenyon, senior engineering vice president with Clear Channel.

A man who is confident his methods can increase your station's billings is Irwin Pollack, who runs a company bearing his name.

"During our seminar," Pollack says, "We'll reveal 20-plus of the latest sales money-makers that stations large and small are using to drive their local revenues higher." That Management session takes place Wednesday morning April 10.

Other topics in the Radio Management and the Business, Law and Regulation Conferences include proposed changes in broadcast ownership laws; royalties for streamed content; campaign reform and political advertising; radio Web design; and how to cut costs effectively.

Bill Ryan is a former broadcaster, college professor and wire service reporter-editor. He lives in Richardson, Texas.

See us at NAB2002 Booth #L3215 & L10620

Hoofing It

▶ Continued from page 18

exhibitor and product descriptions."

I don't carry a PDA yet, but I just talked to someone who raved about using hers at NAB last year. Ratkevich thinks she'll be even happier this year:

"We will also have a more comprehensive downloadable PDA application this year containing all the information on our conferences and exhibitors in one light, easy-to-use program."

Numbers

Here's one tricky part: The only way you'll know which of the LVCC's halls an exhibitor is in will be by the booth number. Almost all exhibits in the LVCC begin with an L. Companies at the Sands Expo Center start with S, and those that are part of the RTDNA show start with RT.

So far we've concentrated on the exhibition halls, but you should know that the engineering meetings will be held in new "South" meeting rooms at the entrance to the new hall.

There are also meeting rooms in which exhibitors can schedule events at the far end of the new hall. I'd be sure to look carefully for the location of any meeting rooms.

I don't want to paint the opening of the new "S" hall as a black day. For one thing, the new space allows NAB to fit more easily into the LVCC.

Though the Sands will still be in use, the convention bureau won't have to carpet the parking garage like they did to house the Webtopia exhibits last year. In fact, the total exhibit space for 2002 will be almost identical to what NAB filled in 2001 — about a million square feet.

Yes, there's an upstairs and downstairs South exhibition hall, but there are also escalators, elevators and stairs at both ends — as well as in the middle.

Another nice addition is the fact that snack bars are scattered a lot more liberally in the South hall than in old "C." Add to that a food court, with a variety of cuisines at the entrance to "S." The food court facility will just be opening about the time NAB begins.

And about the new upstairs and downstairs "S" halls being a quarter mile long: while that's true, in 2002 they'll each only be filled about 75 percent of the way back. We won't feel the full effect until 2003.

Plan ahead.

Craig Johnston is an independent video, Web and multimedia producer who writes the Web Watch column in Radio World.

World Radio History

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The following exhibitors of interest to radio attendees will take part in NAB2002. Highlights are paid for by exhibitors, information is from the companies. Check the on-site program for changes and late-registering suppliers.

Booths preceded by the letter L are in the Las Vegas Convention Center; S is the Sands Expo Center; RT is the RTNDA floor at the Las Vegas Hilton. Note, the Radio/Audio section of the LVCC is in the North Hall, booths L1714-L3479.

NAB2002 Exhibit Hours

Sunday, April 7 *(South Hall only)*	4 p.m. to 7 p.m.
Monday, April 8	9 a.m. to 6 p.m.
Tuesday, April 9	9 a.m. to 6 p.m.
Wednesday, April 10	9 a.m. to 6 p.m.
Thursday, April 11	9 a.m. to 4 p.m.

#

360 Systems L2034
On Display: Instant Replay, Short/cut 2000.

615 Music Library L21803

A

ABE Elettronica SpA L1969

AccuWeather Inc. L12233
Intro: The AccuWeather Internet Revenue Booster uses a free AccuWeather.com desktop and e-mail alert service to deliver weather information to users while continuously promoting a station brand and advertising messages.
Also: Exclusive AccuWeather radio forecasts.

Acoustic Systems L2231
Intro: SoundSecure XM Voice Over, offering modular isolation, custom voice-over and studio installations, with pre-engineered construction that saves money when you relocate or reconfigure your architecture.
Also: SoundSecure Voice Over Booths.

Acoustical Solutions Inc. L5215
Intro: Alphasorb Wall Panels are available with Audioseal Sound Barrier for extra sound-blocking control; ADF-24 diffuser molded plastic panel to diffuse or disperse acoustic energy through a space, to eliminate hot-spots and dead-spots while maintaining a live sound; Alpha Resilient Isolation Clips in combination with Audioseal Sound Barrier improve standard STC ratings; Soundtex Linear II (Execuwall II line) sound-absorbing wall fabric is made of dyed polypropylene fiber for its stain resistance, durability and ease of maintenance; ColorsSonex Contour 24" x 24" ceiling tiles drop into a ceiling grid or can be glued to ceilings to provide an NRC rating of 0.70 to 1.00.
Also: Sonex foams; RPG Products.

Acoustics First Corp. L1957
Intro: The Art transfusor, a transparent version of the popular Model C that diffuses light and sound; the "1014" Kit of acoustical foam absorbers, brass traps and diffusers; and Cutting Wedge 2000 acoustical foam in a new stacking style.

Active Power Inc. L18045
Intro: The LiveCat UPS for power conditioning and flywheel energy storage to ensure power protection from small power disturbances through to prolonged mains power outages.
Also: Cat UPS 300-900 kVA.

ADC L9849

Advertising Edge L2922
On Display: Screen printing and embroidery of promotional products and fulfillment services, including imprintable sportswear; promotional products; also art design.

AEM Technology Inc. L22915

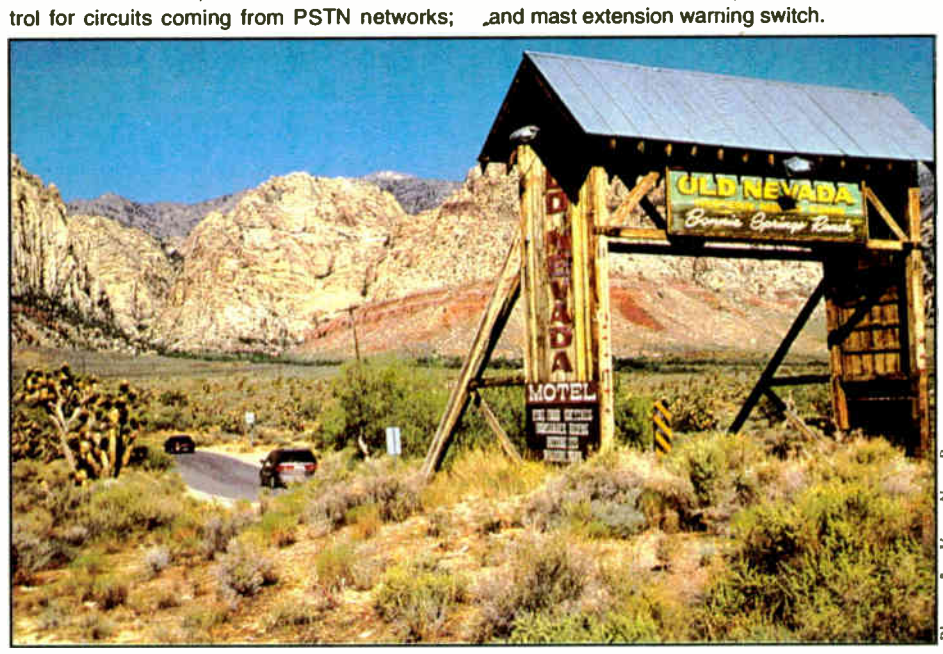
AEQ L3142
Intro: SYSTEL 6000 talk show/multiplexer software for ISDN lines for multiconferencing, intercommunication, cue/PFL and on-air control for circuits coming from PSTN networks; *Also:* HiFiScoop 3 codec.

A.F. Associates Inc. L9116
Intro: Expertise in emerging technologies, space planning and liaison with architects and contractors, systems design, documentation and turnkey systems implementation.

AirCraft Production Music Library L6554
Intro: Cinemusic promotion and production tracks for long-form productions; The Latin Compilation of production tracks in 60-, 30-, 10- and 5-second edits.
Also: The AirCraft Music Library; Ads Up music for commercials; The American Music Series; Rock Sweepers and IDs.

Allen Avionics Inc. L19549
Intro: GLE Series broadband hum eliminators for bandwidths in excess of 500 MHz.
Also: Audio isolation transformers.

Allen Osborne Associates Inc. L5309
Intro: Floodlighting masts. The FM series of Hilomast has a coiled cable that enters through a gland in the base and extends inside the mast to the top where it exits to a junction box for lighting connections, and memory in the cable allows it to extend and retract with the mast. Three standard models have a base diameter of 115 mm and an inner cable with four cores of 2.5 mm, complete with a rain-shield, rotation handles, pressure relief value and mast extension warning switch.



Photos: Las Vegas News Bureau

Bonnie Springs Old Nevada is a recreation of an 1860s Western mining town with gunfights, hangings (oh, boy), a saloon and museums, 15 miles from Las Vegas.

E@sy dual PS, Impact DC and Caddy DC modules for the Impact and Caddy digital audio routing system with autoranging and autoredundant power supply for monitoring through the E@sy control bus; Swing portable ISDN codec, digital hybrid and mixer can connect to ISDN networks with G.711 and G.722 algorithms and an analog hybrid that can be used simultaneously, the portable mixer has three mic inputs and an auxiliary in/out, with a VU meter; BC 2000 digital on-air console with up to 144 input and 144 output channels and bidirectional modules with 24 digital I/O remote-controllable through TCP/IP; Mar4Traffic traffic, billing and advertising scheduling.
Also: Mar4win automation system; BC 300 and BC 2500 consoles; TH 02 EX codec; E@sy family of products: Eagle, Course, Impact, Caddy and Ranger.

Aeta Audio L2463
Intro: The Scoop E-Z is a codec for POTS, ISDN and wireless connections.

Allied Tower L2163

Altronic Research L2017
Intro: 6410 is a 10 kW air-cooled load for transmitter areas with little room; also lightning arrestors from 10 to 10,000 watts, with connections including "N" to 1-5/8-inch EIA.
Also: Model 77100 for high-power medium-wave applications.

Ambient Recording GmbH L19170
Intro: Lockit Box time code and sync signal generator; Quickpole carbon-fiber handheld microphone booms with metal fittings; Tinymike/Tinymix miniature shotgun electret microphone and mixer system with mic suspension, foam windshield and high-wind fluffy.
Also: Emesser figure-of-8 mic; microphone accessories.

American Inflatables L3400

American Tower L2553

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How to avoid paying for free speech.

The BD960 Broadcast Delay.

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World Radio History

AMS Neve PLC L10249

AnaCom Inc. S9931

Andrew Corp. L9111, S8423
On Display: Heliax transmission line, DryLine dehydrators.

Antex S6719
Intro: Media Director digital audio appliance for delivering commercial background music, local audio ad insertions and message-on-hold or storecasting services, features two independent stereo audio outputs capable of autonomously managing its own audio content with or without local or remote ad insertions.
Also: BX-12, LX-24M, LX-44, StudioCard 2000, SC-22 and SX-36 soundcards; Antex DR500 satellite receiver.

Anvil, Calzone & Majecal Cases L11046

AP Broadcast/Associated Press RT351

Aphex Systems Ltd. L2434
Intro: 2020 MkIII Dynamics Processor for FM, satellite and Webcasting in a single chassis with interactive framework, features including new split-band pre-emphasis limiter, patent-pending overshoot-compensated, low-distortion low-pass filter, and new processing algorithms that make it sound louder and cleaner; also 204 Aural Exciter with Optical Big Bottom featuring two independent channels, internal power supply, XLR and 1/4-inch I/O connectors and updated circuitry, extends the harmonics of the audio path to restore brightness, clarity and presence often lost during A/D conversions, processing or playback; also the 207 microphone preamplifier, combining the main circuitry of the Aphex 107, including the Reflected Plate Amplifier tube circuit, with the MicLim circuit, this is a two-channel tube microphone preamplifier and instrument DI featuring MicLim, a mic-level limiter that controls the transient spikes during recording.
Also: Aphex Model 1788, Aphex Model 1100.

APM/Associated Production Music L19273
Intro: Represents the Paris-based Kosinus Catalog independent library, providing productions and styles from continental jazz to Gallic comedy, new age and blues.
Also: 16 production music libraries with more than 3,000 CDs; personalized packages; music search service; 15 to 20 new CD releases per month.

Apogee Electronics L12901
Intro: The Mini-Me card provides two channels of 24-bit, 96 kHz A/D conversion and low latency via a USB I/O connection with AES/EBU and S/PDIF digital outputs, as well as Soft Limit and Push-IT multicurve compressor/limiter and eight bidirectional channels of digital audio per card with dual ports for daisy-chaining many more channels.
Also: Trak2, AD8000, PSX-100, AD-16, DA-16, Rosetta and other products.

The water and music show at Bellagio includes a fountain system with 1,200 nozzles and 4,500 lights. It cost $40 million.

APT L3243
Intro: The WorldNet Milano ISDN codec features Standard and Enhanced apt-X and optional SMPTE time code; Multichannel E1/T1 solution offering broadcasters up to 7 kHz stereo, duplex audio channels with a single 2 Mbps E1 connection using apt-X encoding configured for a 32-kHz sampling frequency and an end-to-end delay of 6 milliseconds; Program Channel Access Unit encoder/decoder card for broadband audio and secure link applications featuring apt-X compress to pass 20 Hz to 15 kHz over a standard 128 kbps dedicated ISDN link.

Archion L13625

Armstrong Transmitter Corp. L1730
Intro: FM 500LCDSC broadband, plug-and-play amplifier features automatic power output control and front-panel LCD, suitable as a low-power main transmitter or backup; FM1000LCDSC solid-state transmitter suitable as a main or back-up for single- or multiple-station use; IBOC-Ready Digital Linear Amplifiers; the company provided single-tube IBOC amplifiers to Ibiquity Digital and offers a cost-effective means for broadcasters to enter the DAB arena.
Also: Single-tube and solid-state FM transmitters to 35 kW; FM exciters; analog and digital STL systems; FM antennas, combiners, filters and isocouplers; solid-state AM transmitters, phasors and ATUs.

Arrakis Systems Inc. L2743
Intro: Analog/Digital Console, 10-channel digital hybrid console for $1,495, ease of installation and zero-maintenance design; Digilink+Plus products including hardware control for Digilink-Free, satellite automation, scheduling, audio file manager and music scheduling.
Also: Digilink, Modulux, Revolution, 12K, 1200 consoles.

Artesia Technologies L14065
Intro: TeamToolz is a marketing resource management and collaboration tool, a Web-based service that helps marketing organizations automate the development process for brand and marketing campaigns.
Also: Teams.

ASACA/Shibasoku Corp. L12806
Intro: TeraCart RA Series modular video archive system; TeraCart AM-1450DVD data storage system.
Also: AAM-Series audio editing/filing.

ATC s.a. Athens Technology L2367
Intro: Radio and TV versions of the News Asset digital news asset management system, which receives newswires, supports text and media and communicates via satellite, e-mail, FTP, SMS or fax; News Asset Web Portal Edition, a Web-application version of News Asset provides user access from remote locations; News Asset Press Edition for press agencies, newspapers and publishing groups; Swisstorage Giant DVD changer holds hundreds of terabytes of information, more than 500 discs and more than 320 DVD/R drives.

ATCi/Antenna Technology S8447

Athan Corp. L19650
On Display: Capstan and reel motors; pinch rollers; bearings.

ATI – Audio Technologies Inc. L11435
Intro: Additions to the NanoAmp Series including the AMM200 with stereo loop-through XLR analog input and the DMM200B with AES/EBU digital audio inputs to drive a two-color bar-graph meter and a stereo headphone output with switched rear RCA jacks for external powered speakers; the HDA600 six-channel and HDA400 four-channel stereo headphone amplifiers with master, cue and individual stereo or balanced mono direct inputs and XLR and TRS inputs; DXA112-XLR and DXA124-BNC AES/EBU digital audio distribution amplifiers.
Also: On-air and ENG mixers; mic, line, headphone and distribution amps; meters; digital monitoring and distribution.

AT&T Digital Media Centers S5523
Intro: Enterprise Streaming application for video and audio content, one solution, one provider. From production to delivery of content. ADMC can access streams housed on ADMC servers or using InfoLibria technology, cache material on client premises behind the firewall reducing the need for large Internet connections.

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www.centers.att.com

ATTO Technology Inc. S5747
Intro: ExpressPCI UL4D provides SCSI connections for high-bandwidth applications with a PCI-X enabled throughput of up to 640 Mbps; FibreBridge 2300E/R/D 2 GB Fibre Channel to SCSI bridge configured with one Fibre Channel port and two independent SCSI busses; FibreCenter 3400R/D 2 GB hub with eight 2 GB Fibre Channel ports and four programmable zones, users can divide the hub into four 400 Mbps Fibre Channel zones; FibreBridge 3300R hot-swappable Fibre Channel to SCSI Bridge module for the FC Rack System.
Also: ExpressPCI FC 3300, 3305, 2600 and FCSW; SCSI ExpressPCI UL4D and 4S, UL3D and 3S; PSC/PSCd and DC host adapters.

Audemat S.A. L2441
Intro: AM Fieldstar automated field-strength measurements for directional AMs with calibrated AM receiver, GPS receiver and rotating directional antenna, readings and coordinates acquired and logged automatically and can acquire data for 10 stations; also AM version of Goldeneagle analysis package.

Audioarts Engineering L2515
On Display: Radio on-air consoles including analog R-60, R-17 and R-5 boards, as well as

The Dorrough Loudness Monitor

Two 40-A2 meters in an optional dual rack

Today's audio requires careful attention to precise level control...
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World Radio History

digital RD-20 and D-70 consoles.

Audio Precision **L3452**

AudioScience Inc. **L2973**

Intro: ASI6114/6118 are TI DSP-based audio adapters that include one input and four or eight outputs, both analog and digital, with support for MPEG 1 Layer 2/3 as well as PCM, and include Multi-Rate Mixing; also the ASI6244, a model that supports MPEG 1 Layer 2/3 and PCM, and has four inputs and outputs, both analog and digital; also the 6000 series includes Multi-Rate Mixing (MRX), which enables playback, recording and digital mixing of multiple audio streams of any sample rate to a 1 Hz precision; also the ASI4342, providing two stereo outputs, one stereo input, one record stream and four play streams, it will record and play MPEG 1 Layer 2 and PCM as well as play MP3.

Also: ASI4312, ASI4344, ASI4346, ASI4215

Audio-Technica **L2115**

Intro: ATH-M30 closed-back dynamic headphones with 40-mm drivers, CCAW voice coils; 30 Series I condenser microphones that feature flat, extended frequency response, high SPL handling, wide dynamic range, low self-noise and a 10-dB pad and low-cut switch.

Also: AT895; U100 Series; AT4071a; AT4073a; AT815b and AT835b; AT815ST and AT835ST.

Auditronics **L2515**

On Display: Live audio consoles for radio including the digital Model 220, the new ALM-12d combo digital mixer design with built-in switcher and the recently introduced 2600 Series analog board.

AuthoringWare Co. **S4272**

Intro: DVD Junior DVD authoring software with audio features; DVD DirectRecord simple DVD authoring routine; DVD Karaoke Creator program.

Also: DVD Wise.

AutoPatch **L13748**

On Display: Matrix/routing switchers for analog and digital.

Avitel Electronics **L9571**

Intro: KAE Corp. PC LCD Monitor Mask, rack- and shelf-mountable.

Also: Morph System audio jackfields; Patented Rapid Punch (RPT) jackfields and wall blocks.

Axel Technology Srl **L3362**

Intro: Shark digital RDS coder, stereo encoder, stereo enhancer and limiter designed for transmitter-site installation and remote control via PC; Web and television versions of the Falcon 35 five-band digital audio processor; Oxygen Series audio consoles, ranging from a small portable version to customized 40-channel versions; DJ-Pro modular system for automated radio broadcasting with utilities for SMS, e-mail and phone message management.

Also: Falcon FM processor; Mr. Light; Macrotel; Matrix 42; Genius; Forget; Sat Time; and Spider.

The new $300 million Green Valley Ranch Station in Henderson replicates the look and feel of an Argentinean 'Estancia.'

AVP Mfg & Supply Inc. **L19569**

Intro: Mosaic circuit identification system (CIS), which allows color-coding of every circuit with standardized designations to maximize viewable area and numbered jack positions for quick and accurate installation, troubleshooting and use.

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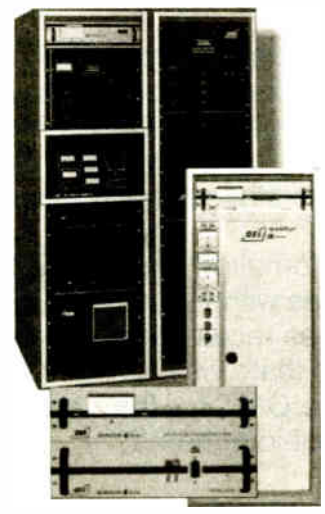
For the last 30 years QEI has supplied innovative FM Transmission solutions.

HIGHLY RELIABLE SINGLE TUBE GROUNDED GRID FM TRANSMITTERS

For 15 years QEI has manufactured a line of technologically advanced grounded grid FM transmitters that provide outstanding performance and reliability.



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Axiom Technology Inc. **L19606**

Intro: SBC81610VEE low-power SBC with on-board 733 MHz Pentium III CPU and 1.5 GB of SDRAM, integrated VGA controller with 2 to 8 MB of memory and dual Realtek 10/100Base-T Ethernet ports; Also: *Also:* Computer products, data storage, networking hardware and software, system integration.

Axon Digital Design B.V. **L19277**

Intro: Synapse broadcast modular media system designed to support a high density of up to 18 cards in 4 rack units of space, flexible remote-control capabilities, including Ethernet-based remote control, embedded audio and audio level control and channel swapping.

Also: Embedders and de-embedders; A/D and D/A converters; audio processing; digital and analog audio distribution.

Azcar **L18372**

Intro: Central Casting Centers using distributed broadcasting designs to reduce bandwidth requirements and costs of conventional networking hardware and server systems; turnkey broadcast facilities for commercial and public broadcasting; technical consulting, business planning and work flow analysis services; engineering design services.

Azden Corp. **L2562**

Intro: SGM-1X shotgun microphone with directional pickup pattern, wide response and low noise levels, supplied with shockmount holder, windscreen and XLR output; SGM-MINI short-barrel shotgun microphone with directional pickup, wide response and low noise level, supplied with windscreen and mic holder.

Also: 1000, 500 and 400 Series wireless mics; SGM-2X shotgun microphones.

Aztec Radiomedia **L13362**

Intro: The FMTEL5 FM Radio Monitoring and Supervision System is built on DSP architecture and is an "intelligent" FM tuner and RDS decoder with IP2 remote control technology, enabling remote supervision; FM Navigator AZ100 for FM Signal Analysis and Measurement is a compact system for field surveys of an FM station's signal, the product has been updated to include compatibility with Microsoft's mapping software MapPoint; HitPlayer-L Networked Digital Audio System is a solution for providing and controlling audio at multiple remote locations, and MP2/MP3 program material can be streamed or played from local storage and is remotely controlled via TCP/IP.

Also: FM broadcasting products: FM signal analysis and measurement (AZ10, AZ100, AZ1000), FM Multiplex signal generator (FMX480, FMB80).

B

Belar Electronics Lab Inc. **L2723**

Intro: The AMMA-2 DSP-based precision AM modulation monitor/analyzer is designed to monitor fixed and controlled-carrier AM systems operating in the short- and medium-wave bands, guarding against harmonic and IM distortion residuals below 0.1 percent up to 99 percent modulation; new capabilities and software enhancements for the CSA-1 signal/spectrum analyzer that facilitate direct-reading distortion and noise measurements, along with increased ease-of-use.

Also: Sentry 16 program/status alarm system.

Belden Electronics **L6445**

Intro: The 1505F is a superflexible version of the 1505A RG-59 precision digital video coax, featuring a stranded center conductor and a double patented French Braid shield and the return loss is tested out to 3 GHZ for AES3id digital audio connections.

Also: Mic cables; line-level audio cables; snake cables; speaker cables; and AES/EBU digital audio cables.

Benchmark Media Systems Inc. **L2208**

Intro: The DAC-104 is a 24-bit, 96 kHz audio D/A converter card that mounts in a System-1000 frame and provides four channels of conversion; the AD-104 is a 24-bit A/D converter module for the Systems 1000 card frame.

Also: DA101 and DA102DM analog distribution amplifiers; MDA-101 and MDA-102 microphone distribution amplifiers; ADA-2408 24-bit A/D and D/A converter systems; and SPM 220 and 320 stereo program meters.

Bext Inc. **L2023**

Intro: PT Series Digital FM exciters with AES/EBU digital audio input in 30, 60 and 100 W versions; HS Series FM transmitters with hot-swappable RF modules; and LK Series STLs featuring microprocessor control and digital display.

Also: XL 1000 1 kW FM exciter.

beyerdynamic **L5235**

Bird Electronic Corp. **L1742**

Intro: Terminating Power Sensor, when used with the Model 5000 Digital Power Meter and coupler, provides an RF power measurement solution for broadcast, from milliwatts to kilowatts; Broadcast Power Monitor uses average-responding sensors that interface with a 1RU display or a PC for transmitter performance monitoring, operates in digital, analog or post-combiner installations; Digital Air Loads offer performance without the requirement of a local water supply, circulating pumps or plumbing, designed to handle signals with higher peak-to-average ratio such as digital broadcast; Digital Oil-Dielectric Loads are designed for digital broadcast, with extremely low VSWR characteristics to operate in the digital domain at a significant reduction in price.

Also: RF Power Meters, RF Termination Loads, RF Attenuators.

Bi-Tronics/BTX **L10618**

BitRage Inc. **S6641**

Intro: CR45-A point-to-point radio for 45 Mbps DS-3 full-duplex connections over an 11 mile range.

Bittree Inc. **L5446**

Intro: 968 Series Bantam patchbays with internally programmable grounding and normaling; 488 Series long frame 1/4-inch patchbays

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with internally programmable grounding and normaling.

Also: Patchbays; patch cords.

Blue Order Inc. **S6963**

Intro: media archive v2.8 is a scalable, distributed enterprise media management platform supporting workflow from live ingest and logging to retrieval, browsing, editing and cataloging of audio and video; media workbench v2.0 is a workgroup-level content management system that interfaces to media archive for multisite deployments; media transact is an e-commerce suite for offering, selling and delivering multimedia content over the Internet; media rights is a rights-management system that handles contract and licensing information for media assets.

Broadcast Electronics Inc. **L2705**

On Display: AudioVAULT; AM transmitters; FM transmitters; Marti.

Broadcast Microwave Services Inc. **L4912**

Broadcast Richardson **L2243, S6718**

Intro: The Swe-Dish IPT Suitcase Satellite System is a compact, quick-to-air satellite terminal the size of carry-on luggage and allowing for one-person operation in extreme locales.

Also: AM/FM transmitters; Audio automation and Webcasting.

Broadcast Store Inc. **L12045**

Broadcast Supply Worldwide-BSW **L2525**

On Display: Products from Telos Systems, Comrex, Orban, Burk, Gentner, Denon, Tascam, Sony, Sennheiser, dbx and 360 Systems.

Broadcast Technology Ltd. **L9844**

Broadcast Tools Inc. **L2453**

Intro: The Phone Switch Six is a six-line call director; Silence sensor with voice dial out.

Also: Audio switchers; remote controls; satellite controllers; intercom systems.

Broadcasters General Store **L2043**

BSP **S1924**

BT Broadcast Services **S7537**

Intro: An integrated global network of digital fiber routes and satellite platforms with network management and control; news, sports and events transmissions.

Burk Technology **L1923**

Intro: ARC Plus transmitter report control system for full-time and dial-up remote facilities management with virtually instantaneous metering, status and command throughput for single- or multisite operation; AutoPilot 2 Windows-based system to monitor, control, log and automate multiple ARC-16 transmitter remote control systems; ARC-16 Firmware 5.4 release to improve the performance of the ARC-16 and to include new features such as adjustable alarm delays, adjustable command durations for remote activations and Windows-based AutoLoad software.

Burli Software Inc. **L3100**

Intro: Burli Newsroom System software package for broadcast newsrooms providing efficient editing, organization and delivery tools for the newsroom.

Burst Electronics Inc. **L11668**

C

Calrec Audio Ltd. **L2263**

On Display: Alpha 100 digital mixing console; C2 audio mixing console; Lip Stick mist-iming measurement unit.

Canare Corp. of America **L12531**

On Display: Star Quad microphone and audio line cables; multichannel Star Quad cables; 110-ohm AES/EBU digital audio cables.

CartWorks/dbm Systems Inc. **L2957**

Intro: Mission Control digital audio workstation/automation running under Windows 2000 or XP with support for LAN, WAN, Internet, production, live assist, automation, and voice-tracking; CartWorks live assist, satellite automation and music-on-hard-drive digital audio systems with extended Internet and networking capabilities.

ChainCast Networks **S6934**

Ciprico Inc. **S5733**

Clark Wire & Cable **L8065, L1516**

Clear-Com Intercom Systems **L8463**

Intro: 35 compact, modular i-Stations for Matrix Plus digital intercom systems; Q700 programmable two-channel wireless intercom fields six full-duplex wireless beltpacks in a 1 RU chassis, can connect with two channels of party-line and/or four-wire intercom and the four-button multimode beltpacks allow users to talk with either wired intercom channel, to other wireless users only or to page from the beltpack to an outside audio system; RCS-2000 programmable, remote controllable source-assignment panel.

Also: Matrix Plus digital intercom systems; PL Pro party-line intercoms; Vega wireless intercoms and IFB systems.

Coaxial Dynamics **L2137**

On Display: RF wattmeters; RF loads.

C.O.E.L. Complementi Elettronici Srl **L3005**

Comprompter News and Automation **L11657**

Intro: SchoolMaster Touch-Tone closing and cancellation system eases notification from schools and businesses; VoteMaster Election system.

Computer Concepts Corp. **L3015**

Intro: Maestro 3.1 radio station automation system with local or distant city voice-tracking features, CD ripper, satellite or hard disk music automation, newsroom integration, nonproprietary audio cards and switchers.

Also: Epicenter audio router with DSP.

Comrex Corp. **L2643**

Intro: The BlueBox codec provides 15 kHz full-duplex audio on one POTS telephone line, GSM wireless operation, field upgradeability and a cellular interface in a 1.5-pound package.

Also: Matrix POTS (PSTN), ISDN and wireless codec; Vector POTS (PSTN) codec; Nexus ISDN codec; and Envoy ISDN studio.

Kris Bobo, VP Development
65 Nonset Path
Acton, MA 01720
Phone: 978-263-1800
800-237-1776
FAX: 978-635-0401
E-mail: info@comrex.com
Web Site: www.comrex.com

Comsearch **S9038**

Intro: Frequency planning services, can provide satellite earth-station interference

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analysis, frequency coordination, FCC licensing, RFI measurements and radiation hazard analyses; engineering services, including link analyses, equipment selection and evaluation for satellite earth stations, as well as space-segment design and acquisition support, deployment and testing support; consulting services including technical support in the development of FCC documents for emerging satellite services, NPRM filings, ITU and industry white papers, band evaluations and sharing studies, and relocation and migration services.

Continental Electronics **L2763**

On Display: 816R FM transmitter; 802D1 digital exciter; 802B exciter; dual module IPA; and SW modulator.

Cooper Sound Systems Inc. **L2918**

Intro: CS 104-4T direct-out option for CS 104 ENG audio mixers; Nordic scale meters for the CS 104 ENG four-input stereo mixer; CSAC-SW universal power supply for CS 104, CS 106 or CS 208 audio mixers.

Also: CS 104 ENG four-input stereo mixer; CS 208 eight-input-channel portable mixer; CS 106 six-channel portable mixer.

CPI Eimac Division **L6517**

On Display: Eimac tetrodes and triodes for FM, SW and MW broadcast transmitters.

Creative Studio Solutions **L2969**

On Display: Stardraw Radio Design Software.

Crestron Electronics Inc. **L15120**

Intro: 2-Series dual-bus control systems based on 257 MIPS 32-bit processors, offering 36 MB of onboard memory and a 4 GB expansion slot for Type II compact flash memory; CNX-BIPAD8 audio distribution processor can handle 16 central sources, eight local sources in eight rooms and Cat5 distribution.

Crown Broadcast **L2223**

Intro: The RTC-1 offers redundant transmitter control for Crown transmitters from 30 to 500 W by switching from the primary transmitter to a backup in case primary experiences a fault condition; The RMS remote management system attaches to the rear of a Crown Broadcast transmitter allowing contact by cell or regular telephone to check or change parameters; the DMS digital management system front panel provides access to transmitter parameters via a turn-and-push control, features high-intensity vacuum fluorescent display and password protection; FMX Series transmitter using the DMS front panel; R.F. Sentinel redundant transmitter control system for Crown transmitters from 250 W to 2 kW.

Also: FM Series transmitters.

Fashion Outlets Las Vegas is 30 minutes south of the strip on I-15 at the California state line in Primm, Nev.

CTE Broadcast **L3151**

Intro: TX 1000 Plus compact solid-state MOS-FET FM transmitter with frequency-agile exciter and amplifier; NEA 10-TX, solid-state MOS-FET transmitter with TX100 frequency-agile exciter and four 2.5 kW amplifier modules and four power supplies, optionally the system can be made fully redundant with two exciters and optional remote control facilities.

Also: 1 kW FM compact transmitter; 10 kW FM fully redundant transmitter.

Curious Software Co. Ltd. **L14950**

Custom Interface Technologies **S1529**

Intro: Lemo-compatible FCI push-pull connectors; custom cables for all film and TV cameras and accessories; and 2.4 GHz wireless video/audio links.

D

Dalet Digital Media Systems **L20420, L2851**

Intro: DaletPlus Media Asset Management system couples a multimedia database with content acquisition, production, scheduling and distribution tools, it can streamline a portion of or the entire content lifecycle from acquisition to delivery, and its cross-channel architecture allows assets including text, images, audio and video to be delivered to media such as radio, TV, Internet and other new media devices.

Dan Dugan Sound Design **L2918**

Intro: Model D-2 digital automatic mixing controller connects to a separate control panel with a single cable to maintain a constant ambience image with multichannel panning.

Data Check **L12272**

On Display: LED display audio presence monitors.

Datatek Corp. **L6727**

Intro: D2860 programmable control panels with an LCD in each pushbutton switch.

Also: D2800 and D2600 routers.

Dataworld Inc. **L2123**

Intro: DataXpert provides online access to technical and contact data, population in coverage area and coverage maps for AM, FM, and TV stations in the U.S; DBCompare independent database of AM, FM, and TV licenses, permits and applications to compare Dataworld databases against the FCC CDBS database, highlighting differences between these sources

Also: Allocation studies; coverage maps; FLAG service; Area-to-Locate studies; and LMA/Duopoly studies.

Dave Doherty, President
7700 Old Georgetown Rd., Bldg. 2, Fl. 2
Bethesda, MD 20814
Phone: 301-652-8822, Ext. 209
FAX: 301-656-5341
E-mail: sales@dataworld.com
Web Site: www.dataworld.com

DAWNco **S8744**

Intro: Satellite TI Interference Filters are dish-mounted filters to eliminate terrestrial interference, they mount between C band feedhorn and CLNB, pass 3.7 to 4.2 GHz, suppress strong out-of-band interference caused by marine or airport radar systems, and are suitable at a time when military activity has increased TI throughout the U.S..; also Digital-Ready C- and Ku-Band LNBs for use with new "finicky" digital satellite receivers; DivinSup Powering Systems are rack-mounted "combo" units that divide satellite signals to feed multiple receivers and provide power to satellite antenna-mounted LNB amplifier, including power supply and power inserter, with a choice of eight models that include amplified signal splitters ranging from 1x4 to 1x16.

Also: CoverSat satellite dish cover.

DB Elettronica Telecomunicazioni SpA **L2155**

Intro: The KCL 30 is a graphic LCD FM exciter/transmitter for composite or mono operations, with front-panel control and measurements, output from 0 to 30 watts adjustable, 87.5 to 108 MHz touch frequency setting, SCAs, mono/MPX, dynamic limiter, remote and telemetry and a stereo generator option; also PM500, 0-500 W single-cabinet FM transmitter compatible with digital or analog audio, mono or composite operations, 87.5-108 MHz frequency agile, optional stereo generator, suitable as stand-alone transmitter or exciter.

Also: KCL 30, PM 500

Delco Wire and Cable Ltd. **S2723**

Intro: 110-ohm AES/EBU digital audio cable; ADC broadcast products, including true 75-ohm coaxial connectors; patching systems; cable management; transmitters; microphone cable; patchbays; and jack panels.

Also: Analogy snake cable; microphone cable.

Delta Meccanica Srl **L3318**

Intro: 200 W DVB filter and combiner.

Denon Electronics Professional **L2202**

Intro: DN-V1700 for hard-disk and PCMCIA card playback of MPEG-2 Layer 2 video files with or without audio up to PCM quality with SMPTE and word clock control, 100-Tbase Ethernet port for rapid file downloads, BNC composite, component and sync jacks, balanced XLR audio outs, 20 GB HD in a 1 RU box; also DN-C550R dual-drive CD player with HDCD capability and CD/R/RW recorder, records from external digital sources via optical, S/PDIF and/or analog or from internal transfer, a pro -rade unit with use of computer discs for recording, switchable SCMS + full menu control of modes and settings, occupying 3 RU with rack ears; also DN-D9000 dual-drive, dual-use, DJ-style CD player with advanced playback features, user removeable CD mechanism for easy exchange, four sets of stereo outs + two S/PDIF outs, SHARC processor for superior sound.

Also: DN-F20R, AVR-3802P, DN-951RA, DN-961RA, DN-1050R, DN-680, DN-C630, DVD-1600P, DN-X800.

Deutsche Telekom AG **S8451**

Dialight Corp. **L1517**

Intro: L864 flashing-red obstruction beacon and L810 steady-burning tower side lights certified by ETL to be compliant with FAA standards with high-flux LEDs that use 90 percent less energy and last up to 10 times longer than incandescent lights.

Dielectric Communications **L8442, L2915**

Intro: 1400 Series FM Filter is a compact 10 kW filter designed for bandpass, notch and constant impedance filter configurations for system flexibility, an enhancement to the iris-coupled technology in the 1800 and 2400 Series FM filters.

Also: Antennas, towers, transmission line, filters, combiners, installation and maintenance services.

Digidesign **L13212**

Intro: Pro ToolsIHD 1, HD2 and HD 3 Systems are high-definition digital audio workstations with redesigned hardware housing powerful DSPs, dedicated mixing and processing horsepower, supporting 128 simultaneous audio tracks and 96 channels of I/O, interoperable with Avid picture and video workstations, they require the purchase of HD audio interface(s); 192 I/O and 96 I/O interfaces support 16 simultaneous channels of I/O with Pro Tools; the 192 I/O is a 24-bit/192 kHz multichannel audio interface, the 96 I/O is a more economical 24-bit/96 kHz interface; SYNC I/O serves as the master synchronization device for Pro ToolsIHD, supporting standard clock sources and time code formats; PRE and MIDI

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I/O are peripheral options, PRE offering eight channels of mic preamplification for the analog path into the Pro ToolsIHD environment with extensive remote-control capability, and MIDI I/O is a USB-powered MIDI solution for Pro Tools with 10 MIDI inputs and outputs and equipped to support the upcoming Digidesign Time Stamping feature; also, Mbox is a USB-powered micro studio, a portable Pro Tools solution with two inputs and outputs featuring Focusrite mic preamps, it marks support for DigiStudio Online collaboration for Pro Tools LE systems.

Digigram **L13362**

Intro: EtherSpeaker V1.0 networked speaker technology creates audio networks using standard Ethernet cabling, reducing installation costs and maintaining a very low-latency digital path to several speakers; miXart8 CobraNet multichannel soundcard featuring Peak Audio technology for distributing real-time audio over Fast Ethernet for distributing audio over large-area networks; NCX Suite enables configuration and management of multizone audio installations using standard Ethernet, icnluding software tools for system design, scheduling, playing prerecorded content and making live announcements.

Also: miXart, PCX, VX and LCM soundcards; Pocket range of laptop soundcards; NCX networked audio terminals; Xtrack digital audio workstation.

Digital Juice **S2037**

Intro: Editor's Toolkit DVD library; Jump Backs collection of 600 motion backgrounds; BackTraxx royalty-free music library with 1,000 digitally mastered tracks in 15-, 30-, 60-second or full-length tracks.

Disc Inc. **S7018**

Intro: NSM Series recordable DVDs to support archival and general storage requirements with storage capacities of 4.7 GB per side with WORM functionality.

Disc Makers **L19660**

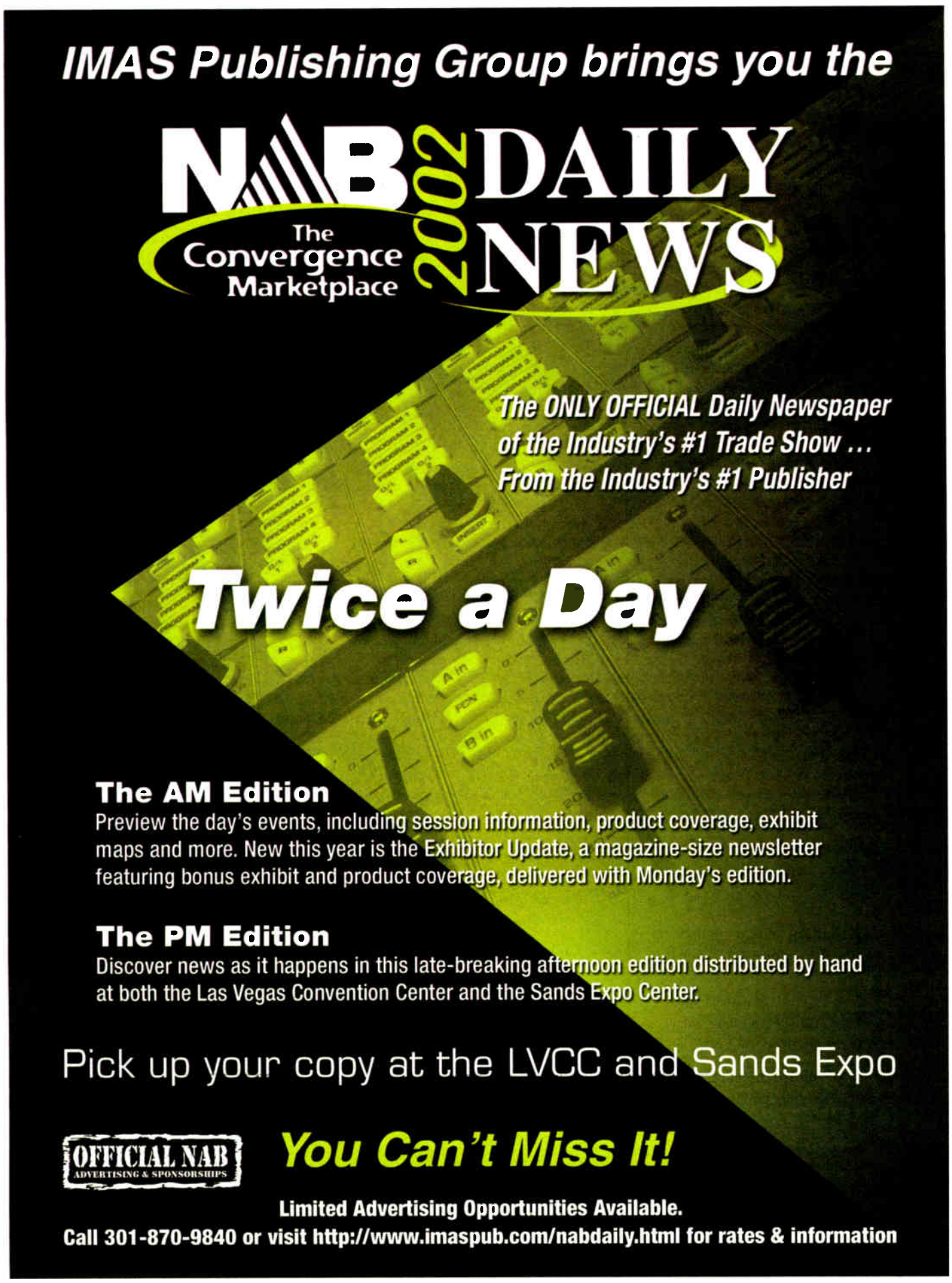
On Display: CD, CD-ROM and DVD manufacturing services.

Diversified Marketing **L2455**

DK-Audio America **L21827**

Intro: PTO200C stereo audio analyzer with two analog and one digital I/O; PTO600C-III multichannel audio analyzer with two analog and two digital I/O; PTO600C-5.1 surround audio analyzer for 5.1 systems with three digital inputs and the DK-Audio Jellyfish pattern; MSD600C-5.1 Master Stereo Display for 5.1 surroundsound systems with three digital inputs and the DK-Audio Jellyfish pattern for surround sound measurements; MSD600C-III Master Stereo Display free-standing unit with two analog and two digital I/O.

Also: MSD-100 and MSD200 Master Stereo Displays; MSD600 Series Master Stereo Displays, showing up to 7.1 surround sound.



Dolby Laboratories **L19535**

Intro: The LM100 rack-mounted loudness meter capable of measuring the equivalent loudness of content using a method producing results similar to continuous A-weighted RMS power level (LAeq), designed as an analysis tool to provide a broadcast-friendly solution to subjective loudness problems with television audio, capable of accepting PCM, Dolby Digital (AC-3), Dolby E, analog and combined RF cable television signals.

Also: DP569, 570, 583; DM100; DP571, 572, 579, 563; SDU4; SEU4; EX-EU4; EX-DU4.

Dorrough Electronics **L9046**

On Display: Dorrough Loudness Meter.

Doty Moore **L6841**

Intro: Technical services including tower vertical alignments, antenna inspections/maintenance, antenna electrical inspections, tower inspection, complete lighting systems services, guy-wire tensioning, elevator repair and refurbishment and emergency repair; antenna procurement services; SpectraSite Broadcast Group technical specifications, tower analysis, tower modification, transmission line and antenna installation for digital installations.

Dove Systems **L8609**

DPA/TGI North America Inc. **L2055**

Intro: Type 4071 miniature mic features customized frequency response with a permanent soft boost at 4 to 6 kHz to compensate for loss of clarity caused by mic body placement on the human chest cavity, built-in low-cut filter offers high headroom capability for wireless and other equipment in the system.

Also: 3541; 3532; 4041; 4006; 4007; 4011; 4012; 4022; 4036; 4060; 4061; 4065; 4066.

E

Eartec **L3347**

Intro: The Monarch lightweight dual-ear headset with comfortable wraparound headband and Clear Com and Telex compatibility; Digicom full-duplex wireless headsets that interface with permanently installed wired intercoms.

Econco **L2823**

Intro: Now manufacturing power transmitting tubes.

Also: Rebuilt power transmitting tubes for radio and television broadcasting.

Edak Inc. **S9647**

Intro: Zarges cases made from lightweight aluminum to meet environmental requirements. Available from stock; Milex 19-inch rack-mount aluminum cases for severe environmental conditions; Portex II instrument-carrying cases manufactured to exact requirements without tool charges.

Electronic Associates Inc. **L9275**

Intro: RF-Host dual-site controller can monitor and control two transmitter sites in real time, diagnostic features provided to enhance troubleshooting of transmitter problems.

Also: Dataline and DataWorks remote controls.

Elettronika Srl **L3062**

Intro: N+1 system for FM stations with a single reserve transmitter for up to six main transmitters, switching of audio and control signals of the transmitters and relays, LCD graphic display for setting operating modes, remote control via serial or parallel port, prelistening via earphones and internal MPX decoder.

Also: Amplifiers; transmitters; links.

EMR Corp. **L3363**

Intro: FM broadcast isolator includes 500 W input power, 250 W reflected, 0.5 dB loss, 32+ dB ANT-TX isolation, bandwidth ±0.5 MHz frequency, 50 ohms and N-female connectors.

Also: Low power circulators; isolators; cavity resonators; combiners; second harmonic/low pass filters; and impedance matchers.

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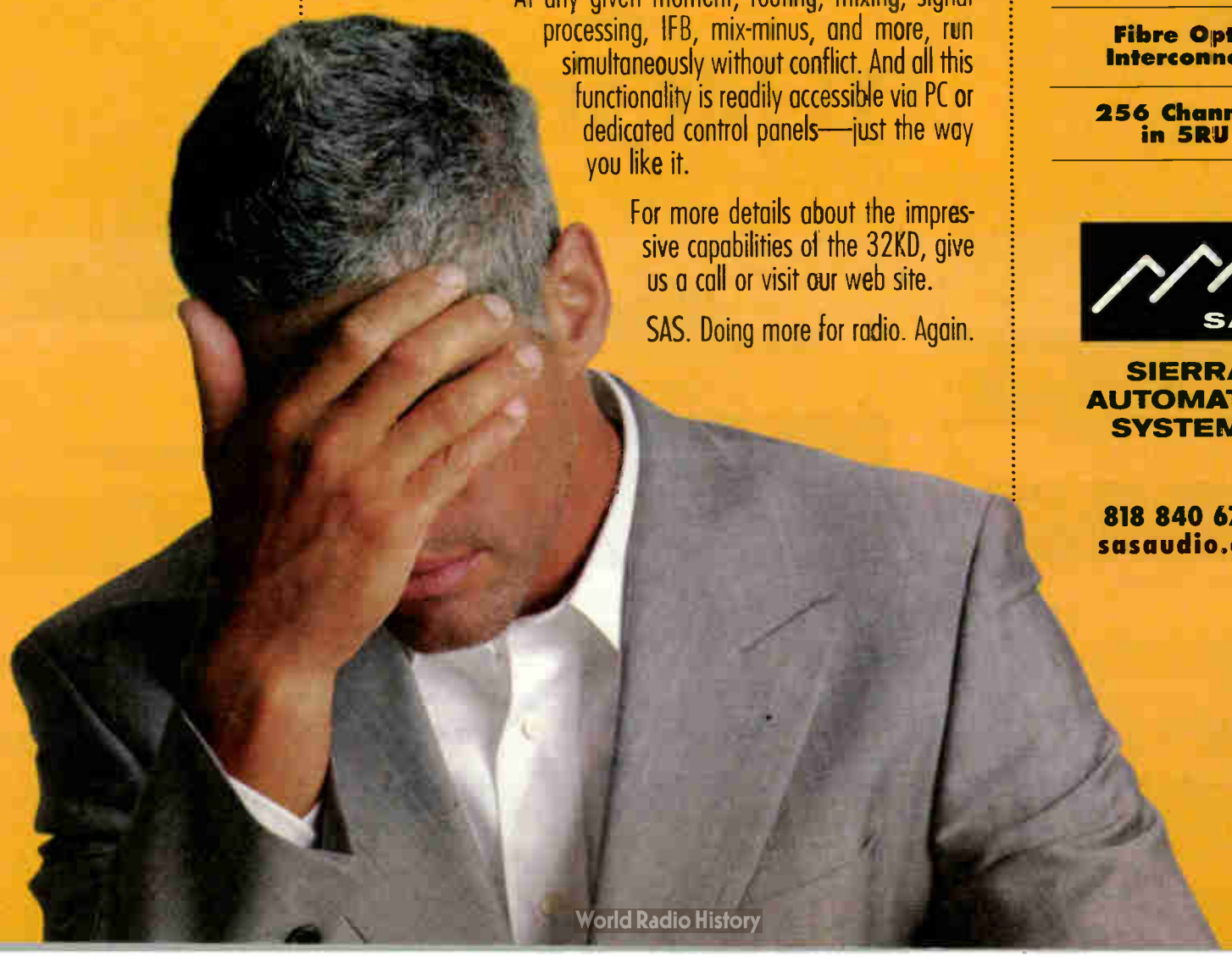

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ENCO Systems L3051

Intro: ENchiver multiple program stream audio recording/logging system using low-cost soundcards on a PC.

Also: DADpro32; Qed; distributor for NewsBoss, SADiE and Logitek.

Encoda Systems L8416

Intro: MART data mining and business analysis tool for groups and networks offers browser-based access to centralized databases containing spot information that can be used to create and access prebuilt revenue analysis tools, including trending, pacing, forecasting and business retention reports based on multiple parameters; also Paradigm 5.0 management system for mid/large operations introduces multichannel and digital capabilities, including a browser-based work order tool that automates routing program preparation tasks through a facility and updates to Traffix, Material Manager, Proposer and Digital Manager modules; DAL Channel Manager D-Series automation system expands support for multichannel operations requiring coordinated origination and control at central and remote sites; Verifier hardware/software monitors analog and encoded digital broadcast signals at critical points in the transmission path, providing alarms to the automation or network monitoring system.

Also: Program Control; TRANS/Act order entry system; ENS sales proposal system; Broadcast Master; and Spotdata electronic invoicing.

Energy-Onix L3322

Intro: Tele-Link 4-6-8 expansion to the Tele-Link Internet STL system adds four-, six- or eight-channel capacities; Legend 10,000C 10 kW solid-state FM transmitter with two independent 5 kW transmitters in a common combining system; Roadcaster remote pickup equipment capable of selecting from the front panel any assigned FCC frequency in the 150 to 170 MHz and 450 to 470 MHz ranges, produces output power of 45 W with less than 1 percent distortion over the frequency range of 30 to 7500 cycles.

E-N-G Mobile Systems Inc. L12216

Ensemble Designs L18351

Equator Technologies Inc. L9507

ERI – Electronics Research Inc. L2843

Intro: IBOC combiners with advanced coupling and transforming methods deliver the performance needed to meet/exceed IBOC transmission requirements; Axiom antenna incorporates high-power branching feed system to complement increased broadband elements; Cogwheel high-power antenna design integrates antenna, structure and feed system into single entity for nearly identical broadcast coverage and signal quality for participating stations.

Also: FM antennas, towers, filters, combiners, lightning protection and ground systems.

Scott Beeler, Worldwide Sales Manager
7777 Gardner Rd.
Chandler, IN 47610 USA
812-925-6000, ext. 214
FAX: 812-925-4030
E-mail: sbeeler@ERIinc.com
Web site: www.ERIinc.com

ESE L5327

Intro: ES - EMIAnt antenna for ESE GPS master clocks located in severe EMI environments; ES-206U time and date video inserter to time stamp video footage with time only or time and date.

Also: Master clock systems, clocks and timers; SMPTE/EBU time code products; audio and video distribution amplifiers and accessories.

Fernando Vallin, Sales Manager
142 Sierra St.
El Segundo, CA 90245 USA
310-322-2136
FAX: 310-322-8127
E-mail: ese@ese-web.com
Web site: www.ese-web.com

Euphonix L2751

EUTELSAT S9123

Eventide Inc. L2335

On Display: BD500 and BD960 broadcast delays; DSP4000B+ broadcast/production Ultra-Harmonizer; Orville Harmonizer; Eclipse Harmonizer; DSP7000 and DSP7500 Ultra-Harmonizers; EVE/NET network remote controller; and VR204HF digital communications logger.

Extreme Production Music Library S1540

Intro: Production music library with styles from hip hop to death metal, breakbeat and techno to soul and retro.

E-Z Up International L2754

F

Fairlight L13729

Intro: Dream Satellite digital audio workstation with 16-, 32- or 48-track capability, machine control, up to 48 analog and/or digital I/O and ready for MediaLink networking, includes Binnacle editing model; Dream Station 48-track digital audio workstation with 56-channel automated mixing, multiformat buses and monitoring up to 7.1, Binnacle editing and networking ready; Dream Console 48-track digital audio workstation integrated with large-format 192-input automated mixing console, multiformat buses and monitoring to 7.1, moving touch sensitive rotary controls and faders, modular, customizable control surface.

Fiber Options L11043

Intro: B743AV video and four-channel audio system supports composite video and four channels of line-level audio over fiber with 10-bit video processing and 24-bit four-channel audio processing; B714D provides fiber-optic transmission of 100Base-T Fast Ethernet data or 10Base-T Ethernet data up to 1.2 miles.

FirstCom Music Inc. L20307

Intro: Two-sided production music DVD Audio/Video/ROM with 24-bit audio mixed and mastered with Real SurroundSound in five audio formats, direct access to high-res audio files for DAWs and format conversion for audio files on the ROM sector; Virtual Preview Demo customized to client's needs and works with MusiQuick to provide access to a desired piece of music.

Also: 13 Libraries; MusiQuick Online; SurroundSound on DVD A/V/R; QuickTrax; LiquidTrax Fast.

Flash Technology L2649

Furman Sound S2433

G

Garner Products L6139

Intro: MDS Degausser Series allows for erasure of the newest tape formats, new graphics provide the user with easy instructions, so it takes less than 5 seconds to erase a tape from

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all programming, formatting, control track information and data.

Also: Eliminator 4000 Degausser

Gefen Inc. **L12911**

Intro: ex-tend-it 4x1 DVI Switcher is a four-port cross-platform solution that switches between two monitors and two computers simultaneously or between four computers using just one monitor, retail price $799; ex-tend-it USB-200 uses two high-powered USB outputs to extend USB signals up to 330 feet from the computer using Cat-5 cables, rather than the 17.5 limit without the USB-200, retail price $399.

Genelec Inc. **L2962, S3459**

Intro: 7000 Series active subwoofers for stereo and multichannel professional surround-sound monitoring environments, four models (8-, 10-, 12- and dual-driver 12-inch) all employing proprietary Laminar Spiral Enclosure technology, three models feature 6.1 bass management.

Also: 1029; 1030; 1031; 1032; S30D; 1037; and 1038 monitors.

Gentner **L13760**

On Display: TS612; DH30; DH20; SPH10; Telehybrid; and Microtel.

Gepco **L4929**

Intro: VS10230 10-conductor miniature 75-ohm video snake cable; 552624GFC 24-pair, 26-gauge digital audio multipair cable.

Also: Analog and digital audio cable.

Gibson Labs **L14956**

Intro: Magic provides universal connectivity for A/V systems with high bandwidth, low latency and bidirectionality; Titan "virtually unbreakable" line-array speakers and amps for system contractors.

Global Communications Solutions Inc. **S9729**

Globalstor Data Corp. **S6572**

Intro: ExtremeStor SC scaleable 7.2 TB to 20-plus TB rackmount enterprise data warehouse solution supports ESCON/FICON channels, UNIX, Linux, Windows 2000/NT and AS/400 systems through SCSI/Fibre Channel as well as RAID 0, 1, 0+1, 3, 5 and 5 over 5 setups; ExtremeStor FC 600 GB to 1.44 TB SAN-ready desktop or rackmount enterprise data warehouse solution supports ESCON/FICON, UNIX, Linux, has Windows 2000/NT and AS/400 systems through Fibre Channel, RAID 0, 1, 0+1, 3, and 5; InfinAttach DR open architecture embedded Windows NT NAS server supports 1 to 90 SCSI devices, two expansion slots for Fibre Channel/gigabit Ethernet cards, NovaNET 8.5 backup software.

GMPCS Personal Communications **S9944**

Gorman-Redlich Mfg. Co. **L2442**

Intro: EAS-1 emergency alert system encoder/decoder with optional DTMF telephone interface available so that messages can be composed and sent from remote locations via telephone.

Also: EAS equipment; weather receivers; digital antenna monitors for directional AM arrays.

Groove Addicts **L3122**

Intro: WBMX-FM Boston jingle/ID package created for Hot AC Station of the Year and syndicated to Hot AC stations in numerous major markets; Format Specific Libraries with 400 CDs in a growing catalog for PDs and creative directors to customize the sound of a station; Ignite Vol. 4 Sound Design of sonic logos, workpart elements and rhythm beds, including "The Non-Spit Beat Box," "All Natural Ambience," "Tasty Toxic Single Sound Fixes" and "Freaked-It Drum Kit;" Virtual Listening Room, an online access point for Groove Addicts libraries; "2002 Demo," showcasing libraries on two separate CDs and third CD than provides an overview of the entire catalog.

Also: Production music libraries, including: Who Did That Music?, Gravity, Ignite, Revolución, MindBenders, Tuff, Unity, BPM-Bosworth, Fontana, Sound-Pol, Classical Collection, Ready Steady Edit, Image Library and Fontana SFX.

Groovers Music Library **L19575**

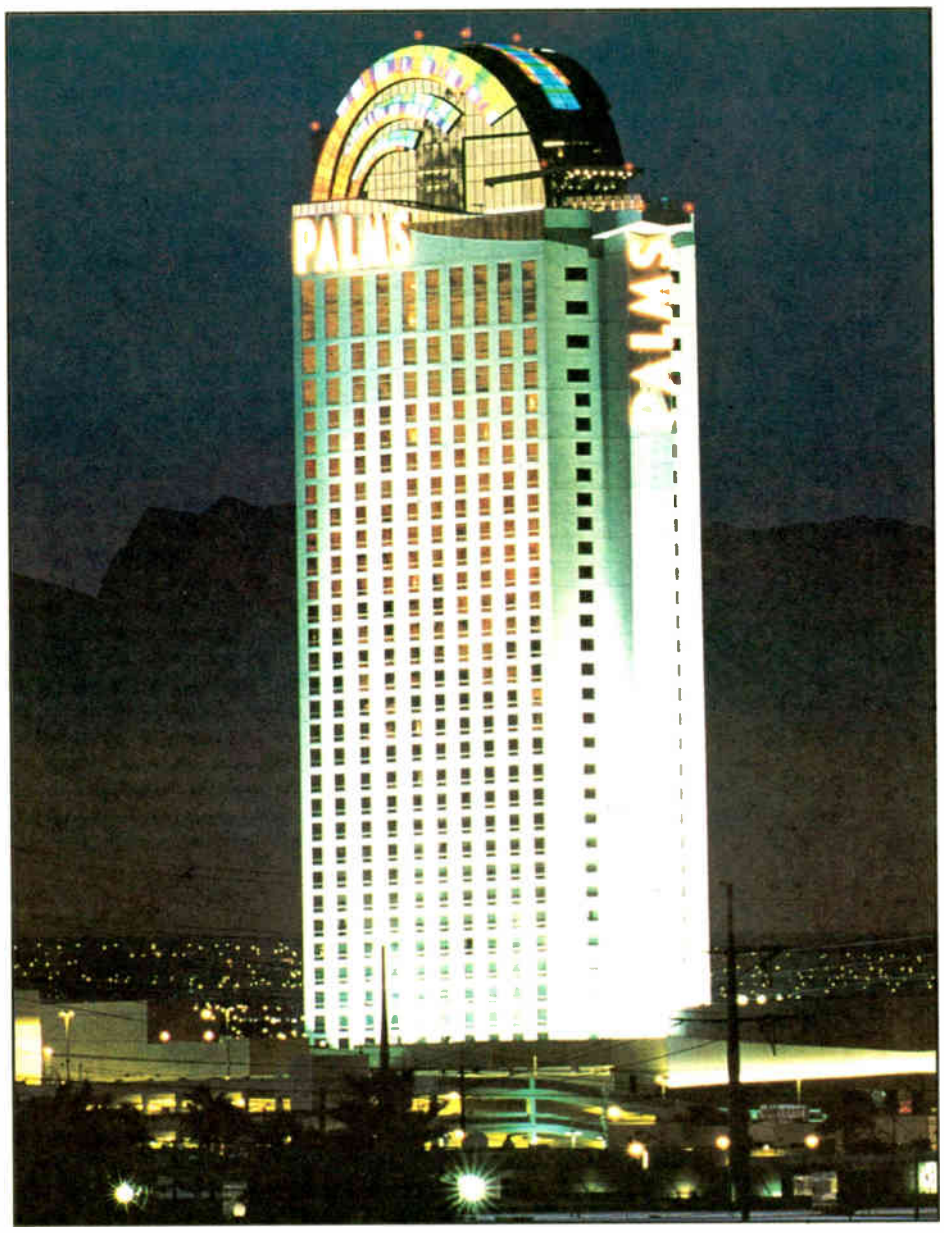
On Display: Production music library.

H

Hamilton Metalcraft **L3056**

Hannay Reels **L11375**

Intro: Stackable live audio/video cable reels with side mounted connecter panels, accommodate most XLR and BNR connecter combinations, steel construction, adjustable friction brake, non-reflective black matte finish; AV-2 portable, stackable cable storage reel easily customized with pin connecters to suit many A/V applications.



The 455-room Palms Casino Resort, a project of the Maloof family, opened in November west of the strip and I-15, on Flamingo Road. Countering the 'family' entertainment trend of recent years, the $265 million Palms has been touted, according to USA Today, as 'the sexiest, most adult casino ever built.'

Also: Audio/Video cable reels; portable cable storage reels.

Hardigg Cases **L14549**

Intro: Storm Case defies the elements to protect equipment investments with protective carrying case technology.

Also: Rack mount cases; Grab 'n Roll; and single-lid cases.

Harris Corp., Broadcast Communications Division **L5414**

Intro: "IBOC System - Linking the Digital Chain," a result of research and testing in partnership with Ibiquity Digital, offers digital signal quality with an AM/FM IBOC exciter, an IBOC Z Series FM transmitter and IBOC-ready STL Plus studio-to-transmitter; Harris Intraplex IntraLink-IP is a 10/100BASE-T (Ethernet) audio multiplexer to leverage LAN/WAN, ATM and Frame Relay services and the Internet to create a professional audio transport medium; Pacific Legacy Digital Broadcast Console; Pacific Custom Studio Furniture; Pacific QuickLine Studio Furniture; Intraplex STL Plus program audio package for T1 Circuits; Intraplex SynchroCast Synchronized Broadcast Transmission System; Intraplex IntraLink 6000 Series ISDN Multiplexers.

Also: Platinum Z CD Series FM Digital Transmitters; 2DX Series Solid-State Medium-Wave AM Transmitters with Digital Amplitude Modulation; SuperCiter FM Exciter; Digit CD Digital FM Exciter; Pacific Impulse Digital Console; Pacific Integrity.

Harrison **L2215**

Intro: Pro 950ex high-performance modular analog audio console for mid-market on-air or production applications with broadcast logic interface, eight input selectors, mix-minus system with direct talkback, bar-graph output meters and dual studio outputs.

Henry Engineering **L3102**

Intro: PatchBox distributes analog stereo output to inputs of other studio equipment with five balanced and six unbalanced stereo outputs that can be used simultaneously without interaction or signal degradation; MoniSwitch audio switcher eliminates "echo effect" from digital on-air audio processing and automatically switching studio monitors from air to local when the presenter microphone is live to eliminate echoes and flanging in the DJ's headphones.

Also: Matchbox; Superelay; USDA; Digistor II; Stereomixer; Micromixer; Mixminus Plus; Logiconverter; Audio Online.

Herman Electronics **L9071**

Intro: Brady ID Pal lightweight, handheld labeling tool allows choice of label material, size and fonts and features all standard electrical symbols.

Also: Shure microphones; digital audio cable and connecters.

HHB Communications **L3226**

Intro: CDR830 BurnIT Plus, 24-bit AD/DA converters, precision laser assembly, balanced XLR analog I/Os, an SCMS-free-digital input, balanced digital output and Word Clock output; HHB DVD-R4.7 GB for critical audio, video and data recording applications.

Also: Portadisc, Fat Man, Radius, Circle.

High Tech Industries **L11929**

Intro: Movable Monitor Wall space-saving wall that moves to create rear-service island with cabling and power distribution inside panel loom; lightweight consoles and vertical racks with aluminum and composite construction to reduce weight in production and up-link vehicles; Ergonomic off-line edit suites with adjustable monitor shelf to support two 20-inch CRT and one 20-inch NTSC monitor.

Also: Consoles, equipment racks.

HISPASAT **S9375**

HLW International **L12378**

Intro: Broadcast facility design/build services with architectural and engineering facility design and construction management services; broadcast facility planning services.

Honeywell Obstruction Lighting **L3334**

Horita Co. Inc. **L11961**

On Display: PT3 portable audio tone generator; AM-50 on-screen audio meter.

Hosa Technology **L6137**

Intro: OGC-361 long-distance lightpipe extender to overcome 30-foot limit on plastic optical, works with ADAT or coax optical, uses fiberglass connecters between converters of up to 500 feet; Zaolla Silverline solid-silver-core audio, digital, clock, microphone, interconnect, powered speaker and video cables that transfer signals cleanly and quietly in broadcast; PBP-362 optical patchbay, allows modular construction in 1 RU, allows 24 to 96 channels of SPDIF optical or ADAT lightpipe routing from front of the patchbay; SLW-333 audio signal selector 1-in/3-out paired speaker signal router, allows noiseless operation between selected playback monitors or signal paths.

Also: Audio, digital and video cables and patchbays.

I

IBC Ibertécnica S.A. **L2924**

Intro: HQ 30 high-quality 30W FM exciter with direct synthesis and a low-noise PLL, incorporates a microprocessor for control and communications; HQ 1000 1 kW FM integrated transmitter with reduced dimensions and advances in signal generation and performance, as well as a control and communications microprocessor; HQ-ES microprocessor-controlled stereo generator with the ability to configure its performance parameters, locally and remote, also incorporates auxiliary pilot RDS and MPX I/O; HQ-5000 5 KW FM transmitter with hot-pluggable modular system and a microprocessor for control, display and remote communications; HQ-STL 1.6 5 W microwave link for the 1.6 GHz band, parameters are front-panel adjustable.

Also: FM transmitters from 150 W to 10 kW; modulators; automatic control units; stereo generators; automatic n+1 switching units; digital coders and decoders; radio links; remote control and supervision systems.

iBiquity Digital **L2475**

Intro: IBOC AM and FM digital broadcasting technology allowing radio broadcasters to transmit a digital signal capable of integrating interference-free, CD-quality audio with wireless data services, such as program content and on-demand traffic and weather.

I-Bus/Phoenix **L17109**

Intro: eFuzion 1 RU and 4 RU computer platforms available with Windows NT4/2000 and Red Hat Linux 7.2 to support ATX, Micro ATX or SBC/back plane processor architectures with ISA/PCI bus architecture, as well as 4 RU and 8 RU compact PCI application-ready

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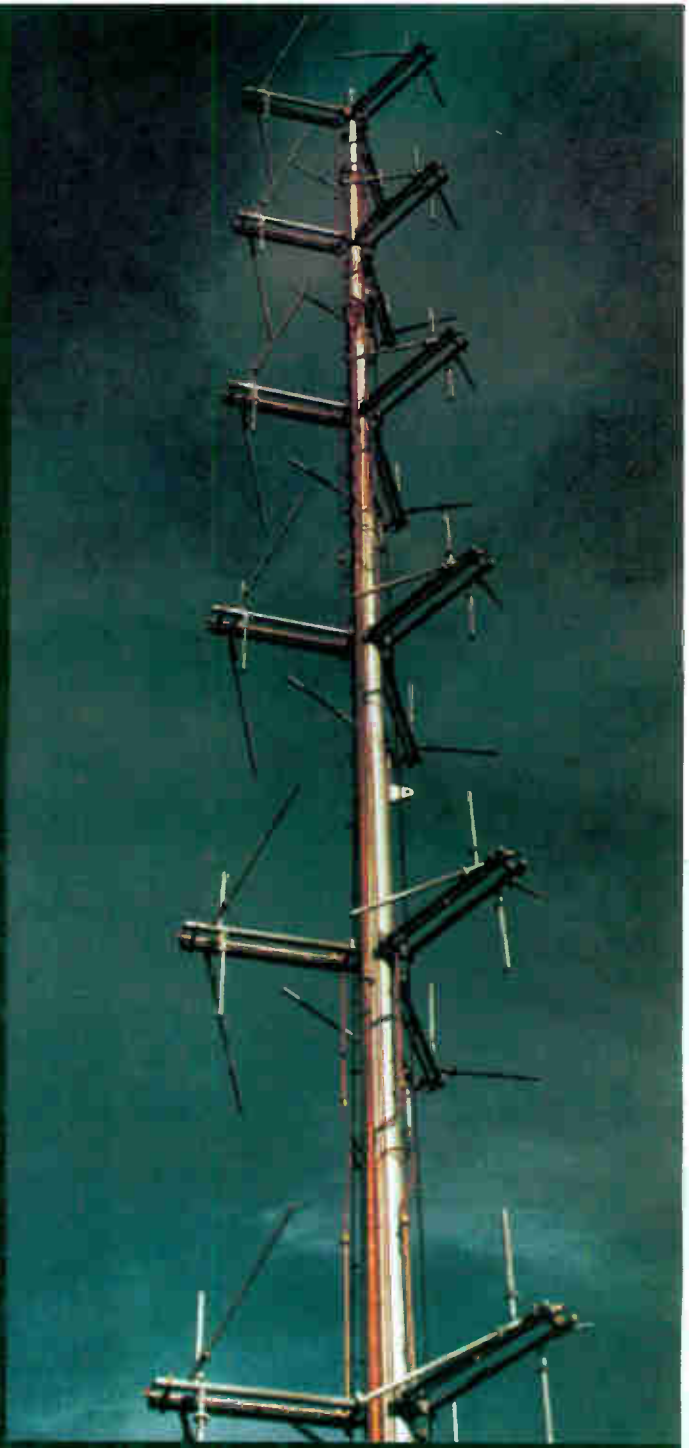

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platforms (ARPs); nFuzion 4 RU and 8 RU APRs to meet space and environmental requirements of network cores, cable headends, telecom central offices, wireless remote base stations and packed data centers; IBP 1000, 1500 and 2200 slim-line racks with UPS power management software provide network-grade power protection for servers, automatic voltage regulation and microprocessor-controlled optimized battery management.

IDT **L1963**

Intro: DVP Evolution II revised FFT processor with a new engine in FM, AM and Internet versions; Digital Link Driver protects link, uplink and telephone outgoing signals with AGC, accepting analog and digital signals from 32 kHz to 96 kHz and is DVP-compatible; Virtual Voice Processor applies FFT to voice processing to add depth and warmth, eliminate noise and remove unwanted parts of the signal spectrum; Digital Band Processor with four bands to correct dangerous changes in input level automatically, adding stability to broadcast signals with sampling and processing at 96 kHz, 40-bit floating point for signal integrity and precise processing; Advanced Peak Control optimizes clipping points, increases loudness and eliminates overshoots without distortion.

Also: DVP@FM; DVP@AM; DVP@NET; DBP in DVP; Digital Encoder Plus; plug-ins for Dorrough, RDS, MPX and Stereo Boost.

IDT Continental Electronics **L2763**

See listing under Continental Electronics.

Illbruck Inc./SONEX **L3002**

IMAS Publishing Co. **L3202, L19173**

On Display: Publisher of newspapers, magazines and Web sites for audio and video professionals, including Radio World, TV Technology, AudioMedia, Pro Audio Review; producer of the NAB Daily News.

Independent Audio Inc. **L2462**

Intro: Audio Developments AD161 mono ENG mixer with three mic/line inputs in a small, rugged housing for journalist operation; AD162 mono ENG mixer with three mic/line inputs and LCD meter switchable between PPM and VU with wide-angle visibility in all lighting conditions; AD114, a laptop mixer with four inputs, two outputs and linear faders suitable for use with laptop editors and applications where small size and light weight are important; also Coles Electroacoustics 4040 ribbon mic; OKM Soundman binaural microphone in two models, the PX (Pop) for above average SPL and the PXS (Pop Studio) with a channel difference of less than 0.5dB.

Also: Cedar; Coles; dCS; Magtrax; Pearl; Sonifex; Soundman.

Inovonics Inc. **L2237**

Intro: Model 531 frequency-agile off-air FM modulation monitor measures total modulation and demodulated left/right audio, plus RDS and SCA injection levels, incidental AM noise and multipath distortion; also, two new versions of the Davicom M-A-C remote site monitoring system will be demonstrated including a 300-word "extended vocabulary" version as well as an IP-compatible version.

Also: Digital and analog audio processing; AM and FM modulation monitors; RDS/RBDS.

Intel Corp. **S6327**

Intro: Scalable Media Management Solution system for content digitization, cataloging, indexing, searching, retrieving and storage over a variety of networks; Broadcast Media Distribution System for robust end-to-end content protection and digital rights management; advanced Intel processors for creating, managing, formatting, distributing and consuming digital media.

Also: Intel Pentium 4 processor.

IRTE SpA **L20163**

Intro: The PR-XX/D radio-link system uses long-haul microwave equipment for temporary and fixed applications, multihop and/or multichannel transmission and capable of supporting analog and digital modems; also IT 2 automatic switching device for frequency modulated, high-capacity analog microwave radio systems can operated as 1+1 or 2+1 system and provides analysis of signal and noise level, choice of the channel with the best signal-to-noise ratio.

Isis Group **L19269**

Intro: Innovation by Isis compact small- to medium-size routing switchers for broadcast and presentation applications, able to handle most signal formats with front-loading boards capable of hot swapping and Ethernet and RS-232 control interfaces.

Itelco USA Inc. **L20141**

On Display: 100 W L band DAB transmitter.

iVAST **S4549**

Intro: End-to-end MPEG-4 solutions for distribution of interactive audio/video content across broadband and broadcast networks.

J

Jampro Antennas/RF Systems Inc. **L6127**

On Display: FM sidemounts/panels/broadband, combiners.

JK Audio **L2552**

Intro: ComPack handheld road tool for transferring audio across analog phone lines, PBX systems and cell phones, connects a mic, headphones and mixer to any phone system and functions as a telecom interface to a beltpack intercom system; Daptor Two allows users to send/receive audio from a mixer or tape recorder via telephone by plugging the unit into the 2.5-mm headset jack of a cell phone, passive box features transformer balanced XLR and unbalanced 1/4-inch in/out, a field mixer can be used for wireless remotes or IFB feeds; CellTap allows users to record cell conversations by connecting the unit between the 2.5-mm earpiece jack of a cell phone and earpiece or headset then connecting a tape recorder to the 3.5-mm mini jack to record both sides of the call.

Also: RemoteMix series mixers; Innkeeper digital hybrids; Inline Patch; THAT-2; QuickTap; and Voice Path.

JLCooper Electronics **L12824**

Intro: FaderMaster 4/100 id MCS-Pro Series Deep Profile fader controller with four 100-mm touch-sensitive, motorized faders, in MIDI, RS-232, RS-422 and USB versions, can be used as a standalone controller or physically coupled with the MCS3s to form a larger, fully featured console; other new control, synchronization and interfacing products for professional audio, video and multimedia markets.

Also: MCS-3800 Media Command Station for film, audio and video systems.

J.L. Fisher Inc. **L10774**

On Display: Model 2 and Model 7 microphone booms.

Jünger Audio Studiotechnik GmbH **L2878**

Intro: C8000 two-, four- and eight-channel digital audio processing modules to combine with interface modules (analog, analog 96 kHz, AES, MADI, four- and eight-channel SDI) and serial and parallel remote control; Orion eight-channel digital dynamic range processor based on C8000 system for link-controlled processing of eight audio channels for DVD and surround-sound mastering/transmission; C8007 digital transmission signal processor for the C8000 system combines level and autobalancing AGC with multiloop compression, pre-emphasis processing and brickwall limiting; v08 digital desktop mixer with voice processor, three fader desktop remote control, four analog and four digital inputs, mic input with digital dynamics and EQ; B44 SDI audio router/converter, combination of four-channel A/D and D/A conversion DAC and SDI de-embedder, free routing between all I/O.

Also: d01; d02; d05; C8000 modular processing system; V-Series voice processors; Accent two-channel digital dynamics processors.

K

KAE Corp. **L9571**

Intro: PC-LCD 15 Monitor Mask allows users to rack-mount 15-inch LCD monitors in 7 or 8 RU; KMD-2 2 RU pull-out PC keyboard, mouse and 15-inch LCD monitor drawer, includes Windows 95/98/NT mini-keyboard, mouse and NEC 1530V LCD monitor; BOP-4 2 RU 24 XLR breakout panel with rear cable support and either male or female XLRs; SS-WFM 3 RU stationary shelf for installing half-rack waveform, vectorscope and audio monitoring units; EPS-1F 1 RU power strip with surge suppression and six outlets mounted on front of the rack.

The Las Vegas Strip

Kagan World Media Ltd. **L13765**

Kathrein Inc., Scala Division **L8668**

Intro: 754 154 circularly polarized FM antenna for 87.5 MHz to 108 MHz operation and 2.5 kW input.

KD Kanopy.com **L3200**

Keystone Studio **L15165**

Kintronic Labs Inc. **L3042**

Intro: DAC-MOD-2-12/CIW Touch-Screen Color Interface, a Web-accessible AM directional antenna system transmitter and pattern selection controller, features include visual indication of system status and graphic indicators, including bit-mapped images of selected transmitter and antenna pattern, alarm history, Web access for diagnostic or modification purposes; also FMC-1.9G-PCS Isocoupler to permit installation of PCS digital cellphone service on a hot AM broadcast tower; FMC-2.4G-SS Isocoupler permits installation of wireless Internet or other spread-spectrum wireless communication services on a hot AM broadcast tower.

Also: IBOC- or DRM-DAB-compatible AM/MW antenna tuning units, multiplex units and directional antenna phasing systems; AM/MW dummy loads from 1 kW to 1.5 MW; AM/MW combiners; frequency-agile, rapidly deployable militarized antenna systems; folded monopole kits and tower detune kits; main/aux/dummy transfer switches and rack-mountable controllers; pre-fab aluminum construction buildings; indoor and outdoor 19-inch racks; isocouplers for FM, STL, paging, PCS and wireless Internet; fixed and variable high-Q inductors; antenna system accessories; AM/MW RF system design; international medium-wave directional antenna pattern development and associated propagation studies.

Kline Towers **L9049**

On Display: Design and construction of broadcast towers.

Klotz Digital America **L1942**

L

L-3 Satellite Networks **S8440**

Larcan **L9122**

On Display: FM Transmitters: Solid-State 25-Watt and 100-Watt models.

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Lectrosonics Inc. **L3130**

Intro: UH200D plug-on transmitter has selectable 5, 15 and 48V phantom power, dual-band compandor, 256 synthesized UHF frequencies, integral antenna and pilot-tone squelch control.

Also: Wireless microphones, LecNet, IFB, DCS.

Leitch **L19511**

Lighthouse Digital Systems Inc. **L2071**

Intro: The Automator provides for the automatic execution of single switches or salvos for reoccurring and non-reoccurring events, features include preview capability, system-wide messaging, reports, a database of switch events, and the ability to import and manipulate data from other scheduling software, also the ability to import/export automation events with servers at remote locations; JOZ second-generation TDM switcher can deliver signals to as many as 8,192 x 8,192 channels, supplies clickless switching (cross-fading), test signal generation and measurement, stereo-to-mono mixing, multi-level mixing, signal delay, equalization, generation and reading of SMPTE and timecode; future signal manipulation includes AC3, Dolby E and Firewire.

Also: TDM and crosspoint routers, fiber links, software control systems and panels.

Lightning Eliminators & Consultants **L7638**

Linear Srl **L2363**

Location Sound Corp. **L3232**

Logitek Electronic Systems **L2937**

Intro: Redesigned Numix features full-color LCD displays with more room for messages and information from hard-disk systems and improved intercom functions; Remora provides many of the functions of a Numix console, including expandability with in a small footprint; SharcAttack DSP card for the Logitek Audio Engine provides extra processing power for EQ, limiting and talk show delay functions on Logitek digital consoles.

Also: Logitek Audio Engine; Route3 router controller; Button12; Supervisor/Command Builder software.

LPB Communications Inc. **L2715**

Intro: OMNI-1000E features an affordable,

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Also: MX; Signature and Blue5c audio consoles; Omni AM/shortwave transmitters.

M

Mackie Designs Inc. **L12855**

Intro: Soundscape 32 embedded DAW provides workstation features without the instability of a native, motherboard-based record engine, using its own microprocessor board and embedded record engine so audio travels from the I/O straight to hard disk, includes digital and analog audio I/O, real-time mixing through a user-defined environment, DSP-based effects, automation package, synchronization support and Edit Decision List compatibility with video editing systems, supports plug-ins including Cedar Audio, Aphex Systems, Wave Mechanics and TC Works; also new, the I/O 896 co-developed with Apogee, is a suitable partner for Soundscape 32 and includes eight channels of AES/EBU digital I/O, eight of analog I/O and eight of ADAT optical and supports MADI; SDR24/96 Hard Disk Recorder is a 24-bit/24-channel non-linear hard-disk recorder with processing power for 24 simultaneous channels at 24-bit/48 kHz or 12 channels at 24-bit/96 kHz, with internal IDE hard drive for storage of 90 minutes of 24-track recording while an on-board drive bay will accommodate the Mackie Media M-90 pullout disks and Mackie Media Project drives used by the MDR24/96 and HDR24/96; DFX•6 and DFX•12 entry-level mixers mic/line and stereo line inputs, 60 mm faders and 32-bit EMAC custom digital effects processor with 16 effects, and studio-grade, five-band stereo program equalizers; HR624 Studio Monitor is a 6.7-inch, two-way high-resolution active studio reference monitor powered by Mackie Active Technology, includes THX PM3 Certification, with the frequency response and dispersion of the HR824 in a smaller package.

Also: Compact Mixers, Studio Monitors, HDR24/96, MDR24/96, Mixscape Recording System, DX810, UAD1 Powered Plug-ins.

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Chinatown Mall

Mager Systems Inc. **L2030**

Intro: Sound Choice Furniture series, curved and round, standard color, optional color choices and upgrades, 19-ply 1-1/2-inch plywood, no particleboard or melamine, solid surface tops, requires no cabinet assembly, sealed, no laminate to crack, chip or peel off; Computer Pull Out is a computer hard-drive pullout that sits in a carriage that pulls out of the cabinet, or can sit under a top, and rotates 180 degrees, to give access to computer wiring, and the cabinet is insulated with sound acoustic treatment, baffling and ventilation; Keyboard keys are switches that work at the touch of a finger under glass or any non-ferrous material, rugged and sealed against chemical or solvent spills, with service life that exceeds that of other keyboards, easy to clean and no particles can be trapped, and simple installation with mounting bolts and seals for integration into a panel or to stand alone; also now offering modular furniture, conference rooms, reception desks, desks, seating and ergonomic accessories; also space planning and design services using computer-aided design and specifications.

Also: Custom studio furniture.

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Manhattan Production Music **L6424**

On Display: Apple Trax/MPM/Audiophile Sound Effects Series.

Marshall Electronics **S3669**

Intro: Four new VR series rack-mount LCD monitors for broadcast and multimedia fixed and mobile applications.

Also: Audio and video equipment to the broadcast, film, post-production and multimedia industries.

Martinsound **L2056**

Intro: ManagerMAX bass manager for surround monitor systems; PanMAX automatable multiformat panner system with analog surround panner; MonitorMAX stereo monitor controller; BalancerMAX 5.1 channel surround balancing interface.

Also: MulitMAX EX; ForMAX; VuMAX; RecordistMAX; MSS-10 microphone preamplifier.

Masterclock Inc. **L21700**

Intro: Masterclock GPSPC computer card synchronizes time from the GPS satellite system for network and automation systems.

Also: GPS200 Master Clock Generator; TCR500 Time Code Receiver; TCRSYNC-PRO & NTP; TCD26; TCD46; TCD86 digital displays.

Medea Corp. **S4549**

On Display: AudioRack LP.

MediaTouch **L1916**

Intro: iMediaTouch OpLOG-32 can run a station for $995, it is the 32-bit version and third generation of the OpLog DOS touchscreen control and automation software introduced in 1985, with 130 installations and 25 new features since its beta introduction last year, fulfills functions of on-air, production, voice tracking and log tools, with CD-ROM or personal demos at the booth; iMediaAdCast content substitution software system works with most digital automation systems and has been installed by a major U.S. radio network to solve the issue of royalties for streamed programming, it not only subs commercials on hard disk but all other stored digital audio and live network broadcasts, comes with Real and WMA streamers, runs on a PC PIII or better with a sound card and sells for $995; Quicpix Ver. 3.0 cart replacement software adds a send and receive encoder/decoder system for Web streaming and retrieval, the simple audio playlist software can stream from one workstation any broadcasting format using a PC and a Windows-compatible sound card and receive on another workstation of the same caliber over the Internet, with WMA and Real Networks streamers included, provides the ability to generate fill music should Internet access or streams fail, sells for $399 per seat; also Mass CD Ripper.

Ron Paley, VP Broadcast
1555 Dublin Ave.
Unit - 1
Winnipeg, MB R3E 3M8
Canada
204-786-3994
888-665-0501
FAX: 204-783-5805
E-mail: rpaley@omt.net
www.omt.net

Megatrax Production Music **L12563**

Intro: Movie Showcase MX118-122 CDs feature the London Philharmonia Orchestra and Choir and will be available in 5.1 surround DVD.

Meteorlogix **L9283**

Micro Communications Inc./RYMSA **L9343**

Intro: Integrated digital RF TV packages; wideband high-power BLC series coupler; wideband channel combiner, wideband high-power combiner, wideband waveguide-to-coax transition.

Microboards Technology **L2266**

Intro: DSR DVD duplication and archiving to CD or DVD supporting up to four recorders and connects to a PC for mastering/archival or operates as a standalone copier; MultiWriter DVD with up to eight recorders to run three separate mastering jobs at once, comes with mastering software; Orbit DVD automatically loads and copies up to 50 DVD or CD discs without a PC or user intervention.

Microsoft Corp. **L16501**

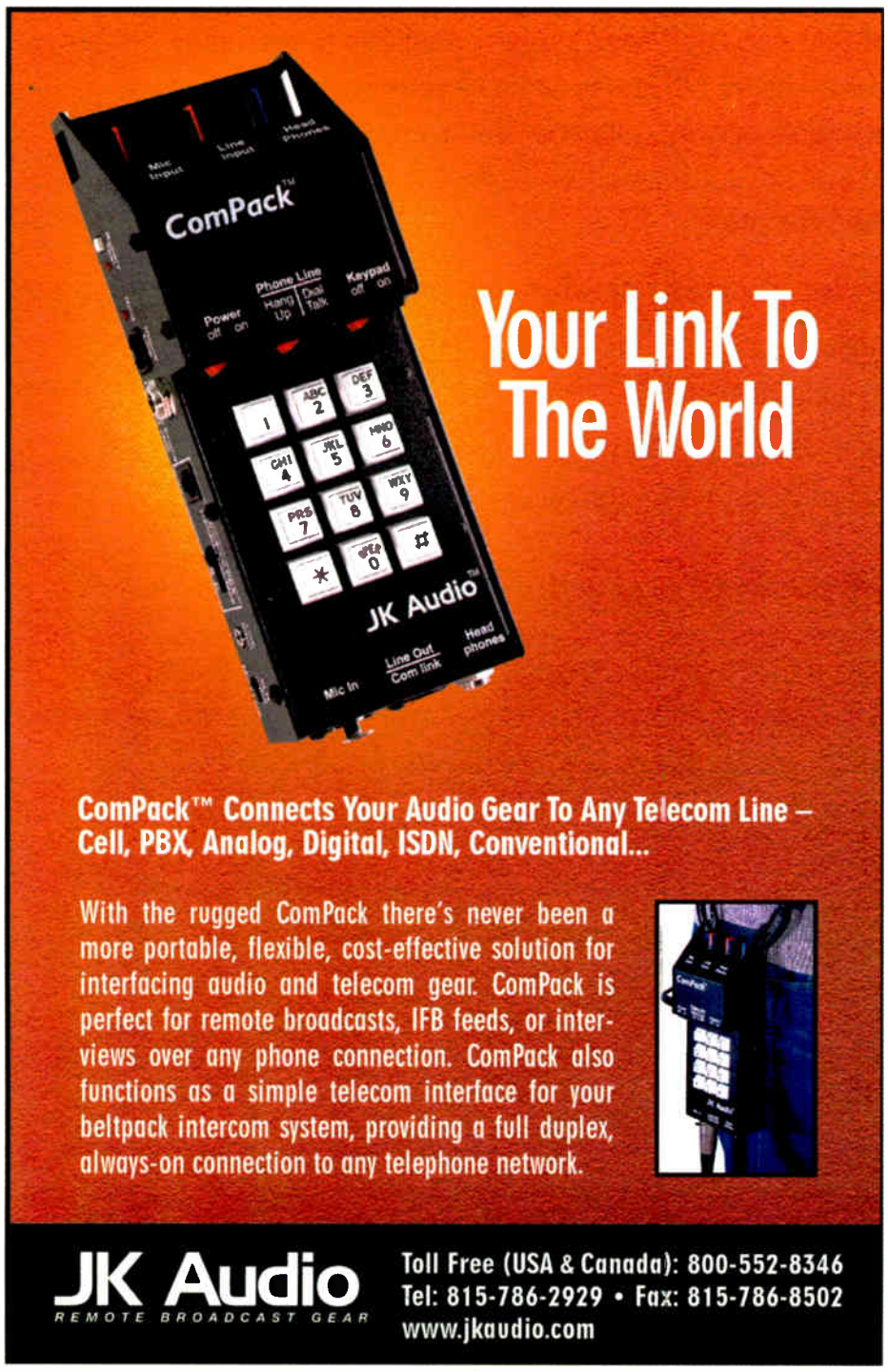
Microspace Communications Corp. **S9644**

Intro: Velocity offers economical and reliable broadcasting of business TV and data applications using streaming video and store-and-forward technologies; video or high-speed data can be received by small 36-inch antennas and inexpensive MPEG2/DVB satellite receivers.

Microwave Radio Communications **L6613**

Middle Atlantic Products **S1522**

Intro: MDV-LD 60-inch editing desk with graphite finish can be used with Edit Center or



World Radio History

MDV Series side bay racks, overbridge for monitor(s), ergonomic design; ED Series Desk is available with cherry or graphite finish in 60- or 84-inch widths, can be used with Edit Center single and dual side bay racks; Video Monitor Mounts; HDR-4 Horizontal Distribution rack provides four racking spaces of equipment mounting while requiring only 7-1/2 inches overall depth, mounts patch panels vertically parallel to the wall on an upper set of 2-space rackrail that includes cable management features and pivots 90 degrees, and up to 18-inch-deep hubs and routers on a lower set of 2-space rackrail that pivots 15 degrees for ease of wiring; temperature-sensing Fan Controller is available rack-mountable or as a modular for the Modular Power Raceway system, controls four fans and includes a three-foot temperature probe and three-step fan speed control.

Also: VMRK-54; MPR Modular Power Raceway System; Edit Center; MultiDesk Video

Modulation Sciences Inc. **L5210**

On Display: Composite Clipper; StereoMaxx Spatial Image Enlarger; FM Modulation Monitor; FMMM-2, MYB-2, CP-803, CLD-2500, CLD-2501, CLD-2502, CLD-2504, SCA-186.

Moseley Associates Inc. **L2505**

Intro: ARIES 450 full-duplex digital 450 MHz RPU; StarLink 950C allows user to select digital composite or 16-24-bit AES/EBU.

Also: PCL-6000; DSP-6000; SL9003Q; SL9003T1.

MSoft Inc. **L13865**

Multidyne Video & Fiber Optic Systems **L5349**

Musicam USA **L3205**

Intro: SuperLink connects to the world for applications involving audio, data, streaming audio for Internet, LAN, WAN, DSL and ATM; connects to other codecs via ISDN, receives a feed over T1 or E1 and streams it online, uses one chassis with many applications, you choose the configuration and SuperLink makes the connection, it supports multiple algorithms, including CCS-enhanced MPEG Layer II, connects to multiple ISDN lines for multi-channel, multi-point or high-bit-rate feeds, sends and receives single or multichannel audio over T1 or E1 for STL use with automatic ISDN backup.

Also: CDQPrima Series; RoadRunner;TEAM.

Myat Inc. **L4907**

On Display: Transmission line systems and components.

N

National Assn. of TV & Radio Broadcasters **L9878**

National Weather Service **L2673**

Nationwide Tower Co. Inc. **L6539**

Intro: National 24/7 monitoring services for tower lights, including monitoring of activities inside the shelter.

Also: Tower maintenance and erection.

Nautel Maine Inc. **L2323**

Intro: NE IBOC digital exciter capable of tuning within the AM and FM bands to provide an IBOC modulated waveform in accordance with iBiquity-defined service modes; XL60d and ND5d AM 60 kW and 5 kW solid-state AM transmitters providing enhanced DRM and IBOC digital compatibility including direct interface with the NE IBOC digital exciter, additional power levels available; Q20/20 40 kW dual-configuration solid-state FM transmitter system with redundant broadband RF amplifier modules and power supply modules, including duplicated digital FM exciters, IPA/IPA and low-voltage power stages; NE30 analog 30 W FM exciter with a rugged two-stage broadband MOS-FET amplifier.

Also: FM3.5, FM5, FM8 and FM10 3.5 kW to 10 kW solid-state FM transmitters; NE50 50 W digital FM exciter with AES/EBU direct digital input or optional composite input; NA100-300 100 kW to 300 kW DRM-compatible medium-wave transmitters; NC600 600 kW AM combiner for active reserve 300 kW + 300 kW operation.

Nelson Case Corp. **L14034**

Intro: Audio/video rental and production cases with structure and foam density to protect delicate A/V equipment in transit, reusable for shipping and/or storage and custom designed to customer requirements.

Also: Rackmount cases; video camera cases; microphone cases.

Nemal Electronics International **L5212**

Intro: NE9960 Series gas-discharge lightning arrestor for use from zero to 5 GHz with range of connector types.

Netia **L1932**

Network Electronics U.S. Inc. **L21715**

Intro: Thor-CP router management software for VikinX routers with one-touch launching of programmed salvos and 40 programmable buttons with 16 programmable GPI I/O; Media 8 low-cost RGB analog video and optional analog stereo audio router with VikinXNetworks flash technology and compact design, 250 MHz bandwidth; ETH-100 Fast Ethernet 10BaseT/100BaseTx to fiber converter, a full duplex module for use in one- or two-way fiber installations; AV-MUX-R four-channel AES audio de-embedder with optical input for 1310 nm and 1550 nm, SDI output with reclocker.

Neutrik USA **L5838**

Nicom USA Inc. **L3342**

Intro: NA2001 2 kW FM broadband transmitter with MOS-FET amplifier, 30W drive input power, automatic gain control and full remote control and telemetry capabilities.

Also: Poseidon; Atlantis; NLR900LCD/NLS910LCD STL system; FM transmitters and amplifiers; FM and TV antennas.

NKK Switches **L15045**

Intro: Software-controlled SmartSwitch pushbutton switches can be programmed to display text and still or moving graphics; UB2 Series miniature, low-profile illuminated pushbutton switches; Super Bright HB, KB, LB, UB, and YB Series LEDs for illuminated pushbutton switches in blue, white, and green; LED-lighted pushbutton switches with Bright LEDs as standard options; LED-illuminated JB series keypad switches.

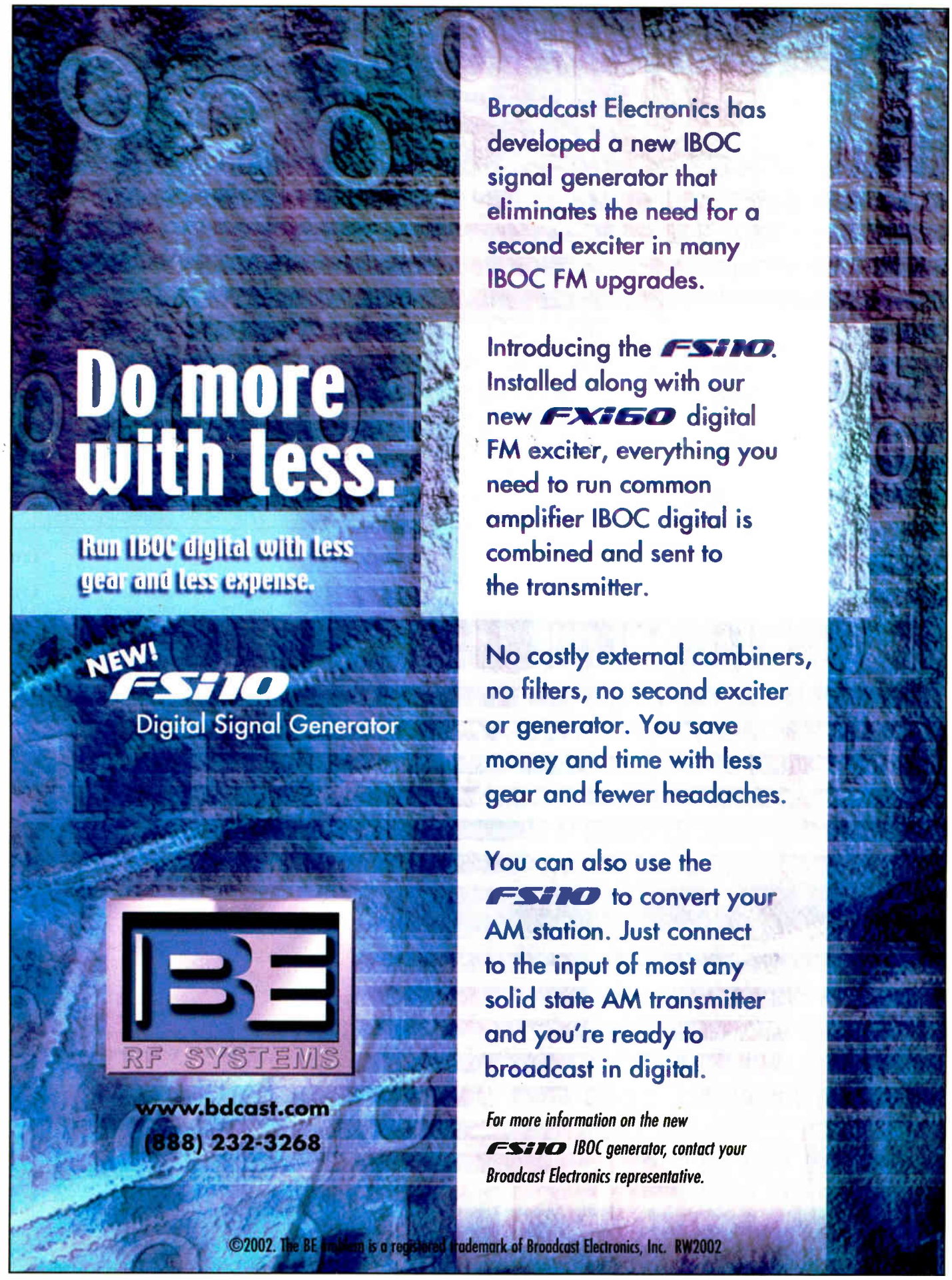
Also: Electromechanical toggle, rocker, pushbutton, slide, keylock, keypad, keylock, rotary and binary coded DIP rotary switches.

Non-Stop Music Library **L5756**

On Display: Music library.

Norsat International Inc. **S8155**

Intro: 25551 Series of Ku-band transmitters,



World Radio History

Models 1010XRT/1020XRT for satellite network applications; IPE in a Box Internet Protocol Encapsulator solutions for high-speed data transmission across satellite and cable networks, includes IPE 420 encapsulator with a sustained output data rate of up to 20 Mbps, step-by-step configuration wizard and "quick start" guide, management and application monitoring software, upgrade options to increase throughput rates to 120 Mbps.

Also: Transmitter; IP encapsulator; return channel router; integrated services network.

NPR Satellite Services **L2901**

O

OMB **L3222**

Intro: MRI-10 RPU system, externally synthesized, frequency agile, digital display, rechargable battery, switching power supply; LT/LR-10 DIG STL system, externally synthesized STL, frequency agile, digital display feature on front panel; EM 2000 FM transmitter, solid-state exciter and power amplifier, compact construction, suitable as back-up unit, digital display metering.

Also: FM transmitters; STL systems; broadcast consoles; stereo generator; FM antenna systems.

Omnia, a Telos Company **L2251**

Intro: Omnia 4.5fm processor with 96-kHz sampling rate, stereo and bass enhancement features, five-band limiter and AGC, PC-Card design for easy software updates, Ethernet remote control, digital I/O with automatic sample rate conversion, pilot-protected distortion canceling composite clipper and color display; Omnia 6fm digital audio processor with 96-kHz sampling and 24-bit resolution, five bands of AGC, six bands of limiting, adjustable crossover network, remote control via modem, RS-232 or TCP/IP, Space-EFX stereo enhancement, unlimited preset storage using standard PCMCIA cards (up to 30 presets per card), DAB-ready and ITU BS-412 compliant.

Also: ToolVox; Omnia Stereo Generator.

OmniBus Systems Inc. **L11423**

Intro: Colossus is multichannel, multidelivery automation and control system developed to bridge the gap between video, audio, Internet and data-streaming applications; GAMMA asset management applications provide access to archived media via Internet; Librarian tracks media and sources, versions; OmniBus Desktop Control Suite allows journalists to search for material, browse, edit, define and add metadata, check copyright issues.

Omnimusic **L5850**

Intro: Omni Blue Dot has 2,000+ tracks of broadcast/Netcast production music, allowing access music via the Internet or CDs with fast search and downloads, market-based blanket contracts or pay as you go.

Also: Omnimusic, CDM French library.

On-Air Systems Ltd. **S2937**

Onan Corp. **L609**

Opticomm Corp. **S4833**

Intro: DVX-5000 SDI, ASI and DTV Uncompressed Fiber Optic Video Mux; DVX-5400, Four Channels of SDI Uncompressed Fiber Optic Video Mux; DVX-6000, HDTV, HD-SDI and SDI Uncompressed Fiber Optic Video Mux; DVX-104, 1 Channel SDI with 4 AES/EBU Audio Channels Uncompressed Fiber Optic Video Mux; DAX-2016, 16 Channels of AES/EBU Uncompressed Fiber Optic Audio Mux

Also: Fiber Optic Audio Multiplexers.

Orban/CRL **L1752**

Intro: IBOC Output retrofit option on the 8400 is an additional AES/EBU output that carries the output of the multiband compressor/limiter as fed directly into an advanced look-ahead limiter, so by tightly controlling peak levels without clipping, it prevents the IBOC codec from wasting bits by encoding clipper-induced spectrum, yielding the best sound at a given bit rate on both the analog and digital channels; also, Optimod-PC 1100 for live streaming and on-demand programming, tailors an audio signal for DAB, Internet Web/Netcasting and recording, it is a PCI sound card with DSP that provides loud, consistent sound by performing AGC, equalization, multiband gain control and peak-level control; Opticodec line consists of professional audio codecs for radio and TV, Internet and other pro applications, known in Europe, now Orban has partnered with Dialog4 to make American versions; Sountainer is a professional portable real-time MP3 player/recorder using solid-state media with no moving parts, it connects to a PC using the USB interface to allow PC editing and transfer over the Internet to a radio station or remote location, or copy to a hard drive; Optimod-FM 8400 Software V2.0 cuts the 8400's delay in half, to about 20 milliseconds, so talent will no longer hear echoes in their headphones, allows user to drop the 8400 in place of an older processor with no studio wiring changes and off-air cueing of remote talent is no longer a challenge.

Also: Optimod-FM series including 8400, 8200 Signature, 2200 and 8218; Optimod-AM 9200, 9100B2; Optimod 8200ST; 222A; Audicy.

The Fremont Street Experience is a pedestrian promenade surrounded by 10 casino/hotels and featuring a sound and light show. A public-private partnership built the $70 million project in 1995.

P

Pacific Radio Electronics **L11764**

Intro: ADC Uni-Patch is a multifunction modular patching system for audio/video/HD/component and RS-422 patching with a flexible backplate featuring three- or 90-pin Elco/Edac, DB-9, DB-25 or QCP connectors; Henry PatchBox is a passive output multiplier featuring left and right balanced inputs and five balanced and six unbalanced stereo outputs; Switchcraft HPC connectors featuring 50-amp ratings in both male/female and right angle for cable or panel mounting, a cord plug offers push-to-lock design; RUI-Racks Unlimited fractional RU filler panels in 0.75-, 1.0-, 1.25- and 1.5-inch widths and flanged, solid, perforated or slotted styles.

Also: ADC; Belden; Canare; EDAC; Furman; Henry Engineering; Kings; Mid Atlantic; Neutrik; NO Shorts; RDL; Switchcraft.

PanAmSat **S6021**

PatchAmp **L8809**

Intro: PA-6000-300 AES/EBU 75-ohm 1x5 digital audio distribution amplifier; PA-3200 32 module multiple format card cage capable of holding all PatchAmp modules, including HDTV and AES/EBU modules.

Also: PA-5024; PA-5032.

Pathfire **L13653**

Patriot Antenna System **S9337**

On Display: Commercial antennas.

Peace Corps **L13835**

Penny & Giles Controls **L2334**

Phasetek Inc. **L1850**

On Display: AM broadcast transmitters, antennas, diplexers, dummy loads and custom-made parts.

Potomac Instruments Inc. **L2724**

On Display: 1900 Series directional array antenna meter; AA-51A audio analyzer; AG-51 audio generator.

Prime Image Inc. **L12253**

Intro: Micro/Macro Editor, time-reduction system that maintains full audio/video content while providing substantial program reduction with no degradation, being used to reduce two-hour tapes up to 10 minutes.

Jim Aldrich, VP Oper.
662 Giguere Ct, C
San Jose, CA 95133
USA
408-867-6519
FAX 408-926-7294
E-mail: primeimagein@earthlink.net
Web site: www.primeimageinc.com

Prime LED **L2109**

Prism Media Products Inc. **L3123**

Intro: Prism ADA-8 can be configured for eight channels of simultaneous A/D and D/A conversion or 16 channels of A/D or D/A conversion with resolution selectable up to 24-bit, 96 kHz, new software-enabled features were designed to enhance performance and flexibility when integrated with Pro Tools-based systems, including direct control analog/digital input selection per channel pair from the host system Pro Tools software and support for 16 channel A/D or D/A Pro Tools-compatible configurations.

Also: dScope III analog/digital audio test system; AD-2 two-channel A/D converter; DA-2 two-channel D/A converter; DSA-1 digital audio handheld analyzer/generator; MEA-2 stereo equilizer; MLA-2 stereo compressor; MMA-4 four-channel mic preamp.

Janice Norton, US Sales Manager
21 Pine Street
Rockaway, NJ 07866
USA
973-983-9577
FAX: 973-983-9588
E-mail: sales@prismmpi.com
Web site: www.prismsound.com

Pristine Systems Inc. **L3255**

Intro: Audio File Manager for transferring/deleting audio files from several workstations simultaneously with a few clicks of the mouse in a Windows environment; Rapid.ini Wizard user-friendly interface to assist in modifying settings for RapidFire while helping reduce the possibility of errors; RapidFire AutoBreaks & Liners Wizard eases customization of the AutoBreaks & Liners formats for each hour of the day based on the stations format; Audio Drops Manager facilitates the creation and management of jock profiles for unique Audio Drop presets with 12 jock profiles each of which can store up to 90 audio drops for instant-playback from the RapidFire main screen.

PR Newswire **RT463**

Promusic Inc. **L9574**

Intro: Audio Express radio production music library contains 50 discs, 2,500 tracks of music beds, production elements, stings, accents, IDs and logos for radio production; the library is updated and expanded every month with a new disc as part of the annual license.

Also: The Promusic Production Music Library.

Propagation Systems Inc. **L5246**

On Display: High- and medium-power Rototiller antenna systems; high-power V Series antennas.

Prophet Systems Innovations **L2404**

Intro: NexGen Digital NS is for stations that do not need all the features of a loaded NexGen digital broadcast system; NexGen Digital MP compact, standalone traveling automation system useful for remote broadcasts, allowing users to create a show from the road; NexGen Version 2.2 for creating electronic music reports, with options for voice-tracking and "wall of carts" audio server devices; PhoneTRAC for submitting live reports without station intervention, record or play back calls from any Touch-Tone phone with multiple predefined spot numbers using rights to restrict recording/playback; Windows Version of STS/STSR running under Windows NT/2000, allowing stations to use WANcasting compatible with NexGen Digital NS.

Also: NexGen digital broadcast system.

PSI **L5246**

See Propagation Systems Inc.

Q

QEI **L2914**

Quartz U.S. **L20613**

On Display: Analog and digital audio routing switchers from 8-x-1 to 512-x-512.

QuVIS Inc. **L9719**

R

Radiacion Y Microondas, SA (Rymsa) **L2135**

Radio Express Inc. **L2150**

Intro: Paul Oakenfold Presents, underground trance/electronic music by DJ Paul Oakenfold; ABC Powerplay, fresh production elements delivered on CD weekly, market-exclusive; Hit AC Mix, dance-mix show with continuous Matchbox 20, Nelly Furtado, Sugar Ray, No Doubt and all-star adult top-40/hot-AC hits; Little Walter's Time Machine, high-energy two-hour radio show featuring the words and music of the '50s and '60s.

Also: Radioplay Music Service, 80s Gold Music Library, 90s Platinum Music Libraries (CHR, Euro, and Country), "The World Chart Show" (Standard, Jammin' and French versions), American Top 40 (CHR, Hot AC, Lite AC, and Flashback), "Bigg Snoop Dogg Show."

Radio Frequency Systems, Broadcast Division **L9337**

Intro: Broadband Omnislot UHF omnidirectional broadband cavity slot antenna capable of covering up to 120 MHz and powers up to 120 kW TPO, suitable for stacked arrangements due to its relatively low wind load, extends the capability of stacked broadband solutions when mounted on top of a broadband UHF panel array, and the pattern can be engineered to accommodate situations where some directionality is required.

Radio Systems **L2143**

On Display: Consoles; distribution amps; clocks and timers; telephone hybrids; StudioHub wiring system.

World Radio History

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ED GREENE *is an industry veteran who has been mixing sound for nearly fifty years. He is also a dedicated Mackie user. Apart from the Olympics, he has also mixed the Grammy, Oscar and Emmy awards.*

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SYMETRIX 528E

The Symetrix 528E is the on-air standard voice processor. Features a microphone preamp, phantom power; voice symmetry switch (phase rotator; de-esser; compression/limiting with downward expansion; and 3-band parametric eq.

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GENTNER DH20

This Gentner DH20 single digital hybrid delivers deep and stable hybrid null ensuring maximum isolation between the send and caller audio. Built-in-speaker amplifier, mic or line input, selectable AGC and caller ducking; selectable auto answer/auto disconnect; balanced XLR I/O's. Treat your listeners to better sounding phones.

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Audio-Technica breaks new ground in price and performance with the AT3035. This true large diaphragm studio condenser mic has exceptional detail and low noise, high maximum SPL, and wide dynamic range. Optimized output level and low self-noise (12 dB SPL) make it perfectly suited for today's most sophisticated digital recording environment. Includes custom shock mount and as a special bonus, BSW includes a free pair of AT3HX headphones.

ONLY $199.00

audio-technica

Remarkable Sale On The Popular RE20

SALE 309A $99.00

SALE RE20 $389.00

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If you have always wanted a Electro-Voice RE20, the time to buy is now! Created specially for recording and broadcast on-air. The RE20 is virtually free of bass-boosting proximity effect when used close. Frequency response is 45 to 18,000 Hz. The RE20 microphone includes a basic stand clamp. Add a shock mount for your new RE20.

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JBL SALE

4206A SPEAKERS

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ONLY $299.00 Pair

Class-up the Joint

SALE $269.00

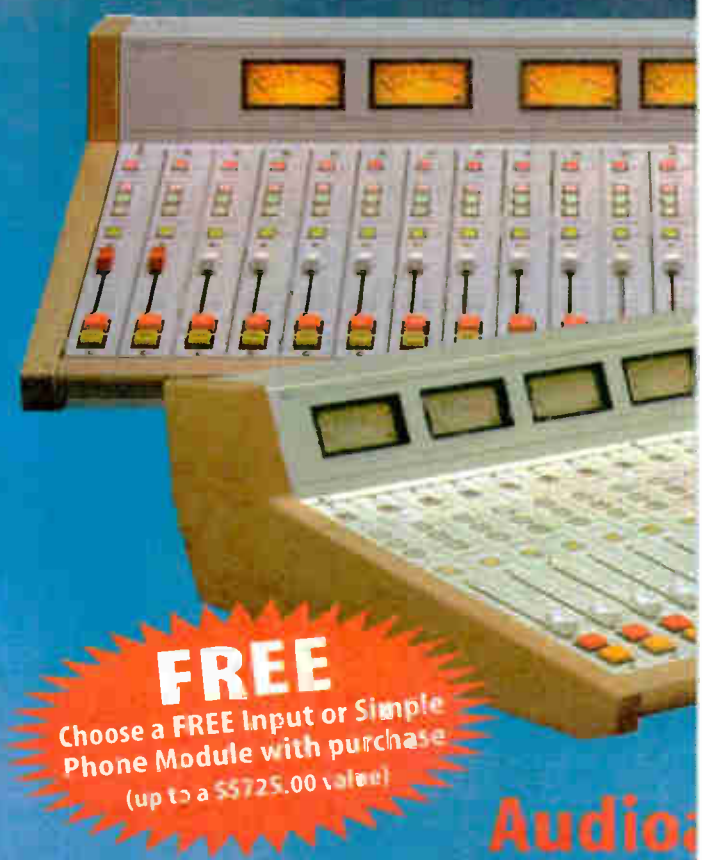
CBT SYSTEMS ON-AIR LIGHT

The "classic" ON-AIR light by CBT Systems has to be the coolest looking think since your '55 Chevy two-door. Built using traditional sand casting methods, the aluminum housing is then buffed to a bright finish. The whole unit can be easily installed on a standard 2 gang j-box. Dimensions: 14 1/4" L x 2 5/8" W x 4"H.

ONLY $269.00

The World's Be

BROADCAST SUPP



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Audio Consoles s Reliability

These Audioarts consoles offer totally mo suitable for continuous on-air use. Illuminat powerful monitor section make them enjoy channel; any combination of mic or line inpu studio control with TalkBack; remote modul On/Off machine control on each channel; au toring; event timer; built-in headphone amp line selector module. The R6012 is a 12-chan The R60128 is loaded with 8 channels. R601 18 channels. The R601812 is loaded with 12 2002, select an additional free SP60 Simple ited time offer!

R6012	(12 channels)	Mfr. List $8,243.00
R60 28	(8 channels)	Mfr. List $5,812.00
R6018	(18 channels)	Mfr. List $11,280.00
R601812	(12 channels)	Mfr. List $8,364.00
SP60	Simple Phone	Mfr. List $725.00
IN60	Input Module	Mfr. List $614.00

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...dular design with features and durability ...ed switches, smooth glide faders and a ...able to operate. **Features:** two inputs per ...ts; Program, Audition and Mono buses; ...e control of On/Off, Cough and Talkback; ...tomatic control room and studio monitor, cue amp and speaker; LS-60 six-source ...nel mainframe loaded with 12 channels. ...8 is an 18-channel mainframe loaded with ...channels. Right now, through June 30, ...Phone or IN60 input. Hurry, this is a lim-

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INCREDIBLE Deals on 5 Packs!

KOSS

Great low cost headphones for studio or remotes. Lightweight with a full-enclosure design!

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BEHRINGER

You'll be pleasantly surprised at the first-rate sound from these very well built, very inexpensive mics! Includes a hard case for each and an on/off switch. An incredible deal!

XM2000SPKG (pack of 5)
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PROCO

Quality low loss 25' mic cables at a great price. Complete your new mic package with this 5 pack!

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These durable mic stands are an incredible bargain exclusively from BSW

M5200PKG (pack of 5 mic stands)
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WINDTECH

Windtech windscreens are high quality, cost effective and come in a variety of colors! This 5 pack is perfectly suited for the 5 pack of Behringer XM2005 mics above!

WS912PKG (pack of 5)
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Echo Mia

If you're serious about digital audio, you shouldn't settle for anything less than a truly professional audio interface. The MIA audio card features 2 balanced inputs and outputs (+4dBu), 24-bit 96kHz converters. 106 dB of dynamic range, S/PDIF digital audio interface, and Eight "virtual" outputs.

ONLY $199.00

Behringer MX602A

Check this out. The MX602A incorporates Behringer's high-quality design in a smaller mixer for remote applications. Quality mic preamps, 2 mono and 2 stereo channels, 3-band EQ and more - all in a unit weighing no more than 3 lbs.

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Behringer DSP2024P

Spice up your production with the DSP2024P. This 24-bit multi-effects processor features incredible effect like chorus, flanging, pitch change, tremolo, combined with quality reverb and delay algorithms. Edit up to 7 parameters per preset to customize your effect settings. 100 factory presets and 100 user memory locations. A must for every production studio.

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World Radio History

Radio World L3202, L19173

On Display: The Newspaper for Radio Managers & Engineers, with the industry's leading columnists including Skip Pizzi, Richard Fry, John Bisset, Tom McGinley, Al Peterson, Barry Umansky and Editor Paul McLane, featuring the most comprehensive coverage of IBOC DAB, satellite radio, facility consolidation and other developments in radio technology.

Radyne ComStream S8020

Intro: IPSat; DMD15; MM200DM/DD240.

Rapidtext Inc. L12014

RCI Custom Products L14428

Intro: TC 101 Conference Table Console and TC 102 install with four screws, roller bearing slides and attractive case finishes, suitable for conference rooms, available in one- and two-user models; CT8RM is a 2RU rack-mountable cable tester that allows throughway testing between any of its eight connector types, includes XLR, phone, mini, RCA, BNC, Neutrik NL4, S-Video and banana plug connectors, as well as a continuity tester; BM 16-D is a 1-in/16-out press mult with custom Jensen transformers, active electronics, mic/line switchable input, input VU meter, mic/line switchable output level on outputs, and multiple Switchcraft output connectors including 1/4-inch phone, mini and RCA, housed in a Zero Halliburton case.

Also: Custom wall plates; rack panels; press mults; Electro Luminescent panels and cable testers.

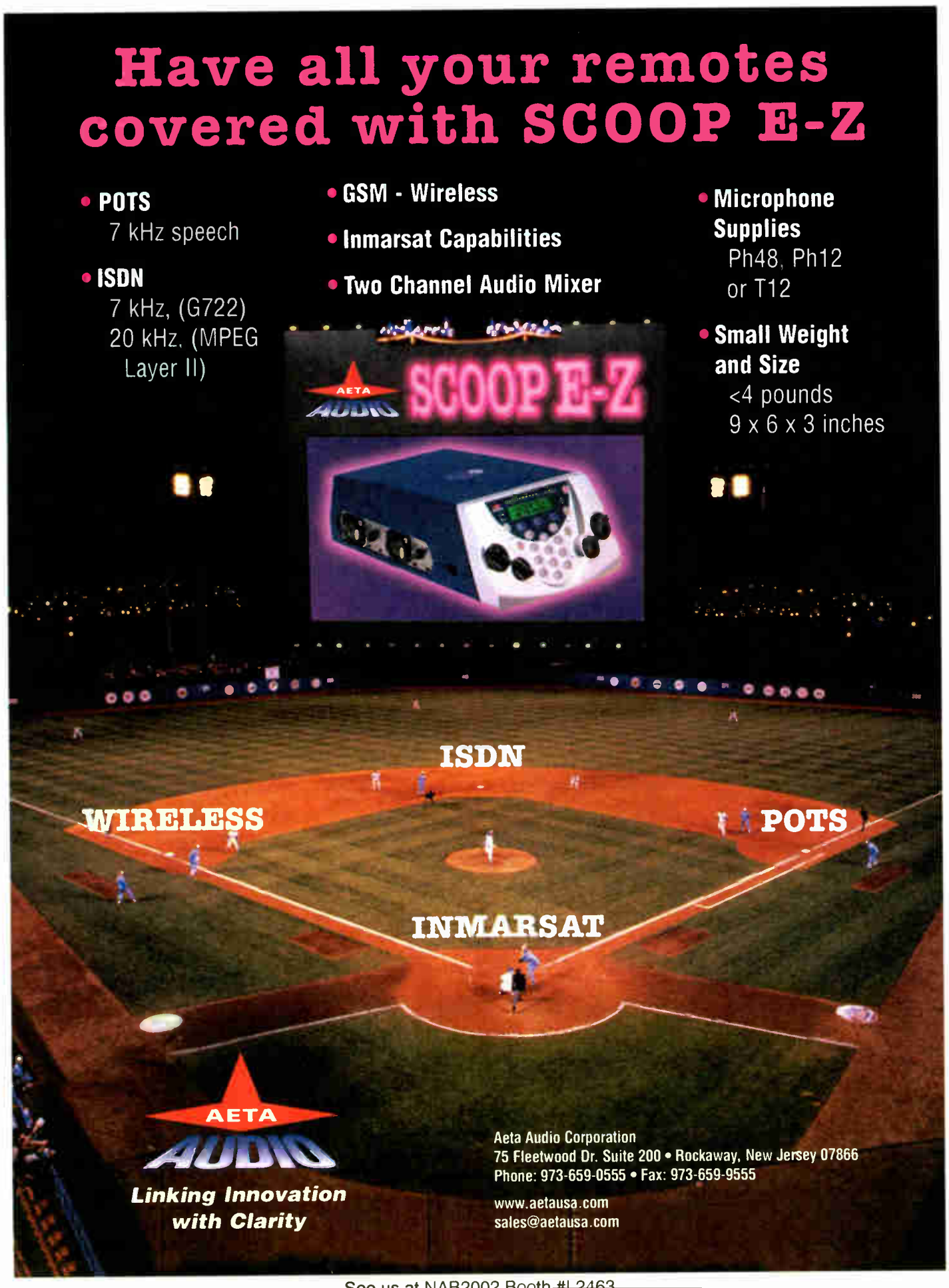
RCS L2533, L5303, S6618

Intro: Selector XV offers Internet licensing, instant analysis, clock designer, named packets, chart editor, new Windows interface; Linker XV offers Internet licensing, instant analysis, clock designer, chart editor, new Windows interface, ability to import spots from traffic system, create studio copy book, match links to song styles; Selector Enterprise creates common numbering system for songs in all Selector databases, organizes by regions, ratings and formats, runs instant spin comparisons, compares song rotations between stations in a group, unlimited song panels for rotation comparisons between stations; Selector Smart Ripper rips music from CD while analyzing the audio file, analyzes a song's tempo, energy, key/chord, type of ending, enters analyzed song data automatically into Selector, exports songs to multiple Selector databases with one clickProRate, offers new Windows interface, uses real-time avails, eliminates displacement in oversold situations, spreads inventory through improved packaging, creates pricing roadmap, minimizes unsold inventory, interfaces with most traffic systems.

Also: Master Control; iSelector; RadioShow; SplitStream; Tracker; TalkBack.

RDL Radio Design Labs L3327

Intro: PT-AMG2 and ASG1 Audio Testers are handheld/bench audio test equipment; PT-AMG2 offers tone generator, LED level meter and phase indicator, mic and line inputs and outputs as well as XLRs and phono jacks; PT-ASG1 contains a 700 Hz tone generator with balanced mic and line level outputs on XLR and -10 dB unbalanced on phono jack; MAX-TX transformers offer isolation and format conversion in four models; TX-AT1 and TX- AT1S for galvanic isolation of audio lines; TX-AT1S also has internal, solid-state, transient protection; TX-AFC1M and TX-AFC1F provide transformer-isolated conversion of unbalanced-to-balanced and balanced-to-unbalanced signals respectively, with an RCA phono jack and an XLR connector, ideal for passive conversion of lines; UC1/2 Utility Chassis tabletop enclosures integrate RDL products, with front and rear panels punched to mount Rack-Up models or new AMS accessory mounting system components; AMS Accessory Mounting System creates custom panels; a universal frame is a steel, 1/3-space panel with four mounting openings and a label track, initial accessories include XLR male and female, single and dual RCA phono jacks, BNC, DPDT rocker switch, SPDT momentary pushbutton switch, LED indicator, power jack and filler plate, while the frame will mount in Rack-Up mounting products.



See us at NAB2002 Booth #L2463

RealNetworks S6044

Intro: Subscription and PPV services generate additional revenue through pay-per-view and subscription, including end-user registration, storefront development, content security and media hosting.

Also: Real Broadcast Network.

Register Data Systems L1925

RF Parts Co. L3262

On Display: Broadcast tubes, sockets, RF transistors, RF modules, gasfets, antennas (broadcast).

RFS Broadcast L9337

See Radio Frequency Systems.

Richland Towers L6108

Intro: Owns and operates multi-tenant tower facilities providing service to the television and radio broadcast and wireless communication industries in North America; leasing tower space is the solution to costly and time-consuming tower issues for broadcasters.

RIZ-Transmitters Co. L2105

Intro: SW solid-state transmitters.

Rohde & Schwarz L5510

Rohn Industries Inc. L4915

Intro: Tall towers up to 2,000 feet, hot-dip galvanized after fabrication.

Also: Towers; poles; enclosures; telecom accessories; antenna mounts.

Rose Electronics L15224

Intro: UltraLink allows users to access computers from anywhere via Ethernet or dial-up connections, passwords and security features prevent unauthorized access; UltraMatrix allows access and control of four to 1,000 CPUs, using up to 16 keyboards, video monitors and mouses (KVM), multiplatform support for PC, Sun, RS/6000 and others is standard; RackView 1 RU or 2 RU 15-inch LCD drawer with option of adding single or multi-user KVM switch to control servers; CrystalView allows a KVM to be positioned up to 1,000 feet from the CPU using CAT 5 cable; MultiStation KVM switches allow either two or four KVMs shared access to one CPU.

Rules Service Co. L1928

Intro: FCC rules and regulations on CD-ROM available to purchase individual parts or packages, new CD sent every other month.

Also: FCC Rules in loose-leaf subscriptions.

S

Sabine Inc. L2903

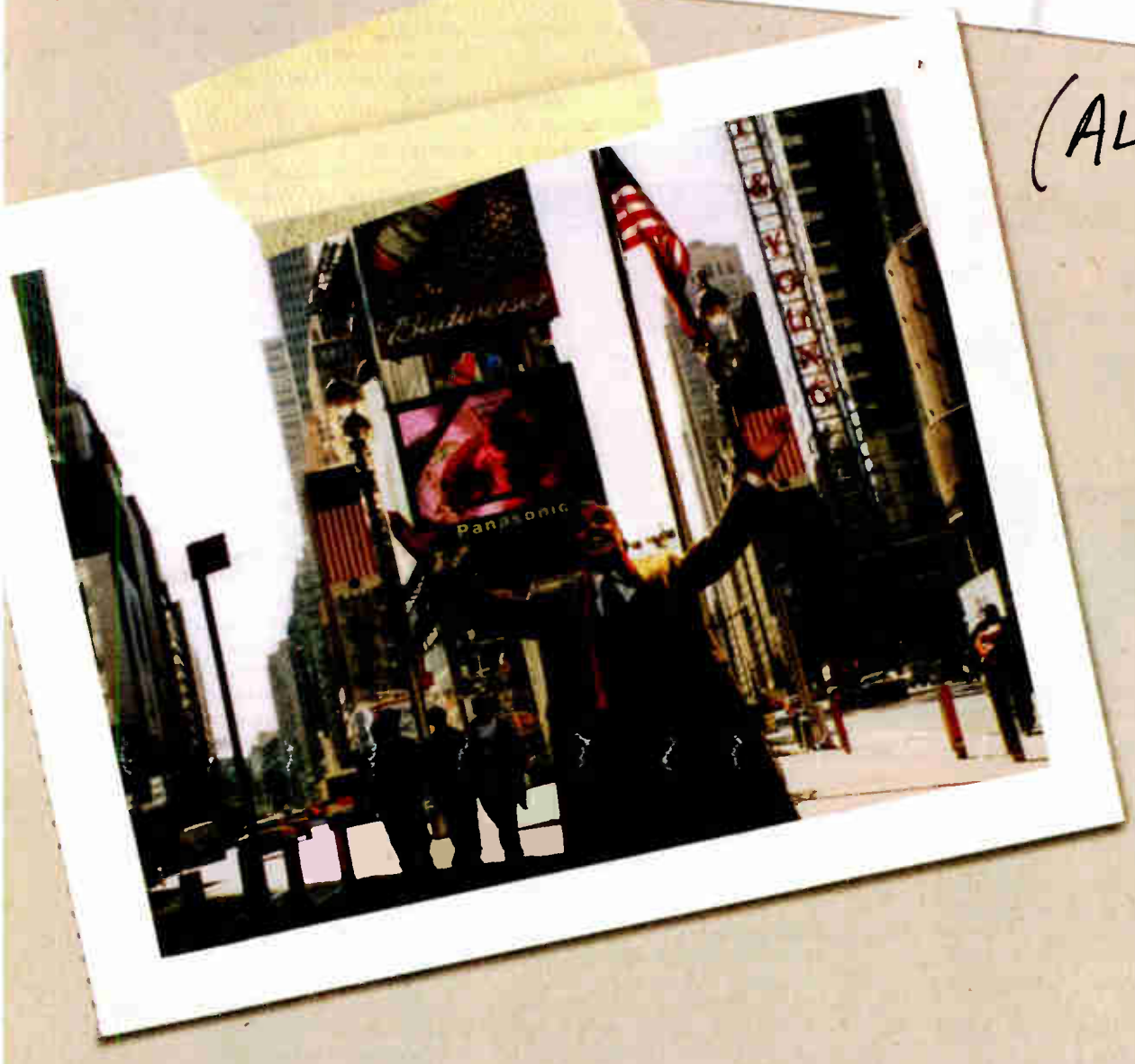
Sabre Communications Corp. L5035

Intro: Site Solutions Tower Parts & Accessories Catalog offers tools, hardware and accessories including antenna mounts, transmission line accessories and hardware and tools; Site Solutions Wireless Equipment

World Radio History

I ♥ ENCO

(ALMOST AS MUCH AS I ♥ NY!)



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World Radio History

Catalog offers wireless equipment. including antennas, coaxial cable, connectors, angle adapters, grounding kits and tools.

Also: Guyed and self-supporting towers and monopoles.

SADiE Inc. **L1863**

Intro: Cedar Retouch for SADiE noise removal process localizes unwanted sounds in time and frequency, replaces them with audio derived from the surrounding, good signal, while other audio remains untouched; SADiE Super Audio CD Mastering Editor is an integrated stereo SACD editing, mastering and authoring system to record and edit DSD material for creating an SACD master, suitable for applications such as SACD editing and mastering, CD pre-mastering, music, radio and speech editing; DVD-A Direct is a Windows-based system providing authoring tools for DVD-Audio, so that a SADiE system with DVD-A Direct provides tools for the production process from editing and mixing in 5.1 surround, optional MLP encoding and authoring the disk to DVD-R or DLT tape; DVD-A Direct creates compliant reference disks, which may be played on most DVD-Audio players for quality control checking.

Also: Artemis, SADiE 24-96, RADiA, SADiE CD-R Tower, Meridian MLP Professional Encoder.

SAIL Labs Technology **L14945**

Intro: Media Mining System enables search and summarization of audio content in multimedia sources in real time, automating the process of broadcast news indexing and annotation.

Satvision Technology Int'l Inc. **S1527**

Intro: SM-8808 Signal Level Meter and SM-8808A Signal Level Meter 5-870 MHz, Sub-band view, self-calibrating, measuring unit (dBmV/dBuV) switchable, channel plans (CATV, broadcast, Europe, Africa) selectable, RS-232 port option.

Schoeps **L2262**

Scientific-Atlanta Inc. **S4522**

Scopus Network Technologies **S3927**

Scott Studios Corp. **L3115, L6135**

Intro: SS XP double touchscreen digital system for radio with Hot Keys, phone recorder, voice tracker, industrial backplane chassis; WinNews XP newsroom wire capture and network feed capture with multiworkstation editing; Scott Sub substitutes generic promos for commercials or bumpers when marked "Do Not Play on Internet."

Also: AXS3 affordable digital automation.

Scottish Enterprise **S4265**

Intro: Pacific Quay UK digital media center in central Glasgow, Scotland, offers location services.

Sencore Inc. **L20035**

Sennheiser Electronic Corp. **L2923**

Intro: HMD Series boomsets for broadcast/reporting, talkback and intercom applications; HMD 280 features two earpieces, suitable for ENG applications, with mic mountable from either earpiece; single-earpiece HMD 281 is for talkback applications such as camera operators, and earpiece that can be worn on either side; both units are collapsible, lightweight; also SK5012ENG miniature bodypack transmitter, half the size of the SK 250, used at the 2002 Olympics in Salt Lake City for studio talent, featuring low self-noise, greater multi-channel capabilities, programmable interface, improved noise reduction, seven hours of continuous operation; SKP30 plug-on transmitter module for the 3000 Series, compatiable with the EK3041-U and 3000 and 5000 series receivers, for ENG interviews and wireless boom operation.

Seratel Technology SAL **L3368**

Intro: FM digital exciter with modular L/R inputs for audio, MPX signal and digital AES/EBU, distortion-free signal, illuminated screen, user-friendly, real-time clock, integrated micro-controller; Handymitter 1 kW FM transmitter, portable, 22 cm high,150 W; High-quality 150 W exciter.

Shively Labs **L3004**

Intro: IBOC filter injector system, compact lightweight design allows for installations in crowded transmitter rooms, a cost-effective solution to digital conversion.

Also: FM antennas and combiners.

Shook Mobile Technology **L1215**

Shure Inc. **L4903**

Intro: KSM27, a large, single-diaphragm cardioid microphone for studio use, but rugged for live applications, with low self-noise and extended frequency response; WL51, a subminiature lavalier mic with low visibility with professional audio quality, less susceptible to feedback; Two new UHF frequencies for UHF Series wireless systems, bringing the count of compatible systems in the United States to 78.

Themed restaurants at the Luxor include Isis.

Sierra Automated Systems **L1714**

Intro: 32KD Digital Audio Network routing switcher, analog and digital, expandable with fiber links, providing switching, mixing, mix-minus, intercom and DSP in one package; RIO Remote Input/Output Link to connect remote locations via fiber to audio routing switcher, eliminate audio cable between studios and terminal room.

Also: 64000 Router, 16000 Router, 32000 Intercom, 32000 Mix-Minus.

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Burbank, CA 92056
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Sierra Video Systems **L8937**

On Display: Analog, digital and HD routing switchers for broadcast, CATV and ProAV applications, small and large routers from 5 x 1 to 128 x 256; terminal equipment includes video and audio delay modules, distribution amplifiers and video and audio converters.

Sigma Electronics Inc. **L10649**

Intro: FireSwitch, Fully Digital Desktop IEEE1394a (FireWire) 2x4 Router for IEEE 1394a – S100, S200 and S400, including FireWire and iLink supports two host computers and seven slave devices including networked scanners, printers, DV camcorders, DV decks, audio devices and still image devices, intelligent routing of IEEE1304a connections, proper mounting and dismounting of slave devices, 3 Port Hub1 powered port for FireWire Hard Drives, ideal routing companion for DV NLE or DV Audio Editing Systems, includes PC/Mac control application

Also: Analog and digital terminal equipment solutions for the audio industry.

Smarts Broadcast Systems **L2951**

Solid State Logic **L2731**

Intro: Aysis Air Plus SC Digital Broadcast Console with redundancy and security features such as hot-swappable faders, reset capabilities allow greater capacity and efficiency, stereo or 5.1 surround operation gives flexibility for simple news to full surround sports coverage; MT Version 6 with HS processor introduces automation and processing features, furthers the benefits of discrete control surface/digital signal processing; new channel/main bus dynamics options give sound and feel of traditional analog processing; selectable moving/non-moving fader control surface.

Also: SL 9000 SuperAnalogue Console; MT Production Digital Console; MT Production Digital Console.

Solutions Custom Furnishings **S2729**

Intro: Crescent Systems accessories for ready-to-assemble furniture; new series of conference tables, teleconferencing carts and seating products; new series of accessories for ready-to-assemble furniture and custom consoles.

Sonic Desktop Software **L13132**

Intro: SmartSound Sonicfire Pro version 2.1 to create soundtracks to fit any visual automatically. New features include the ability to import any video and create scores for each scene, and powerful new tools to auto-edit your own music.

Sonic Foundry **S6737**

Sonic Solutions **S7233**

Sonifex Ltd. **L2466**

Intro: ARC AkCESS ISDN management system controls multiple ISDN codecs with hardware or software control; Courier CO-STD-USB solid-state portable flash-card recorder has a USB connection to enable data transfer to a PC; RB-LU4 Quad Stereo Balanced to Unbalanced Converter is a 1 RU rack-mount quad stereo unit for interfacing pro balanced line levels to domestic or semi-pro unbalanced equipment; RB-SP1 Digital AES/EBU splitter and combiner (24/96) splits/combines the old standard 96 kHz (2 x 48 kHz XLR) AES/EBU signal into 1 x 96 kHz AES/EBU XLR, also splits/combines left and right signals of an AES/EBU input to two separate AES/EBU outputs and vice-versa; RB-ADDA A/D and D/A Converter; RB-UL4 Quad Stereo Unbalanced-to-Balanced Converter; Net-Log 4 Channel Network Audio Logger records four mono audio streams onto an internal hard disk, in MPEG format, for playback across a network from desktop PCs using TCP/IP; RB-BL4 Bi-Directional Matching Converter.

Also: Redbox range of analog and digital audio interfaces; Nica X codecs; DHY-02 digital and HY-02 analog telephone balance units; Sentinel audio loggers; Sovereign on-air modular mixer.

Sony Electronics **L18207, L515**

SOS Global Express **L8406**

Intro: Transportation service, domestic and international freight forwarder providing services including air freight, ocean freight, logistics management, charters, international documentation and carnet services, 24-hour/7-day service.

Sound Devices **L3355**

Intro: 442 four-channel field mixer with high performance microphone preamps and limiters on each channel, VU/PPM metering, direct outputs per channel, multiple outputs and transformer-balanced I/O, powered by four AA batteries or external DC.

Also: USBPre; MM-1; MP-1; MP-2; MixPre; HX-3.

Soundcraft **L3127**

Intro: MH4, available in 24, 32, 40, 48 and soon 56 inputs, with 4 stereo inputs, featuring 20 auxiliary busses, eight VCA and eight mute groups with snapshot automation, LCR panning and outputs, 20x8 matrix and control of dbx DriveRack and BSS Varicurve processing, modular construction, a new, focused EQ and new high-headroom mic amps.

Spacecom Ltd. **S8819**

SpaceCom Systems **S9648**

Intro: SpaceLink rapid-deployment two-way interactive satellite communication services, suitable for disaster recovery, bypass of local communication infrastructure and high-speed connectivity for remote sites; Satellite Ku-band DVB Broadcast Service, high-speed audio, video and data services, ideal for cost-effective data delivery to multiple sites with multiple PC users; Broadband DVB can transmit a huge quantity of information; Ku-DVB and 2-Way Satellite, Ku-DVB Outbound Satellite with optional two-way satellite service for Internet, VPN, videoconferencing etc., cost-effective and reliable for file transfer, audio, video and data transmission in areas lacking high-speed communications services.

SpectraSite Broadcast Group **L6841**

Intro: A Community Broadcast Facility allows multiple broadcasters to use a common transmission site, so instead of a multimillion-dollar capital expenditure, a cost-effective monthly payment covers your tower needs; Tower analysis can help customers select the most cost-effective alternative regarding broadcast transmission infrastructure.

SRS Wowcast Technologies **L20648**

Staco Energy Products Co. **L12061**

Intro: TreStar SX UPS is a three-phase, double-conversion, online UPS from 12 to 250 kVA; UniStar SX UPS is a single-phase, double-conversion, online UPS from 700 VA to 10 kVA.

Also: Voltage regulators, power conditioners, UPS systems.

Stagetec GmbH **L2771**

Intro: TrueMatch RMC reference microphone converter offers a high-end mic preamp and A/D converter with 28-bit resolution and dynamic range of 153 dB(A) with sample rates of up to 96 kHz.

Also: Cantus Digital Consoles; Nexus Digital Router.

Stainless **L6841**

On Display: Design, engineering and fabrication of towers. Part of SpectraSite Broadcast Group, Stainless maintains the designs, drawings and documentation for more than 50 percent of U.S. broadcast towers.

StorCase Technology Inc. **L13148**

Intro: Data Silo DS320 FireWire Enclosure is a rugged, steel, two-bay rackmount FireWire chassis with removable device option; DS351 FireWire Enclosure is a four-bay rackmount FireWire chassis with removable device option; InfoStation family of intelligent rackmount or

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Also: Data Express.

Storeel Corp. **L6112**

Intro: Storage designs for all small formats using steel and high-impact styrene adapting to mobile and static storage requirements.

Also: Room stretchers; Railrider; StorMax; DoubleDrive.

Streaming21 Inc. **S7258**

Studer Professional Audio AG **L2542**

Intro: Vista 7, a large digital audio mixing console for production applications, includes Vistonics, a technology for integrating touch-sensitive rotary controls and buttons within a flat-screen display which brings visualization and operation into immediate proximity, and combines instant overview with access to critical controls; Software Version 3.0 for the D950 M2, the flagship Studer digital mixer, features AutoTouch Plus automation and enhanced Router, which permits complex automation tasks to be carried out in a logical workflow; V 4.0 of the On-Air 1000 digital radio console features an integrated input router so that each of the 10 input modules can be routed on any of the 10 channel faders, and access rights can be defined.

Also: On-Air 2000M2, A827 Gold Edition.

Studio Projects **L2206**

Intro: B1 is a fixed cardioid condenser large-diaphragm microphone; B3 is a multipattern large-diaphragm condenser with pad and high-pass filter, with omni, cardioid and figure 8; TB1 is a fixed cardioid condenser large-diaphragm microphone with 1 6072 dual triode "Tube."

Studio Technologies Inc. **L2827**

Intro: Model 78/Model 79, StudioComm for Surround Series Model 78 Central Controller and Model 79 Control Console.

Also: StudioComm for Surround Series; StudioComm Series; Generation II.

Superior Broadcast Products **L11670**

Superior Electric **L3215, L10620**

Intro: Stabiline Transient Voltage Surge Suppressors, three-phase, main service and branch panel protection, series complements existing Stabiline models from 60 KA to 300 KA of surge current protection; Uninterruptible Power Supplies/Stabiline, new series of online UPS models, single-phase from 500 VA to 18 kVA and three-phase to 100 kVA. Complements existing Stabiline offerings of standby power suppliers and line-interactive UPS models.

Also: Stabiline Automatic Voltage Regulators; Power Conditioners.

Switchcraft Inc. **L5649**

Intro: VAP Series Video/Audio Patchbay consists of 13 standard video jacks and 26 long-frame audio jacks in the same patchbay, with video jack options including serial digital or high definition, terminated or non-terminated, normalled or non-normalled; audio jacks all have T, R, S, TN and RN for flexibility, individual jack modules allow for custom applications; 35HDRA Series 3.5 mm right-angle stereo plugs use large solder terminals for easier soldering, large handles to accommodate oversize cable and come in three finishes including nickel/nickel and black and gold; HP75BNC line of connectors carry true 75-ohm characteristics, not nominal, available for popular broadcast cable types, with machined brass housings and 50 MI gold-plated center pins for improved durablility.

SWR Inc. **L4920**

Intro: Illumitron Antenna complies with new FCC RFR (radiation) limits, reduce RFI (interference) and multipath with the SWR Illumitron FM Antenna. It may double your coverage area and audience without a power increase.

Symetrix and Lucid Audio **L2444**

Intro: Air Tools 6100 and SymNet modular audio mixing, routing and processing system with rackmount hardware units for processing and audio I/O and control software.

Also: Symetrix 422 levelers; 628 voice processors; Lucid D/A and A/D converters.

Syntrillium **L2469**

Intro: Cool Edit Pro 2.0 is a multitrack recording studio for your PC, offering 128 tracks, 40 DSP effects, mastering and analysis tools, audio restoration features, DAO CD burning and ripping, real-time effects and track EQ, 32-bit processing, supports 24-bit/192-kHz and higher, loop-based song creation, SMPTE/MTC Master, MIDI and video support, customers who buy Cool Edit Pro 1.x on or after Dec. 1, 2001, are eligible for a free upgrade; Red Rover audio software remote control lets you do tracking and control any number of tracks without looking at the computer monitor, so for instance you can control the software from 10 feet away from your computer (or farther with an optional USB hub or extension cable), and need not worry about the guitar picking up interference from the monitor or a drum set being across the room from the keyboard and mouse, its features include USB connection for easy setup and compatibility with any sound card.

Systems Wireless Ltd. **L9723, L20008**

Intro: Lectrosonics Digital UHF Wireless Microphone for frequency agile, UHF, diversity operation, ideal for studio and truck applications, with transmitters featuring a rugged design with high output power and range; Clear-Com i Series Matrix Intercom Stations offer modular design in a digital intercom station, compatible with the Matrix Plus line, can be packaged with 32 backlit keys in 1 RU, a rotary encoder provides advanced programming.

T

TAI Audio **S2823**

Intro: Sound Devices 442 four-channel portable mixer with multiple output and headphone monitoring options; Lectrosonics UCR201D, compact diversity receiver with synthesized design that provides 256 frequencies in 100-kHz steps; Telex BTR 800 is a two-channel UHF synthesized wireless intercom with a base station that supports four beltpacks; Sound Devices MM 1 is a single-channel, battery-powered microphone preamplifier with headphone monitoring, phantom, T-powering, limiter and a high-pass filter, suitable for film and video production applications.

Tamura Corp. **L2204**

Intro: AMX-12ST is a 12 channel portable audio mixer for field production and outside broadcasting, with mono input x 8 stereo input x 4 group x 2 and monitor master module; SRX-422, a simple remote controller able to control one machine which uses Sony 9-pin control protocol such as Beta-cam, DVW-**, HDW-**, VHD, DAT, DAW etc.; SRX-3000 is a sophisticated studio system controller for professional audio post-production studio and engineers, with four remote inputs and eight synchronizing ports (Sony 9-pin protocol).

Tannoy **L2055**

Intro: Ellipse Series Monitor Loudspeakers, offering wideband performance for compatibility with formats such as SACD and DVD-A, include SuperTweeters integrated with dual concentric drive units to achieve useable frequency performance up to 54 kHz, and the cabinets have been designed for minimal internal reflections and standing waves; PS350B subwoofer features bass management allowing the user to switch between 5.1 surround and stereo.

Also: Reveal; Reveal Active; PS110B; ST100; System 600; System 800; Proto-J.

Tascam **L2630**

Intro: SX-1 32 x 8 digital mixing console, 16-track hard-disk recorder, with eight tracks of 96-khz recording, integrated waveform, MIDI and automation data editing, surround mixing capabilities; US-224 24-bit audio with two inputs and two outputs, self-powered USB interface compatible with Mac and PC, four faders, transport/locate controls and data wheel for control of DAW parameters,16-channel MIDI In/Out interface; CD-RW402 to record audio CDs and create 1-off CD duplicates.

Also: MMR-8 / MMP-16 Digital Dubbers; MX-2424 Hard-Disk Recorder; DA-P1.

TC Electronic **L2063b**

Techflex **L11366**

Intro: Flexo expandable sleeving, wire, hose, and cable protection. Material is designed to solve cable management needs as well as temperature/climate problems.

Techni-Tool **L11752**

Intro: Noyes M600 Mini-OTDR accepts multimode (850/1300 nm) and single-mode (1310/1550 nm) user-installable modules, unit has a 7.7-inch color LCD, disk drive, non-volatile memory and stores up to 50 traces, and its pulse width and range can be set automatically; AVO 4-in-1 Cable Fault Locating and Verification Tester is a voltage meter, insulation tester, TDR and automatic resistance bridge; Progressive Electronics telephone test sets with speed-dial memory, last-number redial, hook flash, microphone mute, talk and monitor key, polarity test in any mode.

Also: Butt sets; wire management tools; premise networking supplies; wire wrap.

Telecast Fiber Systems Inc. **L18859**

TeleCast Group **L9504**

Television Systems Ltd. **L23011**

Intro: AMU1-BD 1RU audio monitoring units and a new stand-alone TSL-designed bargraph at about 60 percent of the cost of similar units, may be specified with any of the usual scales.

Telos Systems **L2251**

Intro: Zephyr Xstream with MPEG 4 (AAC-LD) and MPEG 2 (AAC) for digital audio transmission with 80 percent less delay, includes Ethernet port for audio streaming over IP and networked remote control, includes MPEG Layer II and Layer III coding, decode as well as originate MP3 and MPEG-AAC streaming audio, suitable for Internet or intranet audio-over-IP applications, ISDN connectivity; SmartSurface intelligent studio controller works with new routing switchers that have mixing and processing capabilities, helps to reduce studio costs while centralizing audio servers, mixing/routing engines and peripherals, reconfigures studios instantly, controls any audio source from anywhere, enables communication between computer-based studio applications, playout and traffic systems and logging applications.

Also: TWO x 12 MultiLine Talkshow System; Telos 2 Dual Digital Hybrid; Series 2101 MultiStudio Talkshow System.

Tentel Corp. **L9877**

On Display: Tentelometer tape tension gauges.

Teracom Components **L1515**

On Display: FM 2 Channel Starpoint combiner, new flexible coaxial-cable connectors, rigid-line connectors.

TerraSonde **L2103**

TFT Inc. **L2205**

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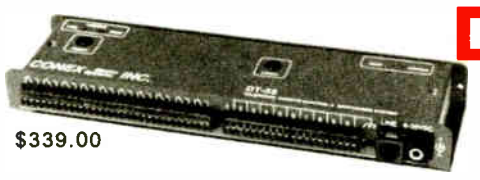
DT-55



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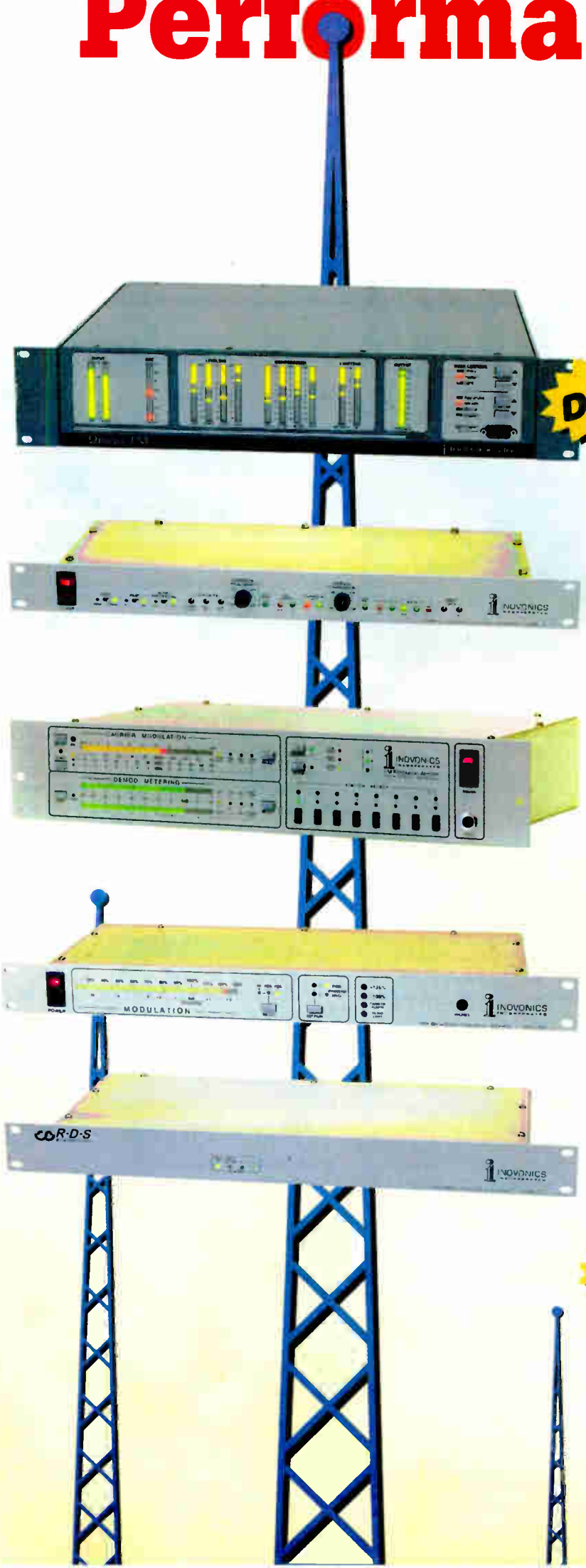

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World Radio History

Thales Broadcast & Multimedia **L8700**

Thales Components Corp. **L10653, S9037**

Intro: TH 770 CD IOT dual-stage collector design for increased efficiency, delivering 25 kW, 8 VSB. Gycol-cooled unit, in compliance with existing TH 18770 cavity. TH 15700/TH 15700 R LDMOS Amplification Modules, Used the latest generation LDMOS 2 GHz technology and operates in the 470 to 870 MHz band. Delivers more than 700 W and compatible with either analog or digital signals.

Tieline America **L3323**

Intro: Patriot is an economy 15-kHz low-delay bi-directional audio POTS codec that lists for $2,595, features three inputs, one input mic/line switchable, one input unbalanced only, both are adjustable, as well as wireless cell phone interface, delivers clean FM-quality audio over a standard phone line with remote-controllable audio input level; also i-Mix, a portable 5-input mixer/POTS codec delivers 15-kHz FM-quality low-delay bi-directional audio over a standard phone line, (15-kHz ISDN option for $850), and features remote-controllable audio input level, line-connection quality display, Intelligent Gain Control, four headphone jacks and headphone intercom buttons on each input, retails for $4,200.

Also: Tieline Commander POTS and POTS/ISDN codecs.

Kevin Webb, General Manager
5555 N. Tacoma Avenue, 101
Indianapolis, IN 46220
USA
317-259-8000
888-211-6989
FAX: 317-259-8040
E-mail: sales@tieline.com
www.tieline.com

Tools for Stagecraft **L12437**

Intro: Gator Grip Kit is a universal tool that replaces a socket set, both metric and standard, and can be carried on a belt. the socket features 52 spring-loaded steel pins for quick work on any nut, bolt, wingnut, hook or damaged bolt head, and it grips firmly, quickly tightens or loosens; Cell phone, PDA and pager pouches replace holsters,; IATSE knife for workers affiliated with the IATSE, an unscratchable, polished pocket knife displays a laser-engraved IA bug with your local number and your name; Surefire 6P flashlight, redesigned for 2002, a "powerhouse of light" 5 inches long; Gerber Legend features replaceable saw and wire cutter blades plus other tools including screwdrivers and knife blades; Leatherman introduces six styles, including the colored "juice" multipliers with dozens of assorted tools and the redesigned SuperTool 200 with smoother styling and new blade locking system.

Also: Spyderco knives, Streamlight flashlights, Littllites, Leica distance finders, director's chairs, red and green beam pocket lasers, Plantronics headsets, Lightwave 2000 LED flashlights, books.

Torpey **L9962**

Intro: STW-8 Master Timer with maximum count, up or down, of 100 hours, has the ability to run remote time displays; CLK-26, Combination Analog/Digital Time Display, with rectangular LEDs indicating seconds, accumulating in a circle as time proceeds.

Trenton Technology Inc. **L16806**

Intro: SLE single board computer with dual Pentium III processors and speeds up to 1.26 GHz, 512 k cache, dual Ethernet, Ultra3 SCSI, SDRAM memory, 133 MHz FSB, 64-bit/66 MHz PCI local bus; ULE single board computer with Pentium III processor, speeds up to 1.26 GHz, 512 k cache, dual Ethernet, dual SCSI, 100/133 MHz FSB, 64-bit/66 MHz PCI local bus and compact Flash; CPLE compact PCI single board computer with Pentium III or Celeron processor, single-slot 4HP form factor, dual Ethernet and up to 1 GB SDRAM Memory.

Trew Audio **L1708**

Intro: Z-Tap Nickel-Zinc Battery Power Supply System extends battery life in continuous high-current conditions; Remote Audio "Juicer" provides a regulated output of 12 or 24 VDC (specify when ordering) when its input voltage is between 9 and 18 VDC, used between your battery and certain equipment to allow you to operate longer; Remote Audio WaterBox is for Lectrosonics body-pack transmitters, its milled slots and gasket material keep antenna and mic cable exits watertight, while the belt clip is sealed and attached with an internal threaded steel back-plate, and a clear lid allows the indicator LEDs to be seen; Remote Audio Antenna Bar separates four antennas by as much as 48 inches, designed to be portable with Lectrosonics SNA folding dipole antennas, accepts most antennas; Remote Audio Battery Distribution System now is shorter, narrower and has no fuses.

Also: Remote Audio; IDX; Countryman; Sound Devices; Filmtech; Zaxcom wireless; Mackie; Denecke.

Watch the gondolas go by at Canaletto in the Venetian.

TRF Production Music Libraries **L5249**

Intro: Kool Kat Production Music Library includes 40 new CDs of contemporary and retro/traditional recordings with a selection from cutting-edge electronica, hip-hop, techno/new jazz, rock, extreme sports and action to old-school funk, bluegrass, country/folk and ragtime; more than 100 new releases added to a collection of 50,000 selections (4,000 discs); libraries include Pyramid, Cobra, Dennis, MP 2000, Musictrack, PowerSound, Spain Is Music, Stock, Supraphon and PAN library of authentic international ethnic music. Classical library; sound effects library; special annual blanket program allows broadcasters to design their own libraries economically; new releases recorded monthly; free catalogs and demo.

TWM Media **S2729**

TWR Lighting Inc. **L1924**

Intro: OL1 is an LED sidelight, reduces power needs by 87 percent over standard incandescent obstruction lights; OL1-NEON is a neon sidelight with similar simple design, reduces power needs by 50 percent over standard incandescent obstruction lights.

Also: Dual Medium Intensity.

U

Uni.Com SpA **L2801**

Intro: BT02 Series FM solid-state transmitters with power levels up to 30 kW and higher power levels available on request.

Utah Scientific Inc. **L12524**

Utility Tower Co. **L2736**

Intro: SAM antenna-mounted frequency-matched tower sections manufactured to enhance the performance of an FM antenna.

Also: AM and FM model towers.

V

Valcom Ltd. **L2129**

On Display: AM Free-Standing Fibreglass Antenna.

Valentino Production Music Library **L5310**

Veetronix Inc. **L5135**

Intro: Laser marking on keycaps.

Also: Push-button switches, various keycaps.

ViaCast Networks Inc. **S6644**

Intro: Forte 180 is an audio/video rebroadcasting device for satellite networks with the ability to receive a WAN feed, provide interim storage, playout and re-encapsulate content for retransmission.

Also: Eclipse; Forte; Slim Line Forte.

Video Accessory Corp. **L12902**

Intro: Mini-Function Block product line is designed to be hardwired into systems requiring a small 1 x 4 distribution amplifier or 4 x 1 switch for audio or video signals, sized 2 inches wide by 1.5 deep by 1/2-inch high, encapsulated in epoxy and with four 6-32 threaded inserts for mounting, power DC only; new audio DAs feature connector choices, terminal block or RCA, mono or stereo, balanced to unbalanced, unbalanced to balanced and independent gain per output in up to a 1 x 12 mono, or a 1 x 4 stereo.

Also: AB/ADA; SAB/ADA; ADA-3.

Video Products Group **S3063**

Videoquip Research Ltd. **L2663**

Intro: MDX-1 can extract or insert digital audio from/into a digital SDI video signal, features include both multiplexing and demultiplexing modes, sample rate conversion and audio group selection; ADM-1 accepts two AES/EBU digital inputs for normal audio and audio-over, the level of normal audio is automatically reduced in level (ducked) when an audio signal appears at the over input, the mixed signal is available at the AES/EBU output; UVM-6 universal voltage monitor simultaneously monitors up to six AC voltage inputs and sends this information to a host controller via an RS-232/RS-422 serial connection or an optional Etherlink.

Also: Videoquip; Phase 3.

V-Soft Communications **L2051**

Intro: AM-Pro AM allocation and mapping program for daytime and nighttime studies, configured to apply M3 ground conductivity curves or R2 depending on where the study is carried out, mapping features are user-defined, uses the FCC AM database; Probe II is a top-of-the-line propagation prediction program for FM/TV/DTV, models include Longley-Rice, FCC, Okamura\Hata and PTP, produces atlas-quality coverage and interference maps that can be customized to street level, includes OET 69 module for DTV.

Also: AM-Pro; Probe II; FMCont; SearchFM; Contour; InterDLG; Terrain3D; PlotPath; RFHaz; IDSeries, VTower, 2000 & 1990 U.S. Census Data.

W

Walters-Storyk Design Group **L10718**

Ward-Beck Systems Ltd. **L2815**

Intro: As a farewell to the M405P Portable Extended Range Meter, a drawing will be held for two gold-plated units; the new VIDBuddy combines the function of an extended-range audio meter with a video monitor in a compact portable package, allows on-the-fly monitoring of digital video, analog video, embedded audio, AES audio and analog audio signals; DA305A is a digital DA with level control, SRC, phase correction, mono capability and serial control port; DA305B adds mixing capability and stereo delay; AVM4 combines visual and aural audio monitoring with video monitoring in a 2 RU package with a stereo LED bargraph that displays PPM or VU signal characteristics simultaneously, and the unit can accept four AES sources (75 or 110 ohms), four stereo analog sources and four composite video

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inputs and may be fitted to accept a serial digital video signals with embedded audio.

Also: R2K Radio Console; PODs; Bit Buddy; Bit Spitter; IMP Impedance Converters; Serialboxx.

Waves S7821

Weather Central L11411

Wenger Corp. L13433

Intro: Acoustical Door, pre-engineered construction for a more consistent installation, four-sided leaf frame offers superior rigidity and sealing, STC ratings in the range of 50-54, window options include narrow window, full vision or solid leaf.

Also: Voice-Over Chair provides comfort during the longest sessions, with adjustable backrest to tailor seat depth, pneumatic height adjustment for seat and footrest, swivels 170 degrees or locks in position, five-leg design increases stability; V-Room Booth is a sound-isolating, modular broadcast booth for studio/broadcast isolation booths and control rooms, with modular construction and optional variable acoustics that simulate 10 acoustical environments.

Westlake Electronic Supply L9977

Wheatstone Corp. L2515

Intro: Several new digital audio consoles in addition to its established product lines that include Wheatstone, Audioarts Engineering and Auditronics brands.

Also: A-2000, Bridge 2001 Digital Router, Wiremax Studio Interface System, Preference/Techline studio furniture.

Whirlwind L11616

Intro: MultiSnake combines four-channel direct box (MultiDirector) with a four-channel mic snake, suitable for organizing live-performance frontline vocals, acoustic instruments, keyboards, etc; also Cable Protector/Runway to protect your cables from the crowd at remotes and concerts, won't slide around, weighs 19 pounds and is bright yellow and orange color for safety, also available in black and orange, and contains five cable slots under hinged top panel, ramped sides on each end allow you to lock multiple units together, end caps available to cover tabs, convenient carry-handle located on the underside, will mate with Hubbell TredTrak and Linebacker GP systems.

WhisperRoom Inc. L19557

Intro: Portable sound isolation rooms available in 17 sizes and two levels of isolation.

Also: Sound isolation enclosures, voiceover rooms.

Who Did That Music? L3122

Intro: Image Library from Fable Music Australia production house; format-specific libraries with 400 CDs in a growing catalog; Ignite Vol. 4, Sound Design - Sonic Logos, Workpart Elements, Rhythm Beds; First Section: The Non-Spit Beat Box with 30 loops presenting a sonic range, each loop contains 1 to 3 variations; Second Section: All Natural Ambience with 19 loopable ambient beds set to a variety of moods; Third Section: Tasty Toxic Single Sound Fixes with 41 sound design elements to help you create a sonic world, each track with variations; Bonus Section: Freaked-It Drum Kit; Virtual Listening Room at *www.whodidthatmusic.com* allows producers to search and download the libraries and allows visitors to preview tracks and send them to the client for approval before they are downloaded and synchronized to a project; 2002 Demo showcases each library and gives listeners an overview of the catalog by music category.

Also: Production music libraries include Who Did That Music?, Gravity, Ignite, Revolucion, MindBenders, Tuff, Unity, BPM-Bosworth, Fontana, Sound-Pol, Classical Collection, Ready Steady Edit, Image Library, Fontana SFX.

Wicks Broadcast Solutions L2315

Intro: Control Tower provides data warehousing capability to Wicks systems, automated report consolidation at market and corporate levels with real-time access to information viewable as a report/spreadsheet or via the Internet; SalesMinder sales automation/contact management tool increases staff productivity, accurate reporting for sales forecasting, sales vs. goals, closing ratios and pending proposals Increases productivity due to reduced reporting requirements, better account activity tracking; RateMinder sales proposal tool creates attractive packages while maximizing yield based on inventory supply and demand, provides control of accurate rate quotes, eliminates dependence on rate cards and rate negotiation; VT-Visual Traffic is management-oriented, Windows-based traffic system for "point and click" operation from order entry through invoicing, better inventory management by allowing VT to manage inventory automatically; Invoice Express reduces costs for clients with additional electronic invoicing component to Wicks traffic systems, saves postage, records how each client wants to receive invoices (fax or e-mail), then distributes as specified.

Also: DeltaFlex Broadcast Management System.

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Will-Burt Co. L12516

On Display: Pneumatic Telescoping Masts; D-TEC; Antenna Positioners.

Winsted Corp. L19520

On Display: Audio Desk

Wireworks Corp. L4835

Intro: WireLux audio cables include MusiLux microphone cable, flexible, thermoplastic shielded, tangle-resistant, in 10 jacket colors, strips in 1 second; InstaLux installation cable, small size, easy strip, designed for fixed installations; StudiLUX interconnect cable; DigiLux TrueBit transmission AES/EBU digital cable; UltraLux flexible multichannel cable; SpeakerLux satin-finish flexible loudspeaker cable in two to eight conductors; also TED5, DMX Cable Tester; Wireworks Perfect Custom Panels include gang, rack and wall plates manufactured to user requirements, machined, not punched, in place, assuring alignment between connectors and engraving; Wireworks TE-3+ Cable Tester tests XLR-type, TRS and BNC cables, TEN-4 tests Speakon4 and 1/4-inch speaker cable assemblies; TEC256 multipin cable tester is a large-scale, computer-operated tester.

Wohler Technologies Inc. L11257

Intro: HD-SDI in-rack audio monitor for monitoring high-definition audio; AMP2-L8 series of multichannel monitoring units feature eight channels and eight high-resolution level meters; LM Series Level Metering and Alarms provide 32 channels of audio monitoring with alarm functions in 1U, 26-segment tri-color LED bargraphs provide visual display; E MON-1 Dolby E audio monitor system monitors Dolby E, Dolby Digital AC-3 and PCM and features a speaker system plus eight level meters, with source, channel and metadata information displayed on a status screen, all in 2U; VAMP and MON Audio and Video Monitoring Range include innovations from Panorama DTV, the video division of Wohler Technologies, including monitors offering both audio and video monitoring in 2U of rack space, available in Dolby E, Dolby Digital AC-3, SDI, AES/EBU digital and analog; also compact in-rack LCD video monitors.

Also: ATSC/DVB-3, LM106-6, AMP2-VSDA, VMDA-4, MON 3-3.

Williams Communications S6012

Intro: Digital Media Management is designed to satisfy the requirements of global businesses needing to retrieve, view, catalog, edit, store and deliver digital content including video, audio, Web and desktop publishing content; Vyvx audioNet enables an efficient means of transporting radio spots from your desktop, enabling you to preview, select and download broadcast-quality (MP2/MP3) spots via the Internet; Interactive Webcasting applications engage users with video, audio, presentation slides, dynamic Web links, live chat and audience polling through one customizable user interface.

Also: Duplication and distribution of radio advertising spots; production services; AdsInView.

Winemiller Communications Inc. L1051

Intro: Remanufactured broadcast vehicles with immediate delivery, including 1996 Frontline and 1997 Wolf Coach, including full mechanical package with three year/75,000 mile warranty, interior and exterior detailing, wiring diagrams, equipment installation, and more; Cricket 2 GHz microwave transmitter about the size of a U.S. quarter.

Also: Broadcast trucks for sale or rent; ENG microwave equipment.

Wolf Coach Inc. L11604

Intro: Super Power Truck provides workspace, storage and flexibility, supports production, multiple digital paths; FastTrack SNG van platform under 10,000 lbs, multistream digital capable/optional analog; Benchmark-3 DS/ENG Hybrid combination microwave/satellite news van ptimized for space, weight reduction, lightest hybrid.

XYZ

Xytech Systems Corp. S5158

Intro: XE 2002, XE 2002 media asset and workflow management software, includes an improved Web browser interface, a labor rules feature, partial billing capabilities and enhanced complex queries for the MetaVault Library.

Also: Xytech FMS.

Z Technology Inc. L8971

Zaxcom Inc. L9052

On Display: Arria; Cameo S.

You Read It Here

Ten Years Ago

"After four years of delays due to design changes and difficulty finding a vendor, the radio industry finally will get a look at the NAB 'SuperRadio' at the NAB convention.

"Denon, the super tuner's builder, is planning to host a session on the tuner, a nearly-everything-but-the-kitchen-sink project on which the NAB spent more than $75,000 since 1988. ... The tuner will be called the TU-680 NAB tuner ... suggested retail will be about $450. ...

"Denon was able to add the latest improvements, including addition of the EIA/NAB's voluntary AMAX standard for improved AM performance. ... Consultant Almon Clegg said the TU-680's AM features will include expanded wideband AM (50 Hz to 7.5 kHz), C-QUAM AM stereo, switchable noise blanking to reduce electrical interference, a wide/narrow bandwidth switch to reduce nighttime station interference, and external antenna connection.

"Notably absent ... is the FM stereo enhancing technology FMX."

"NAB and Denon Unveil Super Tuner at Last"
by John Gatski
March 25, 1992

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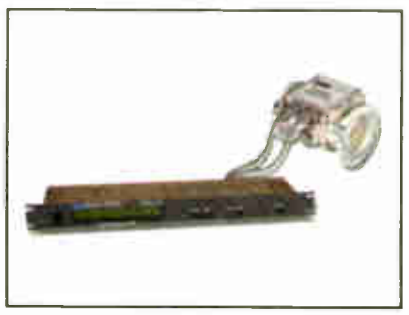
Wattmeters



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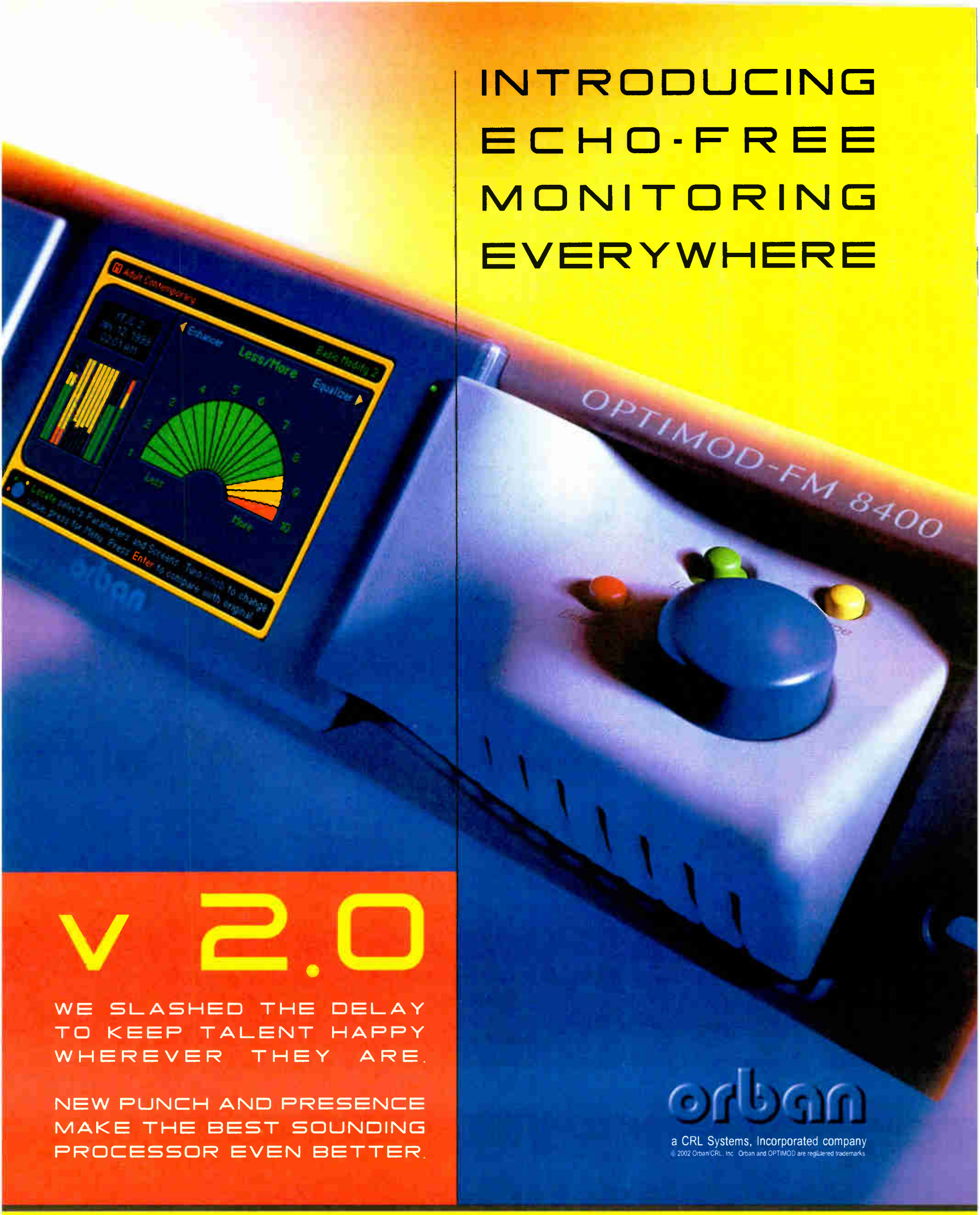

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World Radio History

Better FM Antenna Performance

We Conclude Our Series of Questions And Answers With Leading FM Consultants

by Richard Fry

How can you get the most out of your FM antenna system? To provide some insight into this subject, three prominent broadcast consulting firms were asked to respond to 15 topics about FM antenna performance. With this issue, we conclude their replies. Past articles are available at *www.rwonline.com* under the tab "Better FM Coverage."

The participants are Ben Dawson of Hatfield & Dawson; Bob Culver of Lohnes & Culver; and Don Markley of D.L. Markley & Associates. Note that any consultant would need specific site and application information to provide an accurate recommendation for a given situation.

Topic: Comment on building penetration issues that confront you as a consultant.

Dawson: We make a lot of building penetration measurements at land mobile frequencies where talk-in can be particularly critical because of the limited power budget. For broadcast FM we have some pretty valid assumptions we normally use, based originally on measurements.

Culver: A dB is still a dB and building penetration is just the ratio of the signal impinging on the building to that inside, just a dB ratio. Add 3 dB outside and everything inside goes up by 3 dB too.

Now if you are concerned about multipath, if the antenna does not change and the propagation path(s) do not change, then a dB is still a dB. If you happen to be on the threshold of service, on the edge of the FM signal-to-noise curve, 3 dB outside could sound like a lot more inside, you are in the area of non-linear audio performance vs. RF signal.

Look at any receiver performance curves. It may be that with more (or less) power, the audibility of an artifact, multipath included, is masked. *But*, if you change the power up and down, the multipath effects will stay the same, you will have the same direct and reflected signal ratios and phases.

You probably could do a lot better to improve audio at the threshold of service by turning off the stereo. That is worth about 23 dB SNR.

Markley: For best building penetration, we suggest the highest possible ERP as opposed to adding height greater than that assigned to the class of station and then decreasing power as needed to comply with the rules and the maximum distance to the protected contour.

Do you really want to put a 100-kW FM station in a populous area and deal with the RF exposure zoning concerns that will come crawling out of the woodwork?

— Bob Culver

Topic: What is the best choice of antenna polarization for various types of terrain and urban environments (H only, V only, elliptical, circular)?

Dawson: There may be circumstances where plane-polarized antennas are more desirable, but if there are, we haven't found any. CP and mixed polarization are very satisfactory.

Culver: As I recall, H-pol has a bit of an advantage because of less reflections. But today we have a lot of vertical (or at least slanted) antennas on cars, so the vertical component is a help.

You want the real answer to improved performance? Diversity receive antennas. But then I'm not answering this for the transmission antenna folks.

When we discussed this with the folks from one of the big two auto manufacturers, all these topics were discussed. The auto folks said, "Yes, but that costs money, and besides, the antennas look bad and make noise. Isn't there any way to have good audio performance without the antennas?"

My answer was, "Yes, throw away the antennas and the radio and just put in cassette players."

That was in the days before automobile CDs.

Markley: We fully believe that circular polarization is the best for all FM service with a single station. In some cases where boosters are to be used, we have had significant success using horizontal polarization for the main station with vertical polarization for the booster signal.

Topic: Comment on the importance of axial ratio in a circularly polarized antenna. This would address parity of the radiated waves in all polarization planes, not just H&V.

Dawson: If receiving antennas were CP, this would matter, but since they are generally randomly linearly polarized, it appears to be relatively unimportant.

Culver: Interesting question. *Any* side-mounted antenna that has different H-pol and V-pol azimuth patterns will have a big axial ratio all around the pattern, except where the two fields are the same. Just like the broken watch, at least it is right twice a day (and the axial ratio is near zero at two or more points but not many).

The only inherently low axial ratio antennas I know about are panel antennas, and the best of these is the CBR. The reason for this is that the radiating element is the round cavity and it is identical for all polarizations over its azimuth and vertical patterns (at least to the symmetricity of its cavity shape).

But does the axial ratio mean much? It would if you had a C-pol receiver antenna and wanted to reject reflected (reversed-polarity) signals.

Markley: We suggest fully circular polarization, not vertical and horizontal. In other words, we prefer the field to be the same for all angles of antenna field rotation.

Topic: Comment on placing the antenna on a short tower close to the city of license vs. on a tall tower further away.

Culver: Trade-offs! Do you really want to put a 100-kW FM station in a populous area and deal with the RF exposure zoning concerns that will come crawling out of the woodwork?

Then there is the issue of FM blanketing. You will have to deal with all of the complaints for the next year from anyone within a few miles and if there are 10,000 people in that area and they get on your case, you will be busy.

I would much prefer to build a tall tower (or lease space) about 10 miles out, where land may be cheaper, people are fewer and perhaps not so feisty, and still put 90+ dBu in the city, 20 dB above principal community coverage, than to put 20 dB more in the city (and thereby have 40 dB more signal above superior service than just 20 dB above that level).

Markley: To evaluate the problem of a tall tower with lower ERP and a short tower with full ERP, it must be assumed that, in each case, the maximum facilities for the class of station are used. Then this becomes a judgment call.

In open areas with numerous small communities to be served, greater height is desirable. However, if the desired market is a single major city and service at a greater distance is a secondary goal, the greatest ERP is desirable to penetrate buildings as much as possible.

In any case, continuing to increase height seems to be something to be done with caution. You shouldn't just keep going until the ERP becomes something like 100 watts. That would be great for communicating with planes, but poor to get into even a house.

Radio World thanks the consultants who participated in this series of questions and answers.

Richard Fry is a retired FM applications engineer with almost 35 years of service with major U.S. broadcast transmitter manufacturers. Reach him via e-mail to rfry@adams.net.

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World Radio History

Workbench

Radio World, March 27, 2002

Past columns are archived at *www.rwonline.com/reference-room*

Emergency-Proofing the Tx Site

by John Bisset

Do you work for a station ownership that understands the importance of keeping a transmitter site stocked with the necessities to enable you to do your job?

If so, you understand how much more efficient you can be. If your ownership doesn't understand the importance of a well-stocked transmitter site, here's your opportunity to educate them.

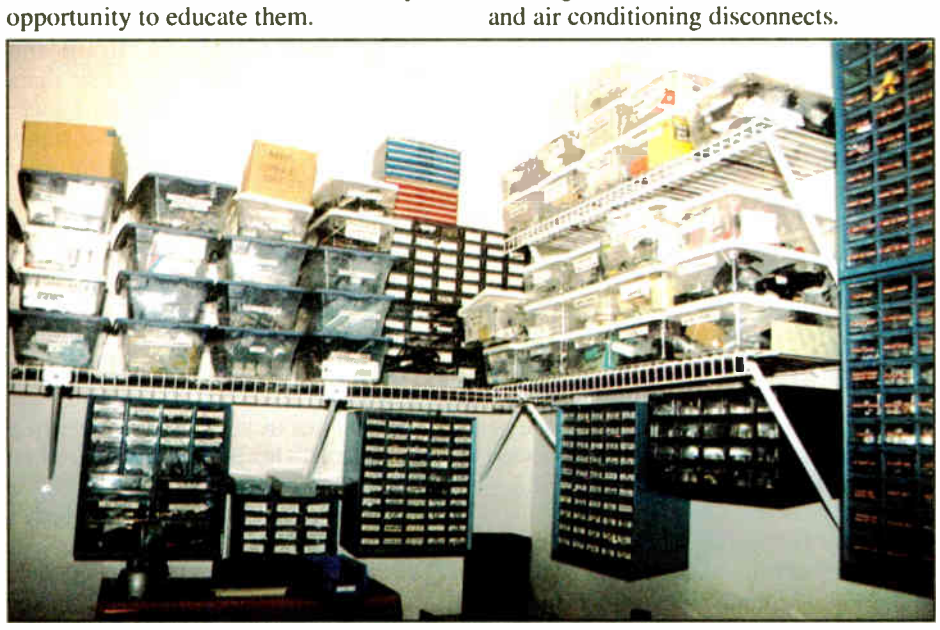

Fig. 1: Dennis Sloatman is one organized engineer.

Although an extensive spares stock would be nice, it's not always practical, given the economics of today's station engineering department. There are some little items, however, that won't break the bank, yet can save the day when problems strike.

Mike Patton of Michael Patton and Associates developed a list to help organize your transmitter site, a portion of which we shared in the last column. The list continues with spare "stuff," and at the top of the list are fuses.

★ ★ ★

Spend a day at the transmitter site documenting every type of fuse needed. Expand beyond the little half-amp fuses used in the rack equipment, and include the large fuses used in both transmitter and air conditioning disconnects.

A thorough inspection of your fuse requirements probably will surprise you — there are a lot of fuses! Keep a written list to help you consolidate fuse types from sites and permit you to buy the "hard-to-find" types before you need them at 2 a.m.

Other inexpensive spares include replacement light bulbs. Don't forget overhead and outside lighting requirements, as well as a few spare bulbs for the drop light.

Add to the list replacement bulbs for transmitter or control panels. Overload indicators are of no use in troubleshooting a problem if they are burned out.

Spare batteries are another low-cost item and are found in some newer transmitters. Include spare batteries for flashlights and that emergency DVM.

Next time you visit Radio Shack, pick up one of the 1/4- or 1/2-W resistor assortments. Digi-key is an inexpensive source of these kits. A hardware assortment kit is useful, as are a few pieces of heat-shrink tubing and a roll of electrical tape. Stock a few bypass capacitors and chokes, too.

If you maintain pressurized transmission lines, a spare bottle of nitrogen will come in handy. Make sure the metal cap is screwed in place, and the tank is secured to the wall.

A set of shelves to store things is a nice addition, as are at least one of those plastic drawer sets, for holding the small parts, as seen in Fig. 1, organized by Dennis Sloatman in Orlando.

Next time the sales desks are replaced, grab one for the transmitter site. At the very least, a folding card table can serve as a workbench. Don't forget the padded folding chairs — at least two.

The same holds true for the file cabinets. Having a sealed filing cabinet will prevent rodents from shredding your manuals and telephone books for nesting material. A large trashcan with a snap-on lid and a supply of heavy-duty trash bags rounds out the list.

★ ★ ★

Next, we move on to documentation, starting with service manuals.

In this age of downloadable equipment manuals, there is no excuse for not having a manual for every piece of equipment.

In the case of STLs or remote control systems, it's invaluable to keep two sets, one at the studio and one at the transmitter site.

A fine-tipped marker, a box of file folders and an afternoon at the transmitter site can yield an organized file drawer of manuals. The file folders do a good job of holding smaller manuals. Alphabetize the list of folders and it's like icing on the cake.

If your owners don't understand the importance of a well-stocked transmitter site, here's your opportunity to educate them.

Transmitter schematics are another story; they're not so compact. Jon Bennett of the Cox cluster in Richmond, Va., uses binding clips to store his schematics on the wall of his transmitter building, as seen in Fig. 2 on page 64.

Because he was constructing a new transmitter building, Mike Gilbert of the

See WORKBENCH, page 64 ▶

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World Radio History

IBOC Raises Eyebrows

Official and Unofficial Comments Focus on Next Steps

by Skip Pizzi

As broadcasters begin to envision an IBOC world, some practical issues are being aired.

While some of these may be premature, thinking ahead is preferable to being blindsided in the business world. Let's consider some of the most salient points to surface thus far.

On the docket

On Dec. 19, 2001, the FCC asked for comment on the NRSC's "Evaluation of the Ibiquity Corp. IBOC System," as its latest action under MM Docket 99-325.

The deadline for filing these comments was Feb. 19, 2002, and numerous submissions were made. Most of these could be classified under the heading of commercial broadcasters, equipment manufacturers and trade associations that advocate quick adoption of the Ibiquity system.

For FM stations in the largest markets, IBOC licensing fees to Ibiquity would amount to $68,250 per station.

Many of these commenters acknowledged their existing relationships to Ibiquity, and most comments were tantamount to letters of support. An exception was the comment of Infinity Broadcasting, which included useful and substantive information gathered from its on-air testing of the system.

Ibiquity itself also filed 100+ pages of supportive data.

Critical comments

But not all the comments were positive. Some alternative opinions came from individuals and groups who questioned the value of the system and advocated the allocation of new spectrum for a Eureka 147-based system, along with LPFM supporters who voiced concern over how IBOC might endanger that fledgling service.

One commercial broadcast operator also cited the well-known Receiver-Induced Third-Order Intermodulation (RITOI) problem, noting how it would also affect FM IBOC service, and recommended that the FCC now take the opportunity to solve it for both analog and digital FM's benefit.

Among the most interesting of the critical comments came from a variety of nonprofit operations, including National Public Radio, the International Association of Audio Information Services (IAAIS) and Ball State University.

These submissions addressed a number of the issues raised in the preceding edition of this column (RW, March 1) regarding the lack of quantitative improvement offered by the Ibiquity format, and the possible negative impact on 92-kHz subcarrier services.

NPR suggested that the FM IBOC format include the option for broadcasters to offer a secondary audio service in its hybrid digital signal (i.e., during the transitional period), similar to the multicast option that the ATSC format for U.S. digital TV provides.

In NPR's view, the Ibiquity FM format could allow a hi-fi DAB service (likely a digital version of the FM analog audio), plus a second, voice-grade digital signal, available on all receivers at a broadcaster's option.

Testing IBOC

Both NPR and IAAIS expressed concern over the possible detriment to subcarrier services that the current IBOC system might present, but NPR reserved most of its judgment in this area due to ongoing tests. (Not mentioned in the comments was Ibiquity's continued funding of such testing, currently underway at the Advanced Television Test Center.)

Test results for the IBOC-AM format also are still pending, and thus were not included in the commission's current call for comments. A subsequent call for additional comments will likely be

See PIZZI, page 67 ▶

The Big Picture

Photo: Gary Hayes, BBC

by Skip Pizzi

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World Radio History

U.K. Piratebusters Face Long Struggle

by Lawrence Hallett

Enemy No. 1 for British radio pirates might well be Colin Richards.

Richards heads the Enforcement Policy Unit at the Radio Communications Agency, the division of the U.K. Department of Trade and Industry responsible for tracking, trapping and "terminating" unlicensed broadcasters.

Radio pirates continue to be a fact of life here. According to the Radio Communications Agency, the biggest problem with unlicensed broadcasters is that they can cause interference to legitimate spectrum radio users.

Intense spectrum usage

Much of this interference is due to poor installation and construction of the equipment used, most of which is expected to last only a short time before it is seized.

The Radio Communications Agency also regards unlicensed operations as "anticompetitive" because such stations do not have the same overheads as legal competitors and can sometimes directly interfere with their signals.

By comparison with many other nations, the scale of unlicensed broadcasting in the United Kingdom is quite extensive. However, it is not just the number of such stations that causes concern.

The problem is exacerbated by the fact that, because of the small geographical size of the country and its high population densities, general usage of the radio spectrum is intense. In turn, this means unregulated broadcasters have a much greater risk of interfering with other spectrum users.

The agency admits that some "production-line" pirate transmitters are relatively well-constructed, but knowing how to assemble a kit is not the same as understanding RF installation practices.

Even if a transmitter appears to be operating cleanly on a test bench, the real world is a different matter with risks of intermodulation due to unwanted interaction with the operations of other spectrum users.

Commercial imperative

Richards said such problems have increased in recent years, not just because the number of unlicensed stations has risen but because the type of people running them has changed.

What in the 1970s and early 1980s was a "gentlemen's game," pirate broadcasting has changed to become dominated by a "commercial imperative." Most stations are linked to the club scene, operated by people who see broadcasting as a passport to the lucrative world of live DJ work.

As "amateur" pirates have been replaced by more commercial operations, the degree to which enthusiastic and technically qualified engineers are involved has dwindled, resulting in a lowering of technical standards.

Although the vast majority of unlicensed broadcasting takes place on the FM band, there are occasionally stations operating on the short- and medium-wave AM bands. Here, international cooperation between administrations can help the pirate-busters.

Recently, a shortwave station operating in the southeast of England was traced with the help of German authorities. A directional bearing on the station was provided from the German continental tracking station and then matched with a bearing taken by British authorities using their own facilities north of London.

The triangulation proved accurate to within a few miles, and the station, consisting of a tape recorder and unattended transmission system in a field, soon was removed.

More raids, fewer prosecutions

According to the agency, even though some unlicensed stations attempt to operate around the clock, the majority still concentrate on weekend broadcasts.

The number of raids on unlicensed broadcasters has more than doubled during the past decade, but the number of prosecutions has declined slightly. While the maximum penalty for illegal broadcasting is an unlimited fine and up to two years imprisonment, the reality is that, in the year 2000, the average fine was less than $550.

However, a successful prosecution results in the forfeiture of records, CDs and studio equipment, the value of which can run to thousands of dollars.

When unlicensed broadcasts threaten safety-of-life services, courts take violations more seriously.

Most British pirate stations are linked to the club scene, operated by people who are pursuing live DJ work.

A recent case involving a station operating from Basildon, east of London, resulted in the imprisonment of two first-time offenders after their signals interfered with equipment at nearby Rochester Airport.

Given that the legal system has tended to not view unlicensed broadcasting as particularly serious, the Radio Communications Agency has begun to develop other strategies in its battle with such stations. Regional offices have begun to employ ex-police officers to investigate nontechnical matters.

One such investigation resulted in the recent prosecution of a transmitter supplier, and others have targeted advertisers. The agency believes that advertisers often are unaware it is illegal to advertise on an unlicensed radio station or even that the station they are involved with is unlicensed.

Another successful collaboration has been with local authorities in restricting access to towers and blocking transmitting sites. Such schemes in London have dramatically reduced the availability of prime transmission sites in certain areas.

The agency also tries to cut links between stations and their listeners. Mobile telephones have been successfully used by many stations to take requests and dedications "live" on-air.

Phone pirates

"Pay-per-use" phones are particularly popular with pirate operators; they can be purchased for cash without the need for identification. The agency has such numbers barred from the network if it hears them given out over the airwaves.

But the number of stations, particularly in major urban areas, continues to increase. Richards argued that this is simply a matter of resources and priorities.

Though something like 10 percent of regional office time, or about $2.8 million per year, is devoted to broadcast enforcement, there are other demands on staff time and resources.

Apart from anti-pirate activities, the agency is responsible for licensing issues, nonbroadcast-related interference prevention and other actions against unlicensed spectrum users, such as CB radio operators using illegal single-side band equipment — a major problem in some areas.

Local offices also have to administer private mobile radio, marine radio and amateur radio license compliance.

Only time will tell if the emerging broader approach to enforcement being developed by Richards and his team will make an impact.

Lawrence Hallett reports on the industry for Radio World from Norwich, England.

Workbench

▶ Continued from page 62

Multicultural stations in Blane, Wash., had his larger schematics laminated on foam-board, and mounted on the transmitter building walls. If wall space is at a premium, use Mike Patton's suggested fold-up card table as a place to lay out schematics. You will have a convenient way to trace circuits.

If this is your first time organizing the manuals, you may encounter a lot of old manuals or documentation. Resist the temptation to throw these out.

If you're short on space, use a cardboard banker's box or empty copy paper box to store this paperwork. Necessary documentation often is trashed inadvertently by well-meaning engineers trying to "clean up the place." This includes wiring documentation, customized control circuits, even phasor schematics.

A good rule of thumb is, "if in doubt, store it, don't trash it."

Fig. 2: Unwieldy transmitter manuals can be kept neatly out of the way using binding clips and wall hooks.

I realize some engineers may take umbrage at the pack-rat mentality described here. But spending 30 minutes searching through a box of old paperwork is cheaper than having to trace wires or circuits and "creating" a replacement schematic.

Besides, such schematics usually are required when an emergency has occurred, just adding further unneeded pressure.

In addition to wiring documentation, Mike expanded his list to include all AM directional antenna paperwork, phasor/ATU diagrams and a notebook on phasor adjustment.

It's not a bad idea to keep a copy of the AM paperwork away from the site, in case of fire. In fact, about a year ago, an AM DA burned to the ground. All of the directional paperwork was destroyed.

Although situations like this are not hopeless, they require finding the original consultant, who may be retired, and hoping he has copies of the documentation in his files.

The point of Mike's documentation requirements is that you think of all of this before you need it in an emergency. A small amount of planning now can save your hide later.

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.

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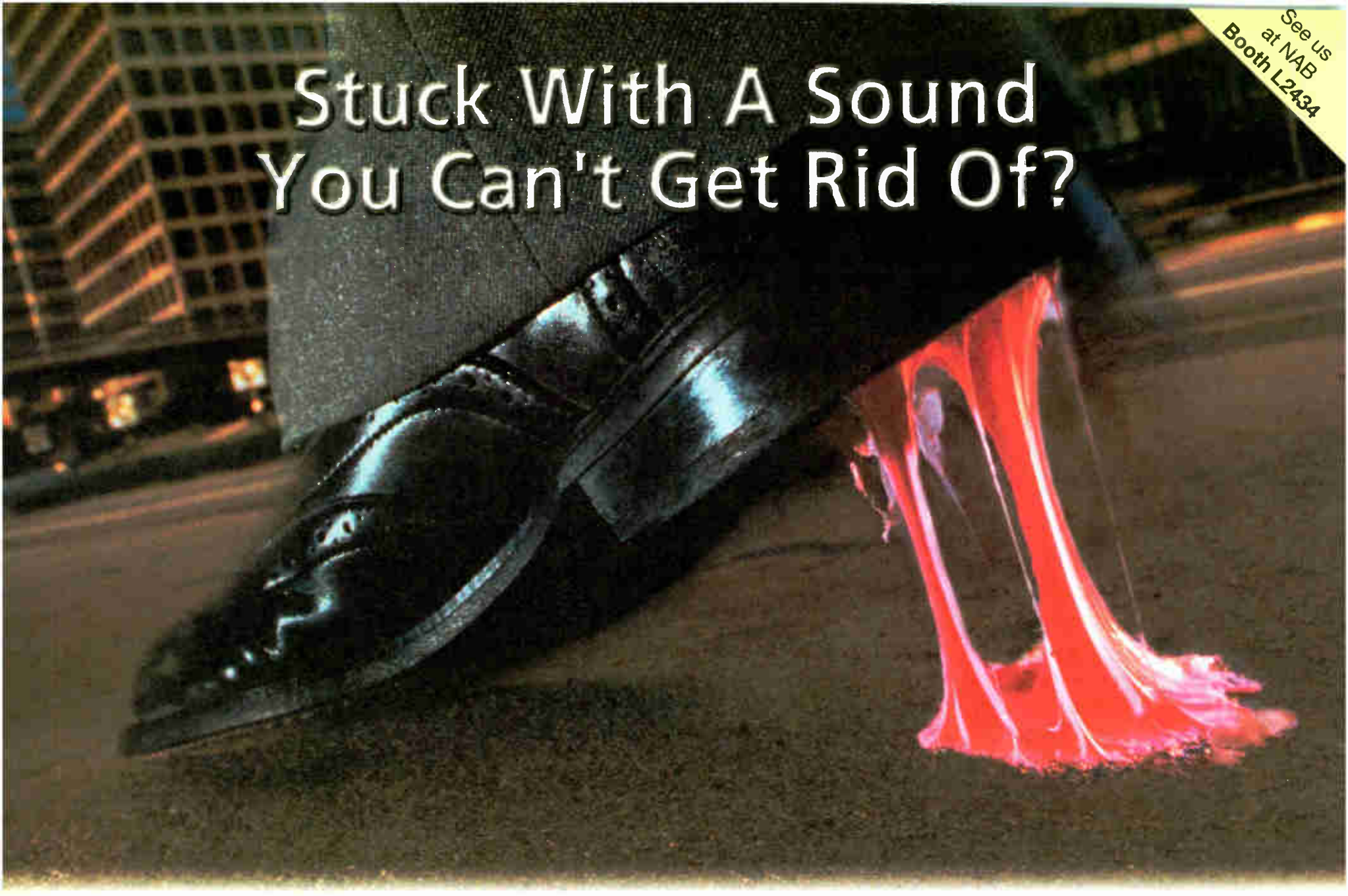

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World Radio History

Pizzi

▶ Continued from page 63

made once the AM test results are reported.

NPR's submission reiterated its support for the suggestion in the FCC's original NOI on DAB regarding possible reallocation of TV Channel 6 (82-88 MHz) to new, all-digital radio services. As one might expect, several television-industry commenters had earlier filed comments against this idea, including, ironically, the Association of Public Television Stations.

Indecent proposal?

On a wholly different track, reports are surfacing on how Ibiquity plans to license its technology to broadcasters.

The proposal Ibiquity currently is floating around the industry would levy a one-time licensing fee to each radio station for use of the format. The suggested pricing of this license would be 15 times a station's FCC license fee.

For FM stations in the largest markets, IBOC licensing fees to Ibiquity would therefore amount to $68,250 per station. For multi-station operators in major markets, this could result in nearly half a million dollars in payments to Ibiquity, over and above the physical costs of conversion — as outlined in the Feb. 13, 2002 edition of RW.

This explains the blank "IBOC licensing" line item in the chart on page 20 of that issue, which some readers may have mistakenly attributed to a yet-undetermined regulatory surcharge to be levied by the FCC, and which was therefore expected to have negligible impact on the bottom line. Instead, it could be something that inflates previous estimates of conversion cost by nearly 50 percent in some markets.

For noncommercial stations, which pay no FCC license fee, Ibiquity has proposed a $3,750 IBOC licensing for each station, regardless of market size.

This also recalls an issue noted in the previous edition of this column regarding the lack of an open standards process for U.S. DAB. Unlike other broadcast standards, in which a group of companies that contribute intellectual property to an open standard shares in licensing revenue paid by equipment manufacturers only, Ibiquity apparently intends to unilaterally establish a fee structure for payment of licensing from broadcasters, as well.

In addition, basing a technology licensing fee on a multiple of a regulatory licensing fee is unusual, and could be argued as violating of the generally accepted principle of reasonable and nondiscriminatory (RAND) licensing practice.

IBOC continues to break new ground, and its story is far from over. NAB2002 may see some additional plot twists and cliffhangers. Stay tuned, as the saga continues.

Skip Pizzi is contributing editor of Radio World.

IBOC continues to break new ground, and its story is far from over. NAB2002 may see more plot twists.

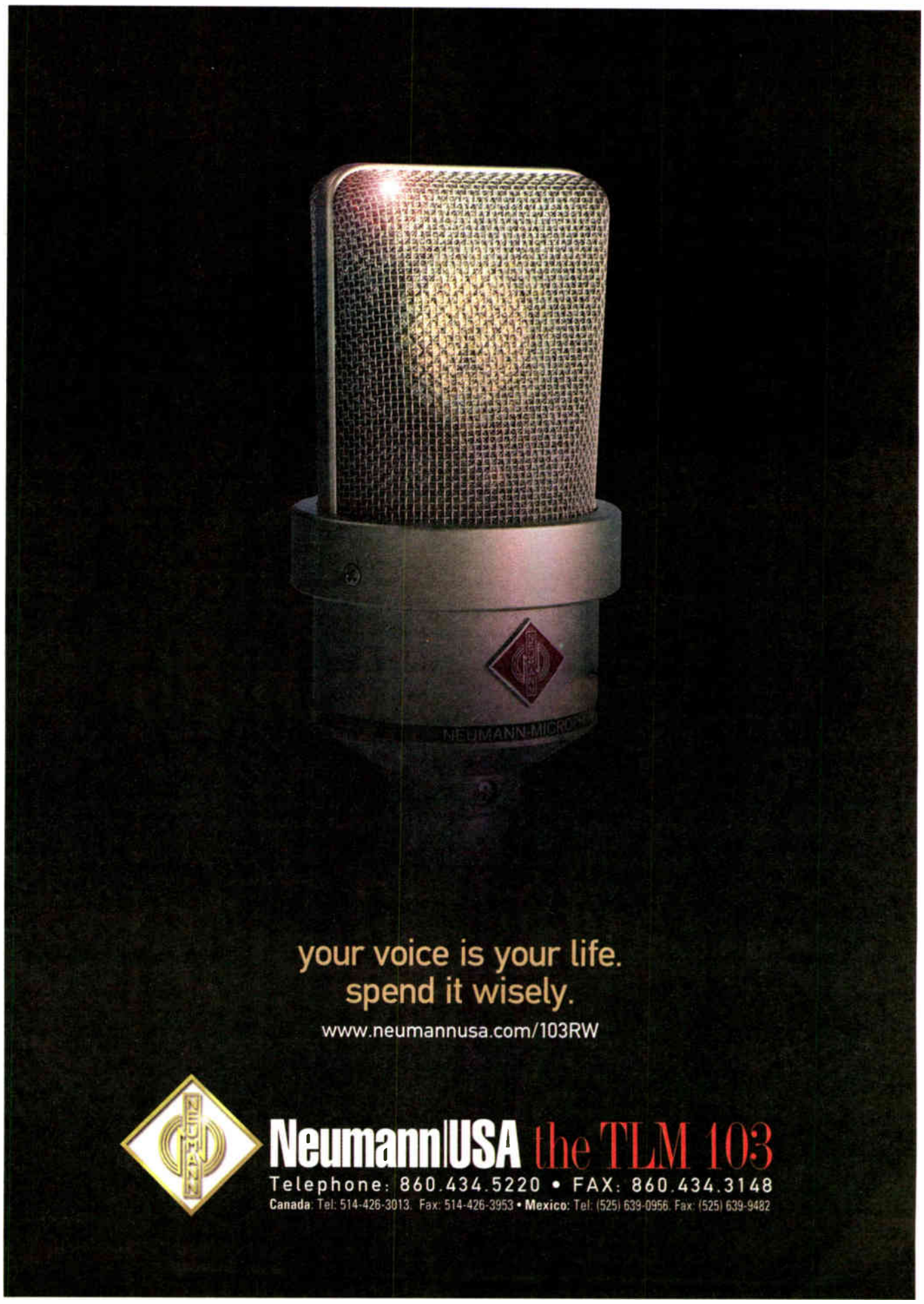
Seminar Examines RF Radiation

Narda Safety Test Solutions will host a three-day seminar on evaluating and managing sources of nonionizing (RF) radiation at its headquarters in Hauppauge, N.Y., April 9-11. Narda makes safety monitors that measure RF radiation

The annual seminar is for industrial hygienists, safety professionals, engineers and insurers. With the increase in RF radiation-producing devices such as cellular and wireless services and broadcast equipment, Narda hopes to address safety concerns about RF radiation exposure.

The seminar will cover U.S. and international safety standards and regulations. It will examine health effects from exposure to radiation from 3 kHz to 300 GHz. Background info on radiation from various sources will be provided, and survey techniques, calculations, demonstrations and documentation will be offered.

For more information contact Narda STS at (631) 243-0838 or visit www.nardasts.com.



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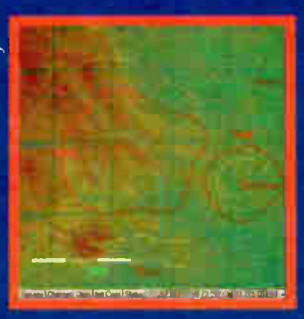

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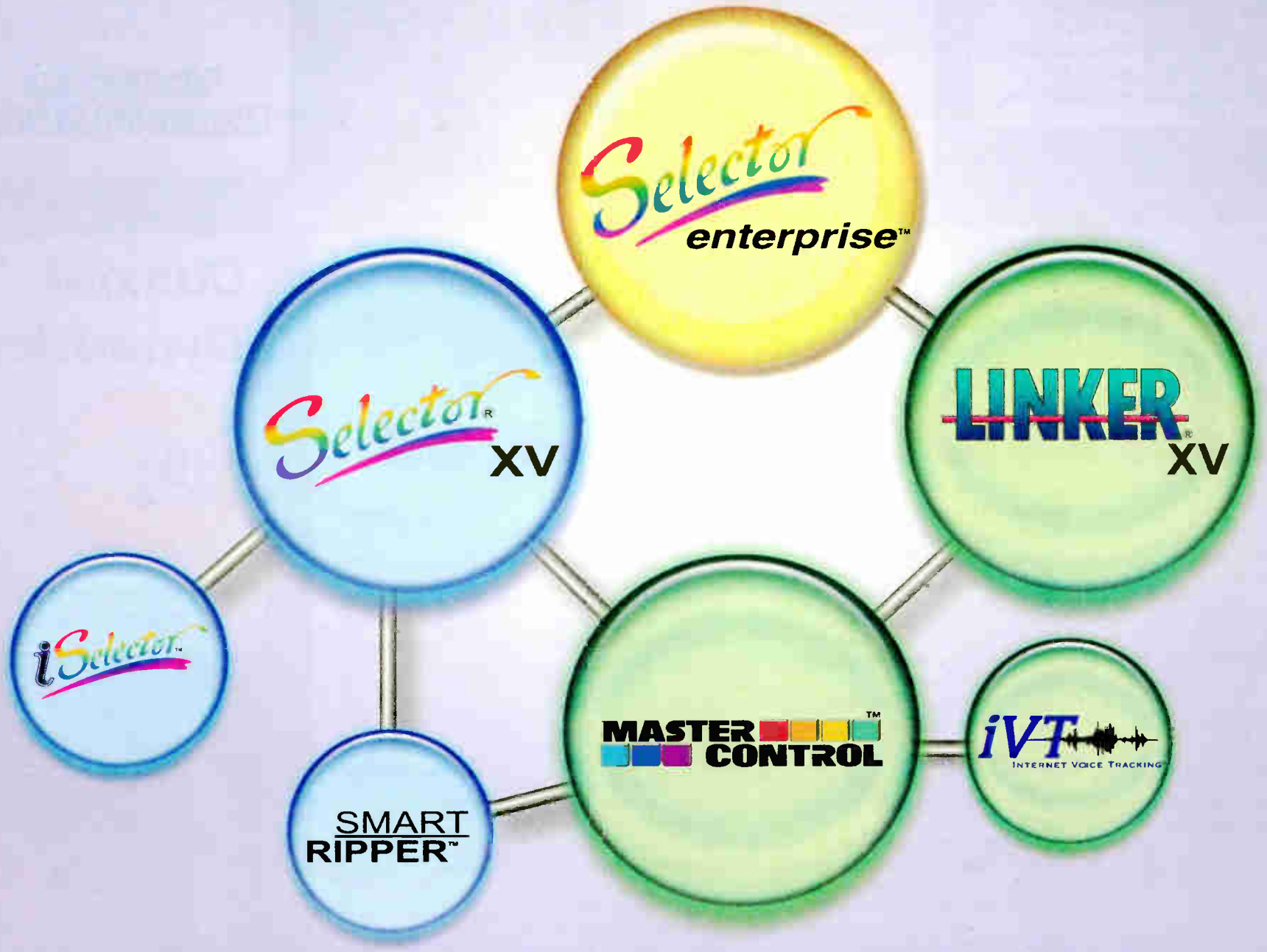

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World Radio History

GM Journal

Radio World — Resource for Business, Programming & Sales — March 27, 2002

Station 'Homeland Security'
See Page 72

RAB Hopes Radio Will Get Well

by Laura Dely

The focus of the Radio Advertising Bureau's 10-session conference at the NAB2002 will be in three key areas: how to find and keep sales superstars, how to establish formalized training programs and the nurture of your station's top local clients.

Lindsay Wood Davis is vice president of meetings at the RAB and organizer of the NAB2002 RAB Sales and Marketing Conference. He said the conference's sessions reflect radio broadcasters' concerns on the current economic situation.

Better faster

The RAB will provide an economic perspective in the sessions that the organization believes broadcasters need to understand now: These sessions will be about how to accelerate radio's recovery from the recession.

Lindsay Wood Davis

"Right now, it's not about how to how to sell out of bad times, it's not about getting better, but how to get better faster," Davis said.

Toward that goal, the need to formalize sales training systems is high on the RAB's agenda. There are several sessions at the NAB2002 RAB Sales and Marketing Conference that will focus on this area.

"This is a critical issue. I think that people finally understand that management and training have to be formal systems," Davis said.

"And contrary to the industry's methods to find and hire and keep sales people, which until recently has been akin to wetting your finger and putting it up to see which way the wind was blowing, retaining good sales people is a process, not an event," Davis said. "That process is a system."

How to increase the professional level of sales staff and management will be covered in the Monday-morning session, "Blueprint for a Bionic Sales Team: Recruiting and Training the Best."

"We need to raise the bar in hiring and firing and to improve the quality of people working for us," Davis said.

RAB's senior vice president of training, Lynn Anderson, will lead the "Bionic" session.

One of the most-attended sessions at the recent RAB2002 convention and a best-selling session tape from the February show will be presented in Las Vegas: "Radio Cluster Sales Management: Swiss Army Knife."

Bud Stiker

Chris Rolando of Mad Dog Wireless will lead the session on the afternoon of Monday April 8.

Ideas

Davis said this session will give small- and medium-market participants many ideas on how to build sales — hire better, fire faster, balance billing and costs

"People and systems are vastly more important than structure. Chris Rolando is a really good systems guy," he said.

Rolando said each participant will leave with a CD that includes the ideas presented and computer programs to aid sales managers.

RAB's senior vice president of Internet services, Dave Casper, will present the updated version of the organization's PROposal Wizard 3.0 in a Wednesday, April 10 morning session.

Light system

A free 30-day trial CD of PROposal Wizard 3.0 was to be included in the RAB's Monthly Marketing Kit for March. Casper said the new version of the Wizard is more client-focused than previous editions and is more intuitive for users.

"We wanted to make a 'light' system, one that was potable and incorporated contact management," Casper said.

In addition to those features, the newest version of

See RAB@NAB, page 74 ▶

Dick Orkin New Broadcasting Hall of Famer

by Lyssa Graham

With feathers unruffled by the praise heaped on his head, the radio advertising behemoth "Chickenman" Dick Orkin will take the stage at the Tuesday April 9 Radio Luncheon at NAB2002 to receive the honor of membership in the NAB Broadcasting Hall of Fame. Orkin is this year's inductee.

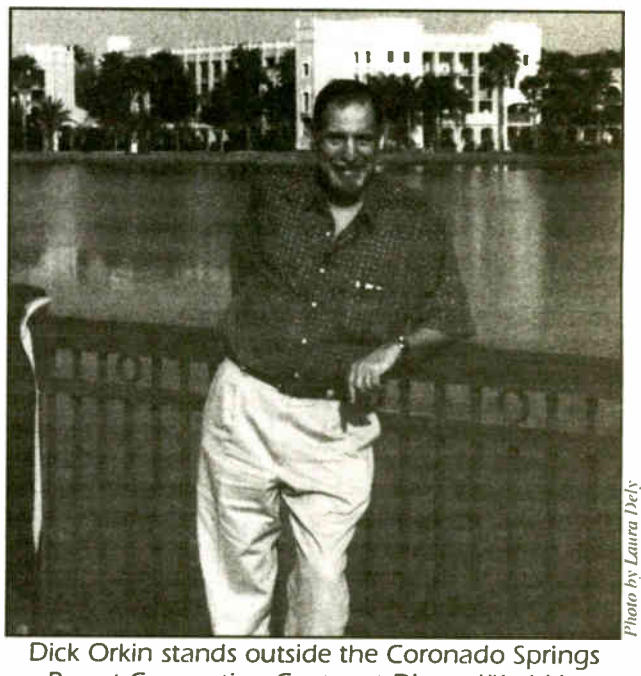
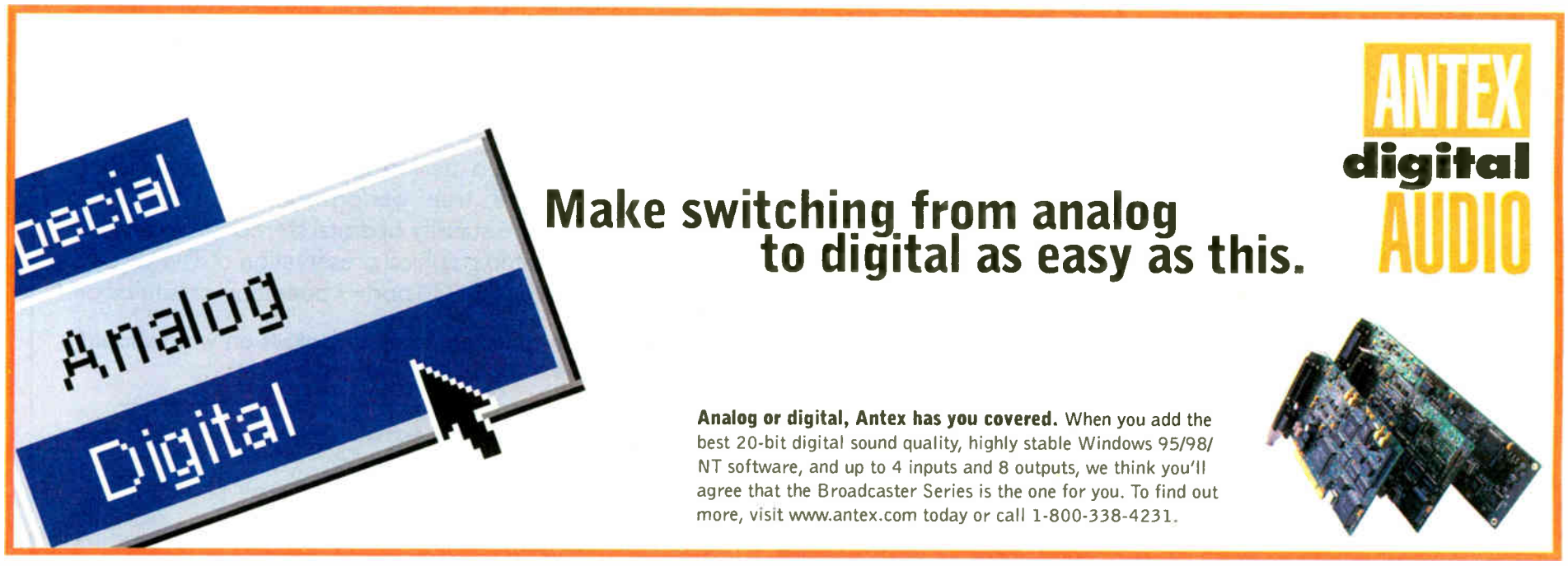


Photo by Laura Dely

Dick Orkin stands outside the Coronado Springs Resort Convention Center at Disney World in Orlando, Fla., in February, where he was a keynote speaker at RAB2002.

Orkin's four-decade-long career in radio advertising has produced award-winning campaigns for clients like Boston Market, Microsoft, First American Bank of Chicago, Time magazine and The Wall Street Journal.

See DICK ORKIN, page 75 ▶



World Radio History

BROADCAST LAW REVIEW

Ensure Station 'Homeland Security'

by Barry D. Umansky

At a time of increased national security — with citizens and businesses taking unprecedented steps to protect themselves — now's the time for radio broadcasters to adopt a similar approach for their stations.

No, we aren't talking today about protection against an upsurge of foreign terrorism. The issue is protecting your station from broadcasters' long-standing domestic threats — such as signal interference, FCC fines, lawsuits from listeners and employees and other key areas where you traditionally must be vigilant to protect your financial bottom line.

Here's a brief checklist of some of the areas where attentive and responsibly wary broadcasters should focus their energies to protect their stations.

Who's coming into the neighborhood? — Be careful to monitor other nearby stations' FCC applications. Every business day the FCC releases a list of applications recently filed for new or modified facilities. This is the "Broadcast Applications" public notice that's found in every FCC "Daily Digest."

Have your communications lawyer check those public notices and give you an alert when someone proposes to operate on or near your frequency in a geographic area that might impinge on your *protected* service area or might cause interference to listeners located beyond your protected service area, but who nonetheless listen to your station and with whom your advertisers may have an interest.

See if there are areas where the application is defective — in technical or non-technical areas. While the FCC staff generally does an excellent job of safeguarding your protected service area, it's your responsibility to defend your station against others' new or modified station operations that might unnecessarily interfere with your station's signal in more outlying areas.

Check with your zoning authority periodically to see if there are new communications towers or other tall structures being planned.

In the non-technical area, make sure that the application won't violate the commission's local duopoly rules. Would that other guy's application result in the group going over the local limits — as you count up owned and operated stations as well as LMAs?

Did the application fully disclose ownership interests? Are you aware of any law violations of the applicant that should be brought to the commission's attention in a petition to deny the grant of the application?

The FCC has strict policies against your filing a "frivolous" or "baseless" petition to deny an application. But, if you have good and solid grounds, file away and protect your station.

Use similar vigilance when someone petitions the FCC for a new "rulemaking" to amend the FM Table of Allotments. That step, of course, is the precursor to the introduction of new or modified FM service.

While new commercial service won't be inaugurated until the commission completes an "auction" for new station construction permits, prompt station modifications can be achieved in the station modification rulemaking process.

So, be sure that you and your communications lawyer keep on the lookout for relevant rulemaking petitions. You can file comments against such a proposal — usually supporting your comments with technical concerns — or perhaps you may wish to file a "counter-proposal," whereby you would ask the FCC to amend the FM Table in a fashion different than as proposed by the original petitioner.

Are there any new non-broadcast interlopers coming in? — Don't just have fellow broadcasters on your distant-early warning radar screen. Check with your zoning authority periodically to see if there are new communications towers or other tall structures being planned — particularly if the site will be in your core service area.

For AM broadcasters, be on the lookout for nearby cellular or other communications towers — or nearby "mass lighting" poles — that may mess up your AM signal. The FCC has "sometimes effective" rule (Section 22.371 of the commission's rules) that applies to cellular operators and other "public mobile service" licensees. That rule put the financial burden on them to cure the effects that their towers have on your AM antenna pattern.

But, it often takes some prodding to get these mobile radio companies to respond and for the commission to enforce its rule. While the rule doesn't apply to highway and other mass lighting poles, a call to your highway authority and/or to local utilities often can result in cooperation and even financial support for tower detuning and other curative steps.

And speaking of power utilities, are there geographic areas where your AM listeners hear an annoying "buzz" in their neighborhoods? These are telltale signs of a leaking electric transformer on a utility pole. In most cases, a power utility company will be prompt in repairing the leaky transformer. They hate to lose energy almost as much as you hate signal interference.

Erect fences to keep out lawsuits and FCC fines — Your tower is what lawyers call an "attractive nuisance." Human nature — particularly that characteristic of teenagers and young pseudo-adults — naturally brings attention to your tower.

While tower climbers working for your station pose their own issues, tower climbers coming onto your property uninvited create even greater concerns. Be sure you have a "means business" fence around the base of your tower(s) and/or along the perimeter of your tower site property.

In addition to keeping out potential vandals and those who may injure themselves, these fences are also critical to ensuring your compliance with the FCC's AM fencing rules and strictly enforced RF radiation exposure guidelines.

And remember, when you filed your

See DEFENSE, page 75 ▶

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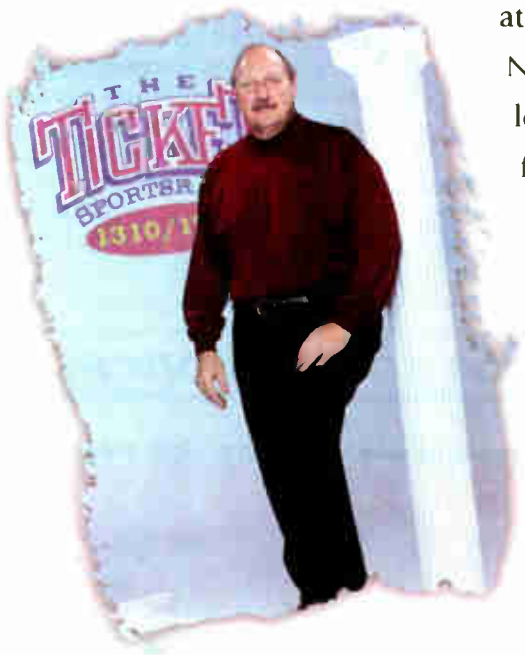

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World Radio History

RAB@NAB

▶ Continued from page 71

the RAB's PROposal Wizard requires Internet access only for its installation and weekly upgrades.

"So it can be used anywhere you can take a laptop, at a client's office or at a meeting, or anywhere you want to take it," Casper said.

The PROposal Wizard 3.0 incorporates the RAB's "Instant Backgrounds" database and allows users to import that information directly into proposals.

Taz and Orkin

Industry consultants Jim Taszarek and Dick Orkin will lead sessions included in the RAB's conference at the NAB2002.

Taszarek, a radio consultant and author of the "Quota Busters" weekly online column and books, will present his new radio sales system.

His sessions typically fill up, so Davis advises that you plan to arrive a little early on Tuesday morning if you would like to hear what "Taz" describes as "pretty common sense stuff" about how to manage sales in the new economy.

"Taz will cover direct sales in his session," said Davis, "while Rolando will cover cluster sales management."

The Famous Radio Ranch head honcho and this year's NAB Broadcasting Hall of Fame inductee, Dick Orkin, with his FRR cohort, Chris Coyle, will present "Do You Know Who Your Customer's Customer Is?" on Tuesday afternoon.

Using a recent Arbitron "Lifestyles" study as well as several other marketing tools to be revealed at the session, Orkin and Coyle will demonstrate the power of knowing the customer's business and goals.

Mary Beth Garber, president of the Southern California Broadcasters Association, commissioned the Arbitron study, which tracks consumers' use of and attitudes toward media and advertising.

"This is part of learning about your customer's business that is essential to winning and keeping your clients," Davis said.

For perspective on the current economic challenges radio broadcasters face, Davis said Bud Stiker's Monday-afternoon session, "Coping with Crisis — The Best Crisis Management Ideas from Around the World," will be helpful.

Stiker, RAB's vice president of international development, has worked as a radio consultant in the developing world. When the rubble collapsed in Moscow in 1998, ruble Stiker was the American general manager of Metromedia International Group's Radio 7 station there.

It's not about how to sell out of bad times, it's not about getting better, but how to get better faster.

— Lindsay Wood Davis

Success redefined

"The Radio 7 station was very popular — then the ruble crashed. All selling, all buying — everything stopped. The economy came to a halt," Stiker said.

What do you do with advertisers in a time like that?

Stiker said that U.S. radio station operators could experience a sense of relief from their current woes to hear how the company approached the problem.

"It might be refreshing for American broadcasters to see what radio broadcasters in other countries are up against," Stiker said.

Also participating in the "Crisis" session will be Andy Bloom, vice president of programming for Emmis Communications, who resides in Buenos Aires, Argentina, where he manages the company's two stations there.

Experience

Christo Grozev, vice president for Metromedia, who resides in Vienna, Austria, is scheduled to participate in the "Crisis" session panel. He has worked with stations in the Baltic States, the former Soviet republic of Georgia, Hungary and the Czech Republic.

Davis said he expects many more West Coast attendees to be at the NAB2002.

"They just couldn't get to the RAB2002, which this year was at Disney World in Florida," said Davis.

The RAB also expects a big crowd from other countries.

Davis said the NAB show features both radio and television sessions and products. Many international companies own both radio and television stations and combine their operation into a single business plan, according to Davis.

"And in general, overseas visitors like Vegas," Davis said.

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World Radio History

Dick Orkin

▶ Continued from page 71

He and his creative partner Christine Coyle are the co-founders of the Famous Radio Ranch where they advocate the storytelling advertising style Orkin pioneered.

"Christine Coyle and I are equal partners in the Radio Ranch. She's a writer, producer and creative director on all of the Ranch's projects. She's terribly important," said Orkin.

Making radio history

NAB Executive Vice President for Radio John David said the association is very pleased to add Orkin to the top names in radio history.

"His talent and creativity have kept top advertisers and radio together for many years," David said.

Orkin is no stranger to creative thinking. He attended Yale Drama School as an undergrad where he learned about stagecraft, good writing and perhaps most importantly, how to tell a story.

His radio characters like "Sid and Syl," the married couple that Orkin said are like the comic strip characters "The Dickersons," "Chickenman," the bicentennial "Minuteman" and the occasional appearance as the tooth fairy have inspired jocks and production gurus throughout the industry for decades.

He said he hears more "announcement" style ads in radio today, a trend that he hopes will be reversed. Now is a good time to do that, Orkin said, as he feels that society is more receptive to creative ideas.

"Our lifestyles have changed," Orkin said. "There's a certain amount of freedom. Listeners accept more. There's a willingness to listen to new ideas and there's permissiveness now."

Orkin takes advantage of the permissiveness by focusing his efforts on storytelling as an advertising medium. He said the storytelling approach is a better alternative for advertisers then the more traditional announcement format.

Orkin advocates storytelling because he said audiences emotionally connect with advertisements that have a story element to them.

"Radio, by its nature, allows listeners to get closer emotionally than any other media," Orkin said.

And Orkin has developed a device to help broadcasters make that connection to listeners: the Spot-O-Matic.

He warns users that despite its name, this is not an automatic process.

"It doesn't mean that you'll produce spots like you drop a coin into a gumball machine and out comes a spot — it won't happen that way," Orkin said.

I hate the word 'inducted.'
It sounds like they're going to do something weird to me.

— Dick Orkin

The Spot-O-Matic is comprised of three distinct elements. First, the user creates a "unique selling proposition," which allows you to identify something substantive to sell.

Next, the Spot-O-Matic user creates a provocative hook that Orkin calls "Automatic Memory Recall." He said that this is a phenomena of the human condition that all good storytellers use.

Spot-O-Matic

When the USP is linked to the memory recall, the result is a "spot," according to Orkin.

"If you can do that — make the connection between the USP and a memory, any kind of memory —— then you have the capacity to use story making to revolutionize radio," Orkin said.

His Famous Radio Ranch advertising shop in California is also home to seminars and workshops designed to teach the craft of advertisement storytelling.

"While there is more consciousness of the value of creativity in preparing advertising than there was," Orkin said, "radio has a tendency to be derivative and replicate advertising that has worked in the past.

"You tend to hear the same spot, with the same phrases, even the same performers," Orkin said.

He said the key to successful advertising is to reach the listener's heart with a story and not shoot for their heads with an announcement.

"It's far easier than people think," Orkin said.

He said most of our daily relationships revolve around telling each other stories.

"We all understand that we connect to each other through personal storytelling," Orkin said.

He said good advertising is just casual storytelling. The same storytelling techniques that work for short story writers and novelists, he said, also work for advertisers.

Orkin's strongest advice is his simplest, "Don't be lazy." He also advocates research.

Research and relevance

"If I could get my druthers with local radio, it would be for them to spend more time in research and to work on the issue of relevance," Orkin said.

He said the more research a station puts into their advertising, the more relevant the ads will be to the listener and the more successful they will be as well.

"The core of really great advertising is to begin with the advertiser's product or service and then research the audience's reaction to it," Orkin said.

With Christine Coyle, Orkin will present "Do You Know Who Your Customer's Customer Is?" at 3:30 p.m. on April 9, shortly after the Radio Luncheon. In this session, the pair will demonstrate Internet tools that help radio broadcasters to better understand how to be effective research and marketing partners with their clients.

Part of their session will be based on the new Arbitron "Lifestyles" study, commissioned by Mary Beth Garber, president of the Southern California Broadcaster's Association.

What strikes fear ...

Orkin said that the prospect of his Hall of Fame "induction" alarms him somewhat.

"I hate the word 'inducted,'" Orkin said. "It sounds like they're going to do something weird to me."

But he'll be in good company, joining "Cousin Brucie" Morrow, Tom Joyner, Wolfman Jack and Rush Limbaugh among the ranks of the hall of famers.

Lyssa Graham is a journalist who lives in the U.S. Virgin Islands.

Contact her via e-mail to lyssa graham@msn.com.

Defense

▶ Continued from page 72

last FCC CP application or filed for your last license renewal, you pledged to the FCC that you continuously would be keeping human beings — be they station workers, contract workers, members of the public or even trespassers — away from areas where they would be exposed to electromagnetic energy at levels and times that would exceed the FCC's RF radiation exposure guidelines.

If you've been lax in that regard, you essentially have "misrepresented" yourself to the FCC — not a good thing.

Watch out for tower squatters — If cellular, business radio or other tenants are on your tower, make sure that these tenants aren't increasing their antenna count without your knowledge.

Frequently take an inventory of land mobile licenses and other users on your tower. You might be surprised as to how much revenue is owed you from those who have increased their presence on your tower without paying you for their occupancy of valuable tower space.

Defend your station call signs and slogans — Although the FCC won't let another station use your same "base call sign" without your consent, no longer does the commission protect you from sound-alike call letters being used by your local competitors.

Now's the time to "service mark" your call sign and get similar trademark/copyright protection for station slogans and contest concepts that you've worked hard to develop and don't want a competitor to steal.

Release yourself from problems — Be sure in recruiting contestants for station contests, doing a promotion or event that might involved some risk, shooting TV spots/promos for your station, etc., that you obtain signed release forms from those who participate.

Taking time up front to get release forms signed will save you untold headaches if something goes wrong.

Include non-compete provisions in employment contracts — If you're in a state that allows non-compete agreements, be sure to use them, particularly with air personnel. And be on the watch for developments in your state legislature.

The American Federation of Radio and Television Artists now is active in several states, trying to ban non-competes. Work with your state broadcaster associations to fend off these legislative efforts.

By taking these steps — among others — you can help defend your station and better achieve competitive success.

Here I've given you only general information on how to protect your station. But when it comes to your actual efforts and dealing with the FCC on such matters, it's essential that you be guided by your own communications counsel with whom you may establish a lawyer/client relationship on these sometimes-complicated issues.

Barry D. Umansky, the former deputy general counsel of the National Association of Broadcasters, now is with the communications practice group at the law firm of Thompson Hine LLP in Washington.

Reach him at (202) 263-4128 or via e-mail to barry.umansky @thompsonhine.com.

World Radio History

Retain Sales Promotion Inventory

by Mark Lapidus

Recently a promotion director told me about his cure for sales promotions worries.

"I've come up with a really great solution. I give our sales department one unit per hour for all of their sales promotions and that's how they run their inventory."

The PD told me that since he's made this decision, his department has been spared a lot of time and turmoil.

"I don't always like they stuff they put in those sales promotion units, but now it's in their inventory. We've even been thinking about eliminating our promotion meetings with sales," the program directorsaid.

I'm sure you won't be shocked to hear that I've witnessed this same "solution" at many radio stations. The biggest advantage with this approach is that it saves time and avoids conflict. However, it doesn't meet the criteria of a well-programmed station.

Worthless

This routine junks up the airwaves more than anything else, with crummy promotions that have no listener benefit. And just as bad, this approach does not allow the station to maximize spot inventory at the highest possible rate.

After all, the rate for a sales promotion unit is — that's right, folks — free!

Let's take the rate issue first. If the program director offers the sales manager one more unit per hour to use at her discretion, what would be the smartest way for the GSM to use it?

If you're thinking that the most effective strategy for this sales manager would be to sell the extra unit for the highest possible rate to a paying client, you are right.

She should not give this unit away as "value-added" in a sales promotion. *Every* commercial unit is valuable at the station.

Twenty-four units per day, seven days a week, at a station that sells out regularly (as any well-priced station should), can generate quite a bit of revenue. It's foolish to throw away any part of that revenue potential.

Even if you don't buy my initial logic, perhaps you'll be more apt to consider what happens when a sales department has free rein over station branding in conjunction with a sales promotion.

No station value

Here's how it usually goes: Great account executives will always do their best to get any piece of business on-air by whatever advantage they have at their disposal.

Enter free rein over "sales promotion inventory," complete with an opportunity to use that client freebie, the "added-value" promotion.

The account executive is likely to woo the client by placing whatever message his client wants — however well done, or badly done, it may be.

And because the marketing side of the station is not involved, there is no other source to offer an opinion on the message's ability to generate results.

So, why should we care if it doesn't make the cash register ring? Because clients and agencies who dream up sales promotions that don't work will turn around and blame the station when the inevitable happens. You become known as the radio station in town that doesn't produce results.

For example, clients won't hesitate to offer sales promotions that offer ten to fifteen percent off a price, which isn't always effective marketing.

What will work? Two-for-one specials are a great option, as is 50 percent off an item — either will generate a response. Make sure the time is very limited. You may even limit the number of people who can take advantage of the offer.

While there's nothing wrong with not wanting to give away the store, offers must be appealing enough to get the client the response he wants.

Blind-sided

Wait — this scenario can get worse! I've seen radio stations allow their branding to be used in client sales promotions without permission from a program or marketing director.

In this instance, it's possible to end up with a bad offer tied to your call letters/imaging. It's a double whammy: The client gets horrible results and listeners are angry with you because they believe that your station was involved in a completely bogus offer.

So what makes a good sales promotion — one where true listener benefit can generate profit for a client? One where everybody wins: The client makes money via your station and the listener feels positive about your radio station.

Plus, a good sales promotion is one where you're okay about using promotional inventory instead of a sales unit because of a successful programming tie-in.

It's true that this approach can be a challenge because it requires analysis, debate and even outright confrontation with keenly ambitious account execs. For the good it can do, though, the effort is well worth it.

Mark Lapidus is president, Lapidus Media. Contact him via e-mail to mark lapidus@yahoo.com.

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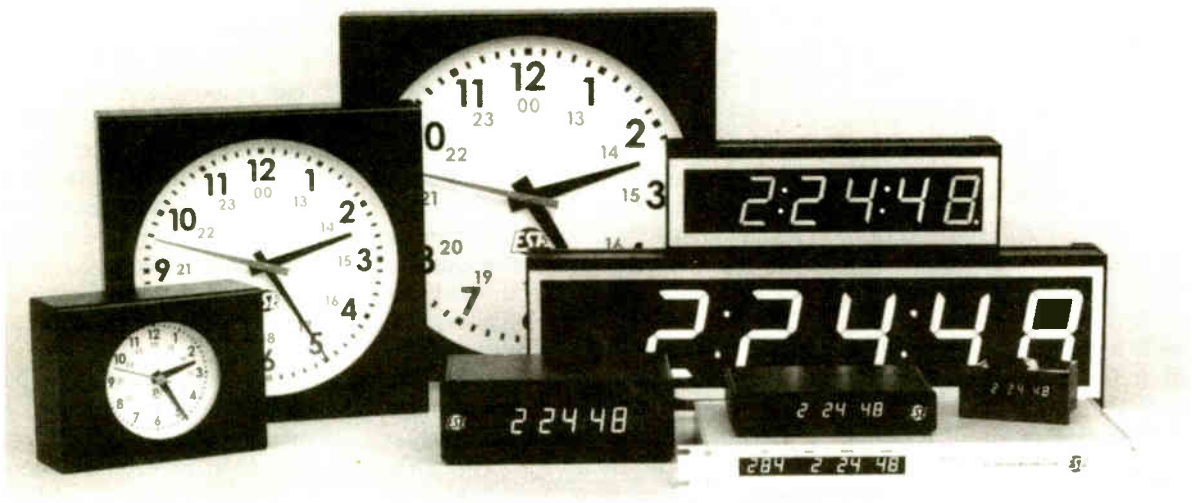

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Internet Radio

INTERNET Radio News

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NEWS ANALYSIS

CARP: What It Means to Radio

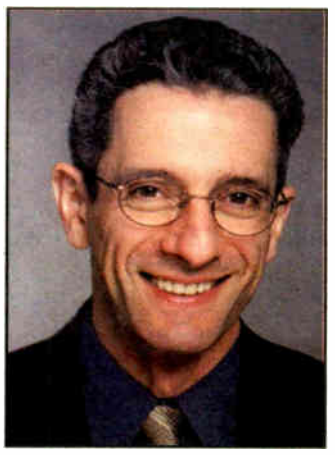
by Craig Johnston

The Internet radio copyright front turned white hot in recent weeks when the Copyright Arbitration Royalty Panel returned its recommendations for royalty payments to music copyright holders for music streamed over the Internet.

That was a body blow but only the latest in a long stream of punches terrestrial radio stations have taken in this area.

Proposed rate

As it stands now, the CARP's recommendation is that radio stations that retransmit their over-the-air signal on the Internet will owe 0.07 cents (7/100th of one cent) per song per listener for the music they play. This is retroactive to late 1998, when the Digital Music Copyright Act was signed into law.



Bennett Lincoff

Internet-only streamers will pay double that amount, 0.14 cents, per song, per listener.

In addition to these rates, both terrestrial and Internet-only radio stations will pay an additional 9 percent of the above fees for what is termed an "ephemeral" license, which covers the buffer copies made when files are transferred from one computer to another.

However, the U. S. Copyright Office last year asked Congress for a new law on this matter as well as other points in the DMCA. It stated then that buffer copies "have no independent economic significance" and therefore should not be subject to the royalty payments.

Rep. Chris Cannon introduced the Music Online Competition Act last summer. The MOCA proposes to correct the questions that buffer copies create, among other areas of contention in the digital age.

But rather than amending the DMCA, MOCA aims to clear up digital transmission issues in the U.S. Copyright Act. The bill is supported by the Digital Media Association and is opposed by the Recording Industry Association of America.

Like almost every other national issue in the United States, MOCA was put on a back burner by the events of Sept. 11. However, Cannon's office promises hearings on the bill later this year.

Despite a hue and cry from Webcasters that the CARP's recommendations spell the end to Internet radio, the matter is far from settled.

"Though the CARP itself was required by statute to present its final determination to the Librarian of Congress within 180 days of commencement of the arbitration proceeding," said veteran copyright attorney Bennett Lincoff, senior counsel at Darby & Darby, PC, "the Librarian, in turn, has an additional 90 days in which to review and either adopt or reject the decision of the CARP."

Final ruling

This means that the Copyright Office must make a final ruling on or before May 21. Either side may then appeal the decision of the Librarian to the U.S. Court of Appeals for the District of Columbia Circuit, according to Lincoff.

"Many decisions of the predecessor agency to the CARP, the Copyright Royalty Tribunal, were appealed beyond the Copyright Office to the federal courts," he said.

As the CARP's decision was announced, many broadcasters wondered why the rates are based on a flat fee instead of a percentage of revenues, as the American Society of Composers, Authors and Publishers collect.

The argument in support of the percentage rate structure proposed that until Webcasters achieved profitability, the most reasonable system would ask only for a percentage of whatever the streamer earned.

But DiMA Executive Director Jonathan Potter, whose organization was one of the parties representing Internet broadcasters before the CARP, defended the flat fees as prudent over the long haul.

Potter's argument is that a station's Web site offers e-commerce and other revenue possibilities. Webcasters don't want to have to share those monies, which could become considerable, with copyright

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WEB WATCH

Much Carping About the CARP

by Craig Johnston

Seven one hundredths of a cent, per song, per listener: This the long-awaited recommendation on Internet radio rates from the U.S. Copyright Office's Copyright Arbitration Royalty Panel. The **CARP** spent over six months in its determination process.

P.J. McNealy

For perspective, **P.J. McNealy**, senior analyst at **Gartner Inc.**, a technology research and consulting firm, judged the winners and losers following the CARP's recommendations.

McNealy said the winners are the big players who already have existing business models from subscriptions and ads.

"For example, **Listen.com, MSN Music, AOL Music**, possibly **MusicNet** — but they have a ton of free stations so they may get whacked on that side."

Willing to pay

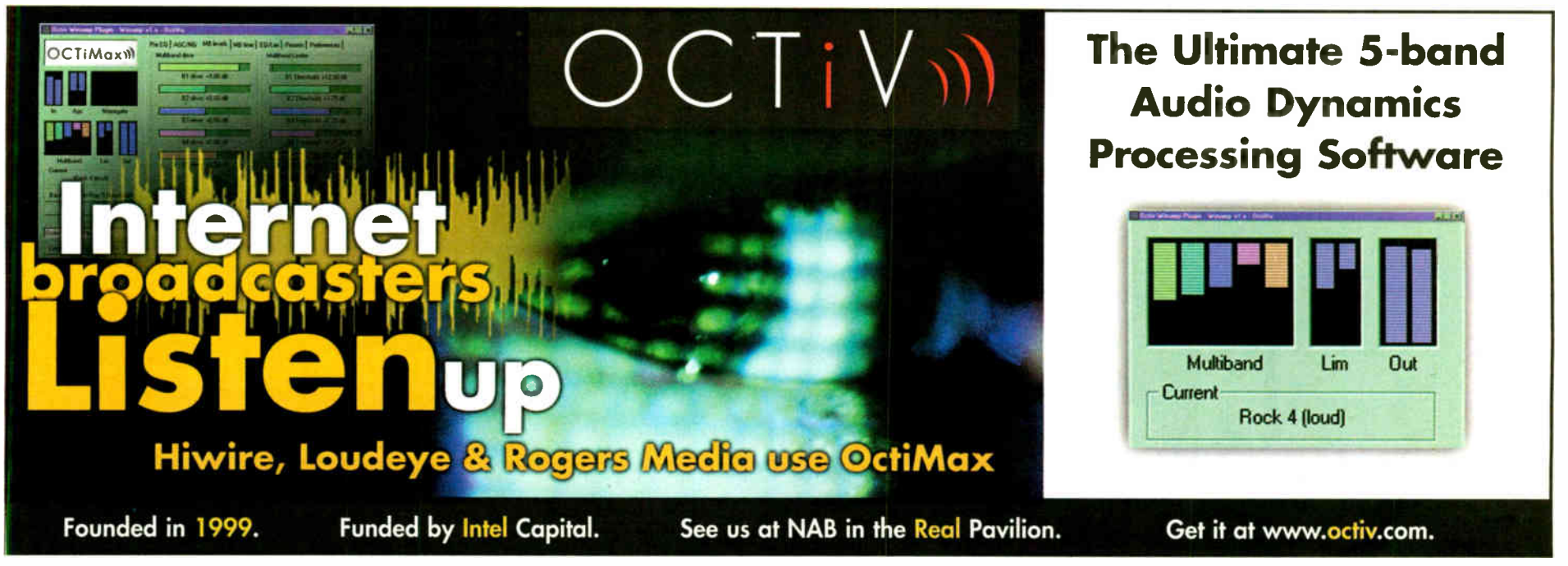
Web Watcher takes note that **Arbitron and Edison Media Research**'s eighth Internet study, **"Advertising vs. Subscription: Which Streaming Model Will Win?"** — was serendipitously released during the week after the CARP announcement.

In it, the authors report that one in nine who listened to streaming audio in January, or **9 million Internet users**, would be "**willing to pay a fee** for the channel they listen to most."

McNealy said a lot depends on whether a company's business modeling anticipated royalty payments in a range that included the CARP's recommended rate.

"As long as they estimated some good numbers that came in within this range, they should be OK with the retroactive payments. But it depends on how well they

See WEB WATCH, page 80 ▶



World Radio History

Copyright

▶ Continued from page 77

owners whose music has nothing to do with that part of the business.

As onerous as the royalty rates recommended by the CARP seem to be, the reporting requirements may be worse. In simple terms, these consist of two elements: what music was played by which Webcaster and when, and who listened to it.

Current technology

Using current technology, such reporting can be complicated. Eighteen fields of data are required to answer the first requirement, including such things as the Universal Product Code on the album.

Seven fields of data are required for the second, the most difficult to obtain being a "unique user identifier."

Assuming privacy issues can be surmounted and the individual user identified, the difficulty would be to match that information to the "song played" information. While no vendor appears to have equipment that performs that task at present, engineers for several companies told Radio World they could readily adapt their systems to gather and connect such information.

Terrestrial radio streamers suffered a key setback last August when a federal district court in Philadelphia refused to overturn the Copyright Office decision that the stations would be subject to pay royalty fees to recording companies for music they streamed over the Internet.

The radio stations, through the NAB, had insisted the exemption they enjoy from such fees for over-the-air broadcasts was extended to the Internet via the DMCA.

Keith Meehan, executive director of the Radio Music Licensing Committee, sees the matter as far from over.

"I think it's going to be a very lengthy process to resolve that. My opinion is that this will end up with Congress amending the DMCA. I'm hopeful that that's how this will be resolved, because I don't see any other reasonable solution to it, given all of the conditions that are in the DMCA."

Meehan said the fees and reporting requirements recently recommended by the CARP are only one part of the equation which terrestrial radio finds objectionable. There are other DMCA conditions for streaming of copyrighted music on the Internet that also trouble stations.

Three, in particular, that RMLC's Meehan cites are:

— No pre-announcement of music to be played is permitted. (This does not prevent announcement of a song immediately before it is played.)

— The number of songs from a recording or by a particular artist that can be played in a several-hour time period is limited.

— A requirement to provide visually information such as the artist, label and song title.

Many broadcasters wonder why the rates are based on a flat fee instead of a percentage of revenues, like ASCAP's approach.

"The DMCA basically precludes a radio station, in its normal activity, from streaming its signal onto the Internet because of the conditions that are attached to what they have to do," said Meehan. "That's not how radio operates."

Asked what Congress would grant if he got his entire wish list, Meehan said it would eliminate all of those conditions that preclude a radio station from streaming its current signal onto the Net.

"And it would acknowledge that the exemption for terrestrial radio stations is there for Internet streaming of those radio stations. It would basically exempt the radio stations from paying fees for streaming their signal onto the Internet."

Pure Internet radio broadcasters object to that solution, which would result in an exemption for terrestrial broadcasters streaming music online that the Net-only Webcasters would pay to play.

One advantage both terrestrial and pure Internet radio broadcasters enjoy from the DMCA is the compulsory nature of the licensing. Lincoff said that because the CARP, not the record labels, sets the rates, the labels will not be able to set fees so high that Internet radio would be squeezed off the Net.

Qualifications

"If you're a non-subscription, non-interactive Webcaster and you comply with the other provisions in the statute, then you qualify for the statutory license," said Lincoff. "If you qualify for the statutory license and pay the fee in a timely way and you meet the reporting requirements as to song usage and such, then you are licensed as a matter of law for the uses of the sound recording that you're making."

Is a radio station playing a request operating "interactively"? Congress considered this when constructing the DMCA and as long as an Internet streamer's programming is not substantially composed of playing requested music within an hour of the request, it is not deemed "interactive." (All-request radio is out, but some-request radio is OK.)

While not considered in the CARP proceedings, such all-request services exist. MEDIAmazing.com, the Internet-only, listener-formatted service, is one that persists. As of late last year, the record labels, with some other partners, launched their own subscription services, such as MusicNet and Full-Audio Corp.

If you, as an Internet broadcaster, can still rest easily amid all this uncertainty, Lincoff points to another fly in the ointment.

"The DMCA insulates qualifying Webcasters from infringement liability only to the extent that their transmissions occur entirely within the United States.

"Therefore, despite having complied with U.S. law, to the extent their transmissions are available worldwide, they remain exposed to an unknown quantum of infringement liability under foreign legal regimes. This result, flows from the principle that national copyright laws do not have extra-territorial effect," Lincoff said.

Harmonization

He said no one should want it otherwise. "In the absence of worldwide harmonization, it is not in the interest of copyright owners to support a rule that would allow the territory with the least protection to become the world's arbiter of intellectual property law on the Internet. Such a result also would not be in the interest of Webcasters whose own IP rights would thereby be at risk," Lincoff said.

But it also calls into question what rights fees a Webcaster will owe when the worldwide bill comes in. In early March, the European Union announced plans to impose a tax on products delivered online — including audio, video and music — to EU consumers from other nations.

A final note on the acronym CARP: The Copyright Arbitration Royalty Panel was originally to be named the Copyright Royalty Arbitration Panel. But the words were rearranged so that family-friendly publications such as Radio World could print the panel's acronym.

Craig Johnston is a Seattle-based Internet and Multimedia developer who is a frequent contributor to Radio World. Contact him via e-mail to craig@craigjohnston.com.

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Web Watch

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modeled and how much they put aside. It's definitely going to squeeze some people out," McNealy said.

Regarding the losers, McNealy thinks they include not only smaller ones that are purely ad-supported, but also bigger companies that might have wanted to go the subscription path.

"The challenge is that anybody who's (been) basing it on advertising and wants to now go to subscription model faces a huge hurdle." Now, McNealy said, you're asking people to pay for something they have had for free.

After dozens of phone calls and days spent surfing the Internet, Web Watcher has come to a conclusion: None of the parties are happy with this Solomonic decision — none save Solomon.

"We feel that this is a thoughtful, carefully reasoned decision," **CARP Chairman Eric E. Van Loon** told the Washington Post.

Hilary

While the chairman defended the rates, the record labels, which had asked for nearly four cents per play, found them too small.

"We would have preferred a higher rate," stated **Recording Industry of America Association President and CEO Hilary Rosen**. "But in setting a rate that is about 10 times that proposed by the Webcasters, the panel clearly concluded that the Webcasters' proposal was unreasonably low and not credible."

Meanwhile, the Webcasters, which had proposed a 0.015-cent per play rate, regardless of the number of listeners, found them too large.

"A lower rate would more accurately reflect the marketplace for music performance rights and the uncertain business environment of the Webcast industry," stated **Jonathan Potter**, executive director of **Digital Media Association**, a Webcasters' representative to the CARP proceedings.

Radio's protector and representative on this issue, the **National Association of Broadcasters**, responded in a press release a few days after the CARP ruling.

"The ruling from the Copyright Arbitration Royalty Panel may have the effect of unintended consequences, in that many radio broadcasters may reevaluate their streaming strategies," stated **NAB's** President and CEO **Eddie Fritts**.

Stranglehold

"If the powerful record company interests' goal was to strangle a fledgling new service to radio listeners, it may have succeeded beyond its own expectations," Fritts stated.

Sources within NAB did not rule out additional challenges to the ruling or, longer term, pushing for legislative relief.

If the goal was to strangle a fledgling new service to radio listeners, the recording industry may have succeeded beyond its own expectations.

— Eddie Fritts
NAB

Web Watcher tried in vain to reach **Clear Channel Radio Interactive's new chief, John Martin**, for his take on the CARP ruling.

Instead, we got only a terse statement from **Clear Channel Communications**.

"The only input I can give you is that the economics of streaming under the new ruling are upside down for broadcasters," said Pam Taylor, Clear Channel spokeswoman. "Under the current scenario they've killed streaming."

As Web Watcher wrote this edition, it was unclear whether any Webcasters had stopped streaming since the CARP announcement.

HiWire Inc., Clear Channel's ad-insertion provider, paints the CARP's recommendation in a more measured light.

"It looks like this might be a boon to the terrestrial radio Internet streamers, because they may have a competitive advantage over the Internet-only streamers," said HiWire spokesman **Wayne Hickey**.

"The Internet-only streamers, Hickey said, "because they have to pay twice the rate for their music, may have to start charging listeners or raise their ad rates."

(Web Watcher understands Hickey's thinking, but does he forget that terrestrial broadcasters have hard assets, such as towers and stations, that Net-only Webcasters can skip?)

Hickey told Web Watcher that HiWire had crunched some numbers that showed the value of an Internet listener at current ad rates might well be able to pay the streaming expenses, including the 0.07 cent, per play, per listener and leave room for a profit.

According to published reports, based on a 15 song-per-hour pace, an Internet-only Webcaster would pay copyright royalties of two cents per listener-hour.

CPMs

Using the current $10 "cost per thousand" terrestrial station standard, it's been posited that an advertiser would be willing to pay the same penny per listener to deliver the same 60-second message over Internet radio.

Two spots an hour to a listener would bring in two cents per hour, which would pay for those 15 songs per hour.

Edward T. Hardy

Web Watcher is not a math major, but he did a bit of his own calculating and found something even more encouraging. The two cents an hour royalty rate cited above is for an Internet-only Webcaster.

One cent

Because terrestrial radio stations Webcasting the same signal over the Internet will pay half that royalty rate, or one cent per hour, a single 60-second spot an hour would cover the damage.

The problem, of course, is getting advertisers to support Internet radio at all. Less than a week after the CARP released its recommendations, the cavalry, in the form of two Internet streaming ratings services, **MeasureCast Inc.** and **Nielsen Media Research**, announced they were taking a streaming ad revue on a road show.

Representatives from the two companies began to meet early in March with media directors and planning and research executives from advertising agencies to expose them further to the benefits and value of streaming media advertising.

"To become successful, Internet radio stations have to be advertiser-supported," said MeasureCast CEO **Edward T. Hardy**.

"The intent of our ad agency road show is to raise the level of awareness of Internet radio's tremendous audience growth and the attributes of the streaming media audience. We also want to correct any misconceptions some advertising agency executives may have about streaming media and Internet radio."

"Understandably, many ad agencies lack a complete understanding of streaming media advertising and opportunities," stated **Matt Feinberg,** vice president, manager, Radio National Broadcast Dept., **Zenith Media Inc.,** an ad agency for media companies that is a spin-off of **Saatchi & Saatchi**. Feinberg was one of the media directors the road show companies had consulted when they considered the project in its planning stages.

"Like traditional broadcasting, streaming radio has the potential to be an effective medium for branding campaigns and product recall among listeners," Feinberg stated.

If the devil is in the details, some of the fine print from the CARP, released the week before the royalty rates, has Internet Webcasters and streaming broadcasters just as worried.

The "details" are reporting requirements (to the primary copyright holder) required of music streamers. The new

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requirements fit in two categories : **streamed song title, station and time** and **who listened to it?**

To comply with the first of these categories, Webcasters must include 18 separate pieces of data, such as the time zone of the transmission, the type of program (archived/looped/live) and the uniform product code of the retail album.

The UPC requirement shows that whoever put the list together had never worked at a radio station that plays music.

10,000 music albums

Lee Hauser, owner/general manager of **WGQR(AM)** in Elizabethtown, N.C., told Web Watcher that his station has more than 10,000 music albums on the shelves, dating back to the station's debut in the 1950s.

Hauser said that nearly all of the albums and CDs "have the UPC code punched out and there is a stamp on there that said, in effect — this may not be the exact wording — but it said 'not for resale, for promotional purposes only.' These have been provided over the years by the record companies."

Sandusky Seattle station KLSY(FM) provided a sample of a record company's handiwork on a CD sent to the radio station. With the UPC punched out, the station will be unable to report that information to the record label.

Hauser and Web Watcher, perhaps both with tongue in cheek, are puzzled as to how the recording companies expect **to get data they intentionally destroyed?**

OK, Web Watcher knows that it *is* possible to get all of that information, even if it means subscribing to a data service that may be owned by the record labels themselves.

But then there's the second set of data: Who listened? This requirement includes a seven-part submission that includes the country in which the listener received the transmission, when they logged on and off and a unique user identifier.

Privacy issues aside, this kind of information can be danged tough to get. Web Watcher talked to the inventors of modern-day streaming media, **RealNetworks Inc.**

"The **Real Broadcast Server** itself does not know who each individual user is," said **Michael Leo**, senior product manager for the **Real Broadcast Network**. He said the only way to collect the unique user data required by the CARP recommendation is through some sort of user registration on the Internet radio station's Web site.

HiWire's Wayne Hickey pointed out a further complication.

"If they're a traditional broadcaster and they're sending live radio, they're going to have to use some kind of ad replacement to strip out **AFTRA ads**. So that means they're using a third party company, like **HiWire** or **LoudEye** or **LightningCast** and that's where they're going to have to get these listener logs from," Hickey said.

He added that if the third-party service is able to return that information, it must then be synchronized with the song that was played at the time.

Under the current scenario, they've killed streaming.

— Pam Taylor
Clear Channel

The recording industry, which got pretty much what it asked for in these reporting requirements, staunchly defends them.

"We have asked for information necessary to accurately distribute royalties to record labels and artists, nothing more, said **Steve Marks**, senior vice president, business and legal affairs for the **RIAA**.

McNealy dismisses the cable model that some have used to predict the path of Internet radio, at least in the short term.

"People like to use the analogy that you'll have free television and basic cable and then premium cable," he said. "But the market's too immature at this point to have good stratification like that. That's going to take some time," McNealy said.

All of the above notwithstanding, Web Watcher notes that the ruling of the CARP is only a recommendation, which the **Librarian of Congress** has until **May 17** to review and either accept or reject.

Ultimately, it may all be, as **Roseanne Roseannadanna** used to say on **Saturday Night Live**, "Never mind."

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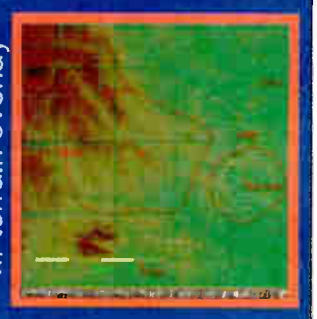

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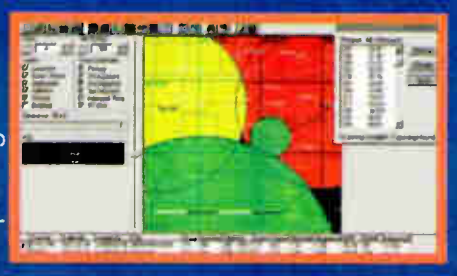

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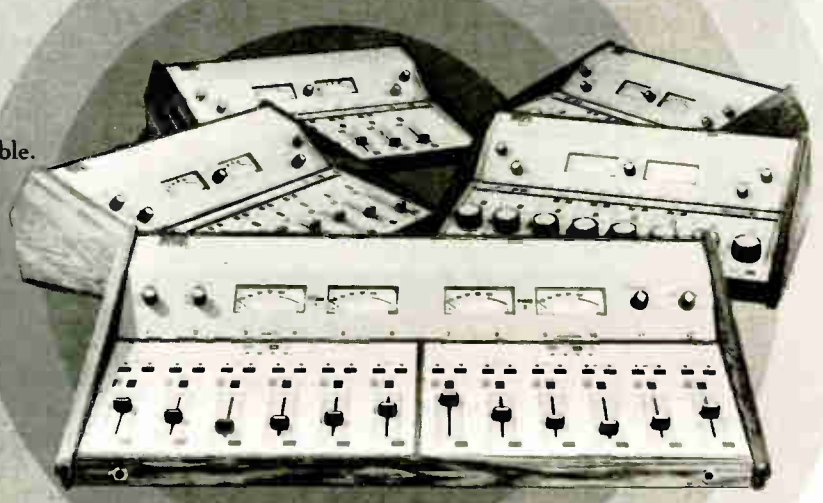

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TECHNOLOGY REPORT

Centauri Bridges Audio Link Gaps

by Lawrie Hallett

Mayah Communications focuses on products employing the MPEG-4 audio format for Internet applications while operating with a variety of coding algorithms. Although Mayah designs can accommodate a range of established coding algorithms — from G.711 to MPEG-2 Layer II, for example — it is its ability to cope with newer, more advanced standards, such as MPEG AAC, that allows Mayah products to stand out.

Advanced Audio Coding (AAC) is an extension to the MPEG-2 standard and part of MPEG-4, which Mayah considers a major factor in the future of audio distribution because of its ability to outperform existing standards.

For example, AAC at 128 kbps gives better perceived audio quality than ISO/MPEG-2 Layer II at 192 kbps or ISO/MPEG-2 Layer III (MP3) at 128 kbps.

While MPEG standard algorithms generally exhibit inherently higher delay times than, for example, the apt-X standard, MPEG-4 AAC overcomes this disadvantage with its low-delay option, making real-time interviews much easier.

Central to the Mayah product line is the Centauri Audio Gateway Codec family. These multistandard, flexible audio codecs are compatible with most other audio codecs.

Most compatible

Indeed, Mayah claims its units are the most compatible on the market, supporting a list that includes the Telos Zephyr, Glensound units, Musicam USA CDQ and Prima units, the Prodys Pronto and AEQ offerings.

Using patented techniques, Mayah Flash-Cast technology allows Centauri Gateway codecs to configure themselves quickly and automatically to communicate with other codecs, selecting the correct data rate, active algorithm and inverse multiplexing for sending/receiving stereo or mono audio.

One Centauri unit can operate as two independent codecs, making two circuit connections at the same time.

It would, for example, be possibly to set up the left channel with an MP3 input and G.722 output and the right channel with AAC input and MPEG Layer II output.

Connectivity standards such as AES/EBU, SPDIF, ISDN and X.21 are provided for, as is the multichannel ADAT standard used by professional music and production studios.

The philosophies behind the Centauri Gateway are flexibility and compatibility. All models have LED indicators for power, connect, framed, overload and alarm.

The 2001 and 3001 feature a numeric keypad and four-way circular button set, together with a large 128 x 64 pixel, backlit LCD display for local control.

Remote control is via Centauri RC-Soft remote-control software, which runs under Windows 95/98 or Windows NT/2000.

Not only can the features of a Centauri be configured using the RS-232 protocol, it is possible to access Centauri units via an Internet browser by allocating a unique IP address to each individual unit.

When required, Centauri firmware updates are possible via IP, ISDN or RS-232, whichever is convenient.

Ethernet connectivity

There are four variants in the Centauri Gateway line: the 2000, 2001, 3000 and 3001. Unlike the "00" suffix models, which are designed for remote-controlled operations, the "01" designs have front-panel displays and controls, as well as headphone outputs for local control.

Although all models provide Ethernet connectivity for control purposes, the difference between the 2000 series designs and the 3000 series designs is that the latter can handle IP audio via Transmission Control Protocol (TCP) or

See MAYAH CENTAURI, page B9 ▶

PRODUCT EVALUATION

Unidirectional Microphone Great in Field

by Paul Kaminski

Those of us who make audio recordings in the field work in an unforgiving world of noise.

Sometimes the sounds we want to record are hidden amongst the noise. It takes a sensitive instrument to find and bring those sounds to the forefront. That is what the Sennheiser MD 46 dynamic microphone does.

The MD 46 is a unidirectional dynamic

See SENNHEISER, page B9 ▶

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◆PRODUCT GUIDE◆

Products for Radio Air & Production Studios

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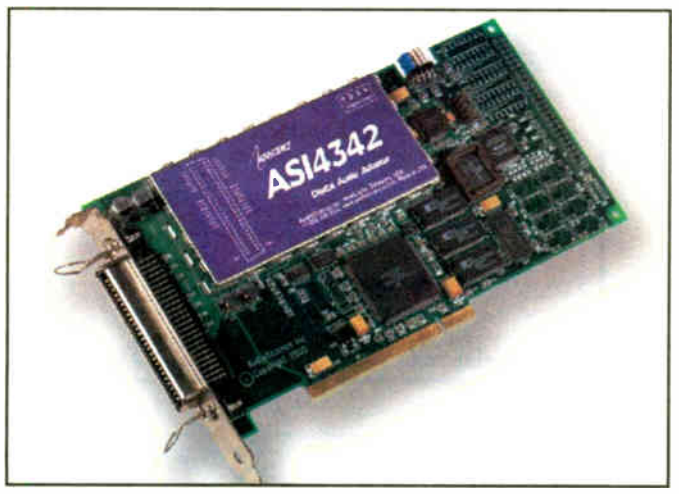
New Price Point Set for Audio Adapter

AudioScience says its ASI4342 audio adapter has set a new price point for audio professionals with an audio adapter that includes multiple streams of MPEG Layer 3 playback.



Priced below $600 each when purchased in volume quantities (single unit cost is $995), the ASI4342 provides two stereo outputs, one stereo input, one record stream and four play streams. Other format choices include MP2 and 16-bit PCM.

The card includes XLR breakout cables and is compatible with Windows 98, Me, NT, 2000 and XP, as well as Linux.

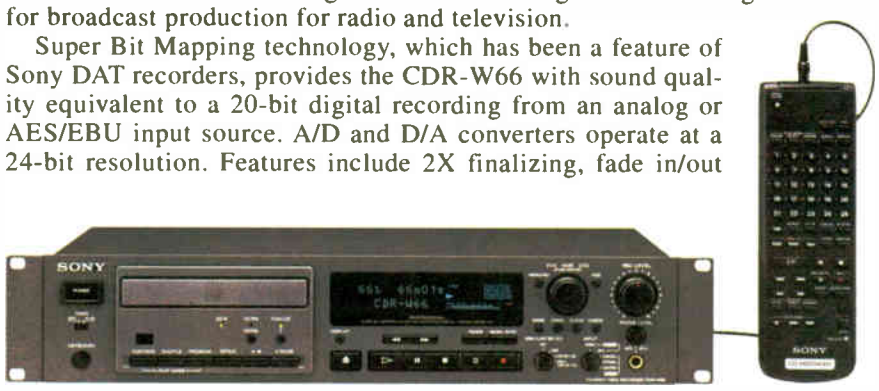
For more information contact AudioScience Inc. in Delaware at (302) 324-5333 or visit www.audioscience.com.

Linked CDRs for High-Speed Dubbing

One can link two Sony DCR-W66 CD recorders for high-speed dubbing jobs. Features include DSP premastering abilities and a 32 to 96 kHz sample rate converter, making it suitable for recording from the high sample rate sources common to hi-res recording formats.

The CDR-W66 was designed for mid- to high-end recording studios and for broadcast production for radio and television.

Super Bit Mapping technology, which has been a feature of Sony DAT recorders, provides the CDR-W66 with sound quality equivalent to a 20-bit digital recording from an analog or AES/EBU input source. A/D and D/A converters operate at a 24-bit resolution. Features include 2X finalizing, fade in/out



recording, record mute, 44.1 kHz signals accepted without rate conversion, supplied wired/IR remote control unit and parallel remote connector.

Another feature is the PC control board function that enables CD text to be entered; an optional PS/2 keyboard also provides remote control of Play, Pause, Stop, FF, Rew, and AMS+/AMS- functions. Price: $1,275.

For more information contact Sony in New Jersey at (800) 686-7669, or visit www.sony.com/professional.

Sounds Logical Releases ReSample

ReSample is a professional-quality WAV file sample-rate and bit-depth converter from **Sounds Logical**.

The converter supports common audio sample rates, arbitrary bit depths from 2 to 32 and Microsoft's extensible WAV format for multichannel WAV files. It has an option to apply various forms of dither (including user-supplied FIR noise-shaping filters) when requantizing and optional gain change or normalization.

The user interface is designed to be intuitive for quick configuration of large multi-file batch conversion jobs.

A "smart" Job Manager enables batch jobs to be interrupted and resumed without starting from scratch. It uses 32-bit floating-point precision for internal computations.

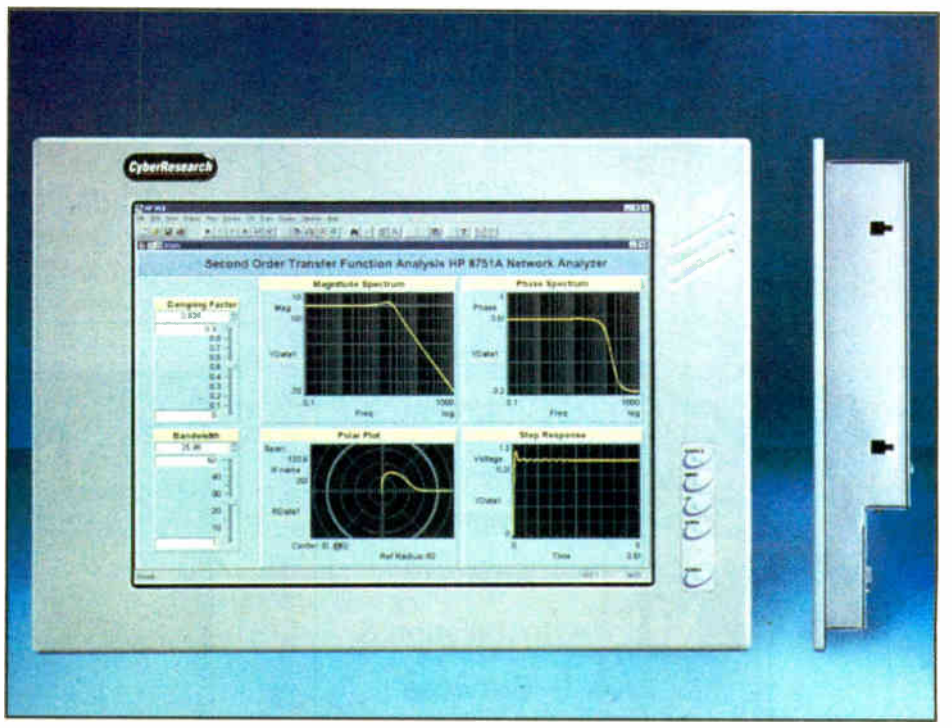
The sample rate converters use high-order FIR low-pass filters for anti-aliasing/imaging protection. The converters have stopband attenuation in excess of 120 dB and a passband ripple of less than 0.01 dB, providing professional-quality performance in terms of noise and distortion suppression.

For more information contact Sounds Logical in California at (888) 819-6271 or visit www.soundslogical.com.

LCD Displays Mount Where You Need Them

CyberResearch has released 15-inch MPA-series TFT LCD flat-panel displays that can be mounted in panels or walls or, using the VESA standard mounting holes, attached to swivel arms mounted to benchtops, walls or ceilings.

The MPA displays are available in 15-, 12.1- and 10.4-inch (diagonal) models. Front-panel controls turn the displays on or off, position the image up or down, select the video source or open the onscreen control display of eight menu options for fine display adjustments.



Connectors for VGA, composite video, optional touchscreen and power adapter are located on the rear panel.

The displays are rugged, able to withstand vibrations and can operate at temperatures up to 122 degrees F. They meet FCC Class A requirements for electromagnetic interference.

Price: $895 to $1,295.

For more information contact the company in Connecticut at (800) 341-2525 or (203) 483-8815, or visit www.cyberresearch.com.

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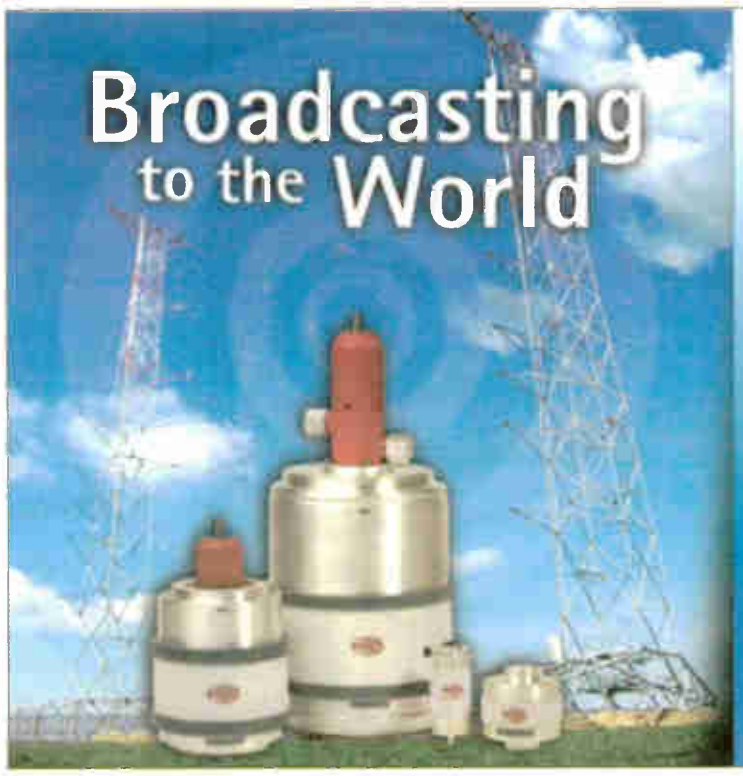

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World Radio History

Sennheiser

▶ Continued from page 85

microphone. Viewers of NBC TV coverage of the 2000 Sydney Olympics saw these mics with an NBC Olympic microphone flag.

Anthony Buzzeo, Sennheiser USA assistant product manager for microphones and specialty products, said the MD 46 went from a clean screen to full production in a year.

"Bob Dixon of NBC Olympics told (Sennheiser executives) Rolf Meyer and Scott Schumer that the network was interested in a Sennheiser cardioid interview microphone and that he would buy 170 mics for the Sydney Summer Olympics if they could develop one quickly."

No problem plosives

The tendency for a unidirectional mic to emphasize plosives convinces some people not to use them in the field. I used the MD 46 to record news makers at an upstate New York winery for a CBS News report, sound from National Hot Rod Association (NHRA) Top Fuel Dragsters in eastern Pennsylvania, and airmen in a Air Force base hangar. None of these situations provides optimum conditions for recording sound.

Even without the optional windscreen, the MD 46 was able to highlight the desired sound and do so without many of the plosives usually emphasized with the use of a unidirectional mic.

The microphone has a double layer in what Sennheiser calls the sound inlet basket, which reduces the tendency for the microphone to emphasize plosives.

The recordings made with the MD 46 on a Sony MZR-37 MiniDisc recorder came through loud and clean, especially those of two 6,000-horsepower top-fuel dragsters on the starting line.

I held the microphone vertically to record the start so as not to overload the MZR-37's automatic gain control. In field spot news interview situations, the MD 46 provides extra reach with almost 10 inches of length, and extra heft at about 13 ounces.

Be aware that the weight of the MD 46 will give the user a workout if, for example, he or she is in stakeout mode and has to hold the mic over a crowd.

Even without the optional windscreen, the MD 46 was able to highlight the desired sound and do so without many of the plosives usually emphasized with the use of a unidirectional mic.

In a more formal setting with a stand, the results seem almost like those in a studio. The MD 46 has a frequency response of 40 to 18 kHz. This also means that the MD 46 could, in a pinch, be used as an announcer or guest mic in applications such as remotes, auxiliary studios or at interview turrets.

Product Capsule:
Sennheiser MD 46 Dynamic Microphone

Thumbs Up
- ✓ Good clear sound
- ✓ Resists plosives
- ✓ Sturdy construction

Thumbs Down
- ✓ Mic can get heavy on long stakeouts in handheld mode

Price: $199.95

For more information contact Sennheiser in Connecticut at (860) 434-9190 or visit www.sennheiserusa.com

The list price of $199.95 (street price likely lower) may give some managers and those writing specifications some much-needed budget leeway, especially when one considers the lower street price.

For those updating or assembling a field interview kit, this could be a versatile addition. You might be able to get away with packing only one mic in the kit.

Paul Kaminski is the news director for the Motor Sports Radio Network and also contributes reports to CBS Radio News. His e-mail address is motorsportsradio@compuserve.com.

Mayah Centauri

▶ Continued from page 85

User Datagram Protocol (UDP).

In addition, the 3000 series can handle higher-rate ISDN connections and can be supplied capable of handling uncompressed linear audio using the J.57 AES/EBU standard.

The 3000 and 3001 models could be used over Internet connections, but reliability would be unpredictable given the nature of the Internet.

IP audio not Web radio

Detlef Wiese, general manager of Mayah Communications, said, "IP audio is not the same as Web radio." The Centauri Gateway codecs are designed to serve a need for reliable point-to-point real-time audio connections.

Such connections can be guaranteed over private Intranets only where packet traffic can be configured to prioritize and, therefore, protect audio datastreams from the adverse impact of other data traffic to ensure successful, robust, real-time audio delivery.

The philosophies behind the Centauri Gateway are flexibility and compatibility.

The digital I/O of the Centauri range employs 24-bit A-to-D/D-to-A operating at a sampling rate of 96 kHz to ensure performance.

The Centauri range is fitted with four transistor-to-transistor logic (TTL) I/O for remote control and monitoring of remote equipment. Data rates of up to 115 kilobauds are possible for data transmission.

Centauri range growing

The Mayah Centauri range is expanding gradually. A Centauri audio Web server, the 4001, is available to stream audio in a variety of built-in coding algorithms including MP3Pro, which operates at half the bitrate of the established basic MP3 standard.

The server can send several hundred streams, divided among up to four different bitrates or encoding formats, simultaneously.

In 2001 Mayah launched the 3010 Digital Radio Mondiale (DRM) Encoder, ntended to encode audio for broadcast using the DRM standard applicable abroad. The 3010 is fitted with professional analog and digital audio inputs together with Ethernet, X.21 and ISDN interfaces for communication with other DRM devices and for signal distribution.

For information from Mayah Communications contact Detlef Wiese in Germany at +49-811-5516-0, fax +49-811-5516-55, e-mail info@mayah.com *or visit* www.mayah.com/.

Pro Headphones Deliver

There are few pleasures sweeter than listening to a quality audio signal through a high-quality pair of headphones. The new Sennheiser HD 280 professional headphones deliver on the quality, particularly with a published frequency response of 8 Hz to 25 kHz.

The HD 280 Pro is a set of closed dynamic headphones with low, 64-ohm impedance. Compared to other pro headphones, these required a lower volume setting when connected to my Mackie 1202 studio mixer.

The HD 280 contains a pair of Neodymium magnets and are very efficient with 113 dB/1V RMS. Combine that with up to 32 dB of ambient noise attenuation, and you should not have to run these as loud to hear the source.

The earcups rotate and fold up, so you could easily pack this in a field kit. The phones come with a locking mini to quarter-inch TRS adapter and can be used on field equipment with an eighth-inch jack. Users can replace the ear cushions headband padding and connecting cable. The HD 280 can be converted to a headset mic at a Sennheiser service partner location.

The MSRP is $199.95 with a street price sure to be lower. I would suggest these headphones to those users who need attenuation of ambient noise and for those who may not have the dollars for a high-end set of speakers, but want high-end monitoring capability.

— Paul Kaminski

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WBS D8212Q dist amp, power supply and 12 card chassie w/12 WBS stereo DA cards, $400. Chris Fraley, KMA Recordings, 1222 Arch St, Philadelphia PA 19017. 215-816-4575.

Hughes & Kettner tubeman pre-amp, $175, very little use. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

Want to Buy

McIntosh C-20 stereo preamplifier. Mike Stosich, Esoteric Sound, 4813 Wallbank Ave, Downers Grove IL 60515. 708-431-4560.

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Dynamax CTR90 (2), BO; Dynamax CTR10 (2), BO; ITC Delta R/P cart machine, BO; ITC 99B R/P cart machine, BO; ITC triple deck cart machine, BO; Dynamax FSD 10 splicer finder eraser, BO. Stephen Yates, Yates Broadcasting, 121 Cotton Sq, Lufkin TX 75901. 936-634-4584.

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WBS R2000 radio console with 2 power supplies, $3000. Chris Fraley, KMA Recordings, 1222 Arch St, Philadelphia PA 19017. 215-816-4575.

ADM-2400 console modules & parts. Mic-Line, EQ, buss select, echo rtn, faders, etc., with schematics. $25 ea +shpg (quantity discounts). Morningstar Sound, 732-938-4217; morningstar@Monmouth.com.

LIMITERS/ AUDIO PROCESSING

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Gates vintage limiter. Big & heavy. BO +shpg. Clarence Jones, WSHG Radio, 843-563-7097.

CRL SMP-950, AM stereo matrix processor, like new, $1200; CRL SGC-800 stereo gain controller, like new, $900. Mike Walters, WAUK, 1801 Coral Dr, Waukesha WI 53186. 262-544-6800.

Digitech DSP-256XL digital multi-effects processor/reverb/delay 100 presets 100 user presets, $200; dbx 166 2 channel gated limiter compressor, like new, $250. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

Want to Buy

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST, 972-271-7625.

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Urei, Universal Audio, dbx, Collins, RCA, Gates, etc. Call anytime, Tim Coffman, 858-571-5031.

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RCA 77-DX, 44-BX, KU-3A's, WE-639's, On-Air & recording lights wanted, top dollar paid! 615-352-3456, FAX: 615-352-1922. E-mail: billbryantmgmt@yahoo.com..

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Radio Shack SSM-100 stereo sound mixer with 8 channels & 5 band EQ, BO. Stephen Yates, Yates Broadcasting, 121 Cotton Sq, Lufkin TX 75901. 936-634-4584.

Motorola TA-42 input & output terminals, T&R 2-25 amp fuses, 1-15 amp fuse, $30. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

Tascam patchbays (2), new PB-32-4 & 32P 1/4 to 1/4 to RCA, $115/pair; Sound Level meter, new with case & manual (Radio Shack), $50; DOD, Direct Box 260 2-1/4" to XLR DI, $12. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

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Panasonic SV-3700 DAT machine, $800. Chris Fraley, KMA Recordings, 1222 Arch St, Philadelphia PA 19107. 215-816-4575.

Panasonic SV-4100 DAT machine, like new, $1200. Chris Fraley, KMA Recordings, 1222 Arch St, Philadelphia PA 19107. 215-816-4575.

Ampex AG-440B, 2 channel electronics, rolling case, xtra direct drive capstan motor, manuals, $250/BO +shpg. Morningstar Sound, 732-938-4217; morningstar@Monmouth.com.

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Want to Sell

Micro Controls RCT-9 & RCR-9 wire line remote control for radio transmitters, for use with telephone line or your own balanced audio line. 1 send unit & 1 receive unit with manual. In good condition, it will take readings & adjust your transmitter, etc., $450 +shpg. James Cunningham, KEOR/KHKC, Rt 2, Box 113B, Stonewall OK 74871. 580-265-4496.

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Ampex 300E vacuum tube voltmeter, $30; Beta Scope non destructive thickness guage, $30; (4) HP 400D vacuum tube voltmeters, $40/all; (4) NRI 12 vacuum tube voltmeter, $25; HP 400L vacuum tube voltmeter, $20; Sierra Electronics scope in metal box, $20; Supreme 574 electronic set tester in case w/manual, $40 Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

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Sparta-Cetec 602 2.5KW FM. Continental Communications, 314-664-4497. Email: contcomm@fiastl.net.

CSI 20W AM transmitters (2), presently on 620kHz. Ideal for standby or nighttime use, $250 ea +shpg. Clarence Jones, WSHG Radio, 843-563-7097.

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2.5KW	FM	1976	Collins 831D Single Phase
5 KW	FM	1992	Continental 815A
6 KW	FM	1994	Henry 6000D Single Phase
10KW	FM	1974	Harris FM10H/K
15KW	FM	1980	McMartin BF15,000
20KW	FM	1974	Harris FM20H/K
21.55KW	FM	1989	Continental 816R-2B
25KW	FM	1980	CSI T-25-F
25KW	FM	1990	Continental 831G-2C
30KW	FM	1983	BE FM 30
30KW	FM	1988	BE FM 30A
50KW	FM	1982	Harris Combiner w/auto exciter-transmitter switcher

1KW	AM	1982	Harris MW1A
5KW	AM	2001	Harris MW5A
10KW	AM	1982	Harris MW10A
10KW	AM	1982	Continental 316F
10KW	AM	1990	Nautel ND-10
50KW	AM	1978	Continental 317C-1

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Technics Quartz SL-1800 MK1, BO. Stephen Yates, Yates Broadcasting, 121 Cotton Sq, Lufkin TX 75901. 936-634-4584.

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Radio World

Harris MW-5, 5 kW, tuned to 1290 kHz, missing plate transformer, new transformer cost $3750, located in West Palm Beach FL, $2500. George Arroyo, WONQ, 1033 Semoran Blvd #253, Casselberry FL 32707. 407-830-0800.

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ACTION-GRAM

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Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations *only*. All other end users will be charged. This FREE service does not apply to Employment Help Wanted ads or Stations For Sale ads. These are published on a paid basis only. Send your listings to us by filling out the form below. Please be aware that it takes one month for listings to appear. The listings run for two consecutive issues and must be resubmitted in order to run again. Thank you.

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World Radio History

◆READER'S FORUM◆

LPFM

I'm a *huge* fan of RW and have been since I was in high school and started swiping issues from our chief engineer's office at my first station. (I was just a 16-year-old high school senior.)

I wanted to ask if you might be able to increase your coverage of LPFM. It's a fascinating area of growth in radio (that the big players weren't able to kill ... try as they may).

Thanks, and keep up the great work!

Dan Slentz
Audio/Visual Services Manager
The Longaberger Co.
Newcomerstown, Ohio

National Barn Dance

I am doing preliminary research for a video documentary on the "National Barn Dance," a radio program that aired live on WLS(AM) in Chicago and was broadcast across the nation from the late 1920s through the 1950s.

I was wondering if your readers might have some knowledge of the "National Barn Dance" and this early era of live radio and if anyone might know of possible resources for audio archives, film footage and people to speak with who remember the program. I have already explored several prominent broadcast museums. I'm also looking for any ideas for current country performers who could talk about the importance/influence of the "National Barn Dance."

Please contact me via e-mail to *stevep@image-base.com.*

Steve Parry
Account Executive/Producer
Image Base
Chicago

Sony's MZ-B50

I was interested to see the reviews of the Sony MZ-B50 (RW, Jan. 16, "Sony Misses Target on Updated MD," "Sony MZ-B50 MD Means Business"). Frank Beacham is right on the money but missed one important point that only a journalist on a tight deadline could make: The slowness of the MZ-B50's microprocesser makes it impossible to edit and "crash" a piece on a short deadline — certain death for a radio newsperson.

I have an MZ-B50 and, because of that single factor, have relegated the machine to strictly backup duty. My primary unit continues to be the MZ-R55, which, although relying on buttons rather than a jog wheel, continues to be fast and dependable.

Carl Lindemann writes about completely adequate battery life. That's a laugh. I have to change batteries more often than most people change their underwear ... and there's *no* recharge circuit built in, nor is there an add-on battery pack capability to extend the life. I'm lucky if I get two to three hours out of a set of alkalines, less if I'm doing a lot of recording.

In the blue box adjacent to the review, one of the "thumbs up" items refers to "improved cueing and search capabilities." I don't think so. Again, it's impossible to do *anything* quickly on this machine, including cueing and reviewing.

Had I (and not my employer) paid for the MZ-B50 myself, I would have returned it for a refund the next day. I think I can speak for many reporters who've tried the MZ-B50 when I say, "Let's hope the forthcoming improved MZ-B100 is truly an improved model."

Peter King
Correspondent
CBS News Radio
Orlando, Fla.

Editor's note: Peter King is a contributing writer for Radio World.

Dawning SNI

Since I first made Dawning Technologies aware of the SNI applications for EAS and made the first request of the FCC on the legality of this application, I'd like to add a few things to James Withers' review of the unit that was published in the Feb. 13 Radio World ("Dawning Offers Net Connectivity").

Withers talks extensively about the SNI's ability to connect directly to the Internet through a fixed IP. However, it's almost just as simple to use the SNI on a dial-up Internet connection. My first application was at a location that only had dial-up Internet connectivity through an analog cell phone. It has been over two years since that unit was installed and, other than one modem failure, has performed flawlessly using nothing more than a regular old Internet account with a dynamically assigned IP address. Since then I have installed over 20 of the units, all on dial-up circuits, and now two on analog cell phones, all sending EAS reports as they are generated.

Also, Withers mentions much about using it with a TFT EAS unit. The first Dawning SNI was installed on a Sage ENDEC, and this was the equipment I developed the first applications for. I am glad to see he has had equally good success with the TFT. As noted, pretty much any serial connection will work with the SNI.

Joe Torsitano
ISS Engineer
K-LOVE & Air1 Radio Networks
Educational Media Foundation
Sacramento, Calif.

Don't Lose Sight of Your Sound

Digital audio management systems do more today than ever before. And as station owners continue streamlining operations, the tasks will only increase. But expectations of what the almighty computer can do may bring results you do not want — especially if it is not the computer's fault.

Mechanical automation failures of years past once gave us ulcers. Today we laugh at those memories. But now that big money is at stake and ratings victories are measured in slivers, programming carelessness and an overdependence on letting the computer run the show can prove disastrous.

With wrong information and erroneous scheduling data, voice tracking and satellite programming can be unlistenable. Here in Washington, prominent stations have been plagued by spots running over music, protracted silences and voice tracks that backsell incorrect songs. If it is happening here in a top-10 market, it stands to reason it is happening everywhere.

Debt loads and stockholder expectations obligate stations to run leaner and meaner than ever. When skilled staff is eliminated, details get skipped. Wrong music logs are accidentally sent to the voice talent who doesn't notice. A single traffic coordinator juggles multiple stations, while the responsibility of keeping them on the air falls to one grossly underpaid operator.

Digital technology is the only way to go today. But profitability will take a serious hit when constant mistakes make you sound incompetent. RW recommends you step away from the spreadsheets for a moment and listen. Frequent periods of dead air and audio events crashing into each other may mean you are treating the system with more of a "hands-off" attitude than it was designed for.

Investigate the newest digital technology at NAB2002 to see what will be driving your station in the near future. Ask questions. Importantly, find, keep and recompense good people.

Remember the average listener doesn't care about station profits or technical operations. He or she wants to be entertained with a certain expectation of quality, so fix problems now. When profitability cheats your listeners, they walk and you lose.

— RW

Write to Us

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Telephone: (703) 998-7600 • Business Fax: (703) 998-2966 • Editorial Fax: (703) 820-3245
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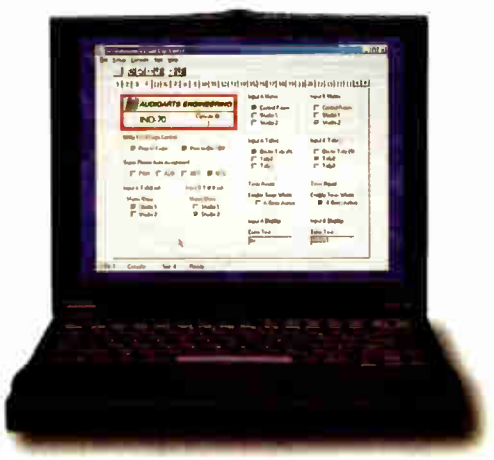
AUDIOARTS DIGITAL D-70

The D-70 digital console from AUDIOARTS not only utilizes the latest in digital technology and chip sets, it can be ordered with a serial interface that lets it integrate with most popular automation systems and station routers; it even has WHEATSTONE's exclusive VDIP™ software system.

Plug-in modules let you have any combination of mic, analog or digital line inputs, and the 4 stereo busses give you plenty of flexibility (each has both digital and analog outputs). With sample rate conversion on all digital inputs plus selectable console clock rates of 32, 44.1 or 48KHz (and an optional external house sync) the D-70 can fit right in with all your facility's present equipment.



WHEATSTONE'S VDIP™ Virtual Dipswitch Software lets you configure D-70 input channels with a laptop computer. Once configured console runs stand-alone.

With a compact, tabletop-mount footprint and a modular rear connector system that utilizes plug-in submodules for easy analog-to-digital field switches, the D-70 can be configured onsite quickly and easily. On the functional side, fullscale digital peak plus simultaneous VU metering, LED illumination everywhere, built-in machine interface, automatic timer and clock (standalone or ESE slave) all come standard, along with separate source selection for control room and studio plus built in talkback. You can even order the D-70 console with a SUPERPHONE module to support two callers with automatic digitally generated mix-minus. Both digital and analog line selector panels are also available.

THE D-70 DIGITAL AUDIO CONSOLE —benefit from WHEATSTONE's experience— at an AUDIOARTS price!

tel 252-638-7000/www.wheatstone.com/sales@wheatstone.com

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