IBOC DATA · TCP/IP NETWORKS · 5.1 ABROAD

Split-Level Combining
Steve Fluker touts the energy and space efficiencies of the IBOC combining method he co-developed.

Strong Opinions
You've got 'em, we print 'em.
Page 44-46

In HD Radio News

Radio World

$2.50 The Newspaper for Radio Managers and Engineers July 14, 2004

INSIDE

NEWS

ENGINEERING

STUDIO SESSIONS

In This Issue

What to Do About Digital

SACs, AM at Night And Receivers Dominate Comments

WASHINGTON Station workers and group owners. Consumers. Citizen groups. Manufacturers of transmission and receive equipment. All are affected by terrestrial radio's digital transition.

As the FCC gets down to shaping final IBOC rules, approximately 250 commenters wrote to the commission this spring about how terrestrial radio's digital transition should proceed.

In the first of several articles, we excerpt here a sampling of comments in the FCC's Further Notice to its IBOC Rule Making. Commenters touched on such vital topics as spectrum fees, datacasting, the receiver roll-out, personal recording, the supplemental audio channel and radio reading services.

Reply comments are due July 16.

WGN Continental Broadcasting Co., the licensee of WGN(AM) in Chicago, wrote:

"WGN believes that the unlimited authorization of nighttime HD Radio is premature at this time because it may unnecessarily create interference to existing AM service when there is no significant penetration of HD

See IBOC, page 12 ▶

WW1 Plans Digital Olympics Coverage

by Randy J. Stine

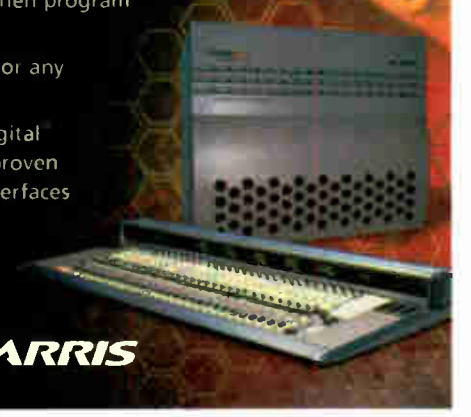
ARLINGTON, Va. With site surveys complete and broadcast equipment en route to Athens, Greece, Westwood One executives are nearing the end of many months of preparation for the technical challenge of audio coverage for the 2004 Summer Games.

The global sports competition presents a unique set of broadcast circumstances — no matter the location — and returning to the roots of the original Olympic games among the archaeological and architectural remains of ancient Greece is no different, Westwood One executives say. The company holds exclusive U.S. radio broadcast rights to the

See WESTWOOD, page 8 ▶

Photos: Athens 2004

The International Broadcast Center and Main Press Center are shown under construction last fall.



◆ NEWSWATCH ◆

NAB Plans for Fritts Succession

WASHINGTON After 22 years, Eddie Fritts is in his last lap as the president and CEO of the NAB.

The association and its radio and TV board members are preparing for a transition to a successor. At board meetings following the NAB Education Foundation event in June, the officers announced that Fritts had agreed on a contract extension and consultant package that would keep him associated with the trade group until April 2008. But the board expects a new president to be in place by April 2006 "at the latest," according to the NAB.

The agreement puts to rest rumors about Fritts' future that arose during the spring convention.

Court Rejects Ownership Rules

WASHINGTON The FCC's old media ownership rules remain in place, and it may be at least a year before the issue on how the rules should change is resolved.

A majority of judges on a federal appeals court panel in Philadelphia sent most of the FCC's new media ownership rules back to the commission to be justified in June. The new rules, passed more than a year ago by the commission, have been stayed pending the appeal. They remain so.

The decision upheld the right of the commission to adopt ownership limitations on broadcast stations, but rebuked the agency for not sufficiently justifying its numerical ownership limits for each of television, media cross-ownership and radio.

The judges criticized the commission for assuming that each media interest of the same type makes an equal contribution to diversity and competition in a local market. The court suggests that the specific market share of various media must be taken into account in fashioning numerical restrictions on ownership.

For radio, the court:

- ✓ Upheld the use of Arbitron Radio Metros to define a market for ownership purposes;
- ✓ Said the use of numerical limits for radio ownership was unjustified;
- ✓ Decided that including non-coms in a total market radio station count is justified; and,
- ✓ Said the existing contour overlap methodology, if retained by the FCC for smaller markets, may not be upheld by this court in the future.

What happens now?

For broadcasters, Womble Carlyle Sandridge and Rice attorney John Garziglia said the court might be asked to re-hear the case with all of its members. If so, it could take six months to a year before the case would be resolved.

The court instructed the FCC to hold further proceedings to justify its numerical limits.

"Assuming that further FCC decisions on the ownership limits are reached with a new administration in the White House, the decision could look radically different than the decision rendered last June, and could be just as subject to further court challenge," said Garziglia. He said Congress may get involved in the limits, but members may take into account the current blame that is being placed on media concentration for such problems as indecency and violent programming, and legislative action may result in more stringent ownership restrictions.

Commission Split On Court Decision

WASHINGTON A torrent of reaction to the court decision reversing the FCC's new media ownership rules began arriving even before the decision was

See NEWSWATCH, page 3 ▶

Index

Are Governments Up to Speed on EAS?

Details of the Infamous Minot, N.D., EAS 'Failure' Are Also Disputed

by Leslie Stimson

WASHINGTON Broadcasters, emergency personnel and federal regulators are questioning some assumptions about the Emergency Alert System and the status of emergency preparedness of stations should the country experiences natural disasters or further terrorist acts.

(Based on these questions, the FCC is reviving the debate on EAS by preparing a Notice of Inquiry that it hoped to release in August, an official confirmed for Radio World.)

In a new slant on the oft-repeated "EAS is broken" theme, executives for the Texas and Florida associations of broadcasters say that although broadcasters, for the most part, have installed federally-mandated Emergency Alert System equipment, local governments don't always know how to use it in times of emergency.

A local and state government tie-in to EAS is not mandated, they point out.

Pat Roberts, president of the Florida Association of Broadcasters, said, "There may be three or four states where EAS works." Local governments don't always have a way to access the equipment, he said during a recent panel about emergency planning and the media.

He even questioned whether the president really could use the EAS system nationwide.

"We've told America it works. It should be automated," he said, referring to the system by which local governments fax or call the primary EAS station to begin the alert daisy chain.

Roberts and Ann Arnold, executive director of the Texas Association of Broadcasters, spoke during a forum on emergency communication held by the FCC and the Department of Homeland Security in June.

Minot story disputed

Arnold also sought to correct a story that has been held out by regulators as an example of the failure of EAS and the dangers of media consolidation.

She said a Clear Channel Radio station in Minot, N.D., did in fact have reporters at the scene of a fire when a freight train carrying rail cars filled with anhydrous ammonia derailed outside of Minot in January 2002. Leaking ammonia exploded. The accident occurred on a Sunday night and the news station was staffed.

Problems developed when city officials tried to contact the station using old Emergency Broadcast System equipment, not realizing new EAS equipment had replaced that system, Arnold said.

Photo by Leslie Stimson

FCC Chairman Powell talks to Sam Donaldson before taking part in a forum on emergency communications held by the FCC and Department of Homeland Security.

After the disaster, Clear Channel engineers in Minneapolis traveled to Minot, went to the city government and "found the EAS equipment still in boxes," Clear Channel Senior Vice President of Engineering Jeff Littlejohn told Radio World.

The engineers installed the EAS equipment for the city and trained their personnel how to use it, he and Arnold said.

Regulators have said the station was unstaffed and that its personnel were hard to reach on the night of the fire. Earlier in the day of the forum, FCC Commissioner Jonathan Adelstein had referred again to the Minot incident.

Paper to reality

Broadcasters working on emergency response issues, including the role of EAS in an emergency, participate in a federal advisory committee called the Media Security and Reliability Council. The group has been re-chartered for two years and met in June.

FCC Chairman Michael Powell urged broadcasters and other industry representatives to get beyond "bits of paper to working initiatives" as they work on plans to keep stations on the air or to recover quickly after a natural disaster or further terrorist attack

Members hope to build on the work of the previous MSRC.

"Stations need to set aside competitive instincts and move forward with real cooperation," said new MSRC Chairman David Barrett, president and chief executive officer of Hearst-Argyle Television.

Members want to develop example documents based on disaster recovery plans, vulnerability checklists and back-up carriage plans.

The first MRSC group found that 15 percent of radio, 47 percent of TV and 71 percent of cable outlets surveyed had disaster recovery plans. But when stations were asked if they had actually rehearsed those plans, the figures changed to 7 percent for radio, 17 percent TV and 58 percent for cable.

What is anthrax, really?

Journalists should understand the topic before they disseminate information to the public, members of the panel said.

Reporters should research anthrax and other types of possible weapons terrorists can use against populations, said FCC Chairman Michael Powell. "Editorial context matters enormously," in media coverage of disasters, he said. "I hope reporters are studying what anthrax is — not just reporting what they think they hear." Media should research the kinds of threats that could occur, he said.

Department of Homeland Security Assistant Secretary for Public Affairs Susan Neely said the agency is "working to get appropriate context to the public — for any disaster. Since 9/11 none of us knows what could be a potential terrorist attack"

The public, however, may have different priorities. Two Washington television personalities said they received hate e-mails when coverage was interrupted for recent tornado warnings and an interstate truck fire.

Chief Meteorologist of WUSA(TV) in Washington Topper Shutt said the station is doing its job when it interrupts programming such coverage, yet he worries the public is so saturated by media it's hard to convey to the audience that a threat is real.

NEWSWATCH

▶ NEWSWATCH, continued from page 2

officially announced.

FCC Chairman Michael Powell said the decision actually makes it more difficult for the agency to craft tighter ownership rules. "It sets near-impossible standards for justifying bright-line ownership limits."

Powell pointed to a 100-page dissension by one of the three judges as proof that the results for media law are chaotic. Powell said the commission would study the decision and ponder its next step. So did NAB.

He said this is the second time a court has rejected the FCC's efforts to set numerical limits for media ownership.

His fellow commissioners Michael Copps and Jonathan Adelstein were pleased, and called for more public hearings on the issue beginning in 30 days. "This time we must include the American people in the process instead of shutting them out," said Copps.

Copps also said the commission should issue a notice clearly stating it would continue to apply the old limits on transactions.

Citizen groups were pleased as well. Media Access Project attorneys had challenged the rules on behalf of the Prometheus Radio Project.

Karas Ready to Hit the Road

She has packed up her four-foot-long price book; after three decades of selling broadcast equipment, Kathleen Karas is leaving the industry. It's our loss.

Karas, most recently branch manager at Crouse-Kimzey of Annapolis, has sold her house on the Eastern Shore of Maryland; she is staying in Pennsylvania with family, then plans to buy a small RV, travel the country and take classes.

If you don't know KK, too bad. She is one of the "old-school" broadcast salespeople, who know their clients by name and the sounds of their voices, who care about their customers' pets and what kind of boats they have and when their kids were born.

Karas started in broadcasting with Belar. She was hired as a receptionist but her job evolved into customer service and beyond; one friend said she served as Arno Meyer's right hand for several years.

She then worked for distributor David Green; she and her late husband George Fisher assembled the 10-pound "Green Book," a catalog of equipment manufacturers in the form of a loose-leaf notebook of product data sheets, cart label samples and other neat stuff. Clients still remember the book and the company's loyalty discount plan. Eventually the firm was sold and became Radio Resources; and Karas departed.

She joined Crouse-Kimzey in 1989 and says she chose it because of Mark Bradford's integrity. Although it is based in Texas, she operated her branch in and around Annapolis, which she loves.

Bruce Blanchard, director of engineering for WSCL(FM) in Salisbury, Md., relied on Karas when he was helping to build the station 20 years ago. He described her as "wonderful, engaging, intelligent and friendly." Blanchard said Karas was always competitive with prices. Beyond that, he cited "the knowledge that she seemed to possess — and if she didn't know the answer, she'd get it for me." Unfortunately, Blanchard said, that kind of salesmanship seems to be dying off.

"What I notice now is there's a void," he said about industry suppliers in general. Declining to point to specific companies, he said, "I don't think (companies) are hiring people that are knowledgeable anymore. They're hiring telemarketers ... and they don't have a clue. You could ask 'Does that take XLRs, is that a balanced output?" and they have to get back to you.'

Our columnist John Bisset, himself an exceptionally supportive salesman, said, "If Radio World gives a 'Best Customer Service' award, it would go to Kathleen." Karas, he said, also has been a friend to the Washington-area SBE.

On the day Kathleen e-mailed to let me know her plans, she wrote, "I've been packing up my price book today to ship to the salesman taking over my accounts. *My* accounts! I didn't realize how hard it is going to be to not talk to these people again until now. Gosh, this hurts."

How many vendors would say it hurts to close up shop?

"I was working with people who loved what they were doing," she said of her clients, "and you can tell. Radio is like that."

Travel safely, KK, and keep in touch. We miss you already.

★ ★ ★

One of the benefits of my job is that I am able to help focus awareness on an organization that serves an important, little-noticed niche of radio: the International Association of Audio Information Services. I have served as a public director for IAAIS; although my contribution to the board has been limited by time and journalistic ethics, I pass along word of its work when I can.

My interest in radio reading services dates to my days selling SCA receivers

NPR Vice President of Engineering Mike Starling, center, accepts the C. Stanley Potter Award from Ben Martin, immediate past president of the International Association of Audio Information Services, and nominator Dave Noble of Sun Sounds of Arizona. The award recognizes contributions to the audio information industry.

Starling, a former member of the IAAIS board, was saluted for helping to represent its mission to the FCC and to the public radio system, his work "in protecting existing radio reading services from the potentially harmful effects of low-power FM" and with filings and pleadings for IAAIS with the commission. The association also noted that Starling's work on the Tomorrow Radio project made provision for a "home" for radio reading services.

"Because he meant for reading services to be included in the plan from day one," Noble stated, "the developers of the digital radio system at Ibiquity and manufacturers like Kenwood received clear messages that public radio and reading services were to move into the future of radio together. He has made it a part of his position inside public radio to ensure that audio information services will not be the stepchild of digital radio."

From the Editor

Paul J. McLane

and volunteering to read newspapers on tape for the visually impaired. Perhaps you know someone with diminishing sight — a parent, neighbor or friend who can no longer enjoy printed materials like newspapers, magazines, flyers and even voter information. IAAIS members are there to help.

Thus I'm delighted to tell you about the award given by IAAIS to Mike Starling. See the box on this page; and learn more about this fine group at *www.iaais.org*.

★ ★ ★

Of sadder note is the passing of Dane Roach, who died in June in Emmetsburg, Iowa. He was 44.

We learned of his death from John Schad, his employer at Smarts Broadcast Systems. Schad, president and CEO, called Roach a pioneer in digital automation for radio.

"Dane Roach began his career in radio in New Mexico before joining The Management to help develop the Digital DJ System," the company announced. "Roach later joined the staff of Smarts Broadcast Systems as chief technician on the Smartcaster System, a post he held until his death."

I wanted to know more, so I contacted Schad.

"Dane was a visionary," Schad told me. "He was working in a station in New Mexico when he first learned that computers could now produce audio; and he immediately saw the application to

See ROACH, page 12 ▶

GUEST COMMENTARY

AM IBOC — The Wrath of Kahn

by Thomas R. Ray, III, CPBE

The Guest Commentary in the June 2 edition of Radio World was by Leonard Kahn. It needs to be addressed.

Let me start out by saying that I find Leonard to be an intelligent, fascinating person. Check out some of the patents this man holds. You'll be spellbound.

That being said, I am dismayed not only by some of the statements Leonard makes in his commentary, but by some of the things he did *not* say about his Cam-D system.

Kahn intimates that IBOC is threatening "free" broadcasting. I read this as stating that we are going to have to start paying to listen to the radio — which, incidentally, they do in Europe.

This is not the case with IBOC. IBOC threatening broadcasting? Give me a break!

Kahn describes the data capabilities of his Cam-D system. Guess what? AM-IBOC does all that.

Regarding the comment about hearing-disabled persons being denied warnings of dangerous local storms, that's why NOAA Weather Radio exists. NOAA Weather Radio covers well over 90 percent of the country.

Storm-savvy listeners

Anyone living in an area prone to dangerous local storms most likely has a weather radio, and most likely gets this information on their weather radio first. Stop trying to scare people.

While virtually every radio manufacturer is now producing or preparing to produce an IBOC radio, Kahn states that his company is developing Cam-D radios. Isn't this shades of the 1980s and AM stereo, when Kahn radios were not available? Can Kahn actually believe he can mass-produce radios like Kenwood, Panasonic or Sony can?

What Kahn doesn't tell you are the audio specifications of his system. Let's take a look, shall we?

Kahn's system is based on his analog AM stereo system from 50 Hz to 10 kHz. Great. Same AM noise and crap.

The digital portion is from 10 kHz to 15 kHz, and is 8-bit mono. Terrific; just where music producers put a lot of subtle material with a lot of separation. Maximum noise floor? Probably around -55dB.

Please stop attempting to lay on the guilt that we are going to destroy the American people's property — their radios.

Don't forget, it relies heavily on the analog signal. Separation? Maybe 35 dB.

So we have here a system that does not correct the audio deficiencies of analog AM or analog AM stereo, with a mono digital addition from 10 kHz to 15 kHz. The system cannot come close to reproducing the separation on today's CDs, and is still subject to all the problems associated with AM radio that is helping lead its decline.

This reads like an AM transmitter specification sheet, except for the stereo separation, from the 1950s!

Ibiquity's HD Radio system for AM gives you a noise floor in the -80dBs, stereo separation to 60 dB, and the audio is fully digital from 20 Hz to 15 kHz, and it's 16 bit, 44.1 kHz sample rate. There's no contest!

Leonard, please stop attempting to lay on the guilt that we are going to destroy the American people's property — their radios. Times change and things end, analog NTSC television, for one.

I tend to think the public is going to be a tad more upset to find they need to replace their perfectly good television with a $1,500+ box, rather than worry about replacing their radio, which they don't use to listen to AM now, anyway.

It's time to fully change the public's perception regarding AM radio in general, and the way to do this is to give them a fully digital signal to listen to. We don't need a quasi-digital system that still has all the problems of present-day AM radio.

With all due respect, Leonard, we don't need you to drive the final nail into the coffin of AM radio.

Thomas R. Ray III, CPBE, is corporate director of engineering for Buckley Broadcasting/WOR(AM) in New York and chairman of New York City Chapter 15 of the SBE.

RW welcomes other points of view to radioworld@imaspub.com.

NEWS WATCH

Greece DAB Station Plans for Olympics

ATHENS, Greece A station in Greece using the Eureka-147 form of digital radio technology will transmit information to the visitors of the 2004 Olympics in Athens in August.

Kiss FM 92.9 says it's the first digital radio station for Greece. Harris Corp. said it is providing an audio head-end for DAB transmission for up to 20 audio channels comprising 20 D-ACE DAB encoders, a D-EMUX ensemble multiplexer and the PC software for controlling the system.

Panagiotis Kostakis, chairman and CEO of the station, said, "For this installation we received the equipment within two weeks and our staff was given the necessary training the week after."

Boost Election News on Radio?

WASHINGTON Regulators, a former presidential candidate and some broadcasters are calling for more political coverage on radio and TV this election season.

Senate Commerce Committee Chairman John McCain, R-Ariz., and FCC Chairman Michael Powell — who often are not on the same side of communications regulation issues — are urging broadcasters to devote more airtime to election news. In a letter, they call for radio and TV stations to air more election news coverage and public affairs programming.

The letter was sent to NAB, Disney ABC, NewsCorp, Viacom/CBS/Infinity and NBC.

"We understand that several broadcasters have pledged to increase their political news coverage and public affairs programming during this election year," state Powell and McCain. "We commend these broadcasters and now challenge those who are not already doing so to step up and take similar actions to raise the level of public discourse during the election season ahead."

Though TV remains the primary source of campaign and election information for most people, according to the Pew Research Center and NAB, in the seven weeks leading up to election day 2002, more than half of all top-rated local TV news broadcasts did not have any campaign coverage. That's according to a report by the University of Southern California's Annenberg School and the University of Wisconsin, cited by Powell and McCain.

Public Service Valued At $9.6 Billion

WASHINGTON NAB recently valued public service airtime for commercial broadcasters in 2003 at $9.6 billion. Local broadcasters "are the number one provider of public service in America," NAB President/CEO Eddie Fritts said. The figure includes airtime donated for PSAs and money raised for charity and disaster relief. The figure is down from $9.9 billion in 2001, which included events of Sept. 11.

Responses were tabulated by Public Opinion Strategies, a Virginia-based polling firm. Fritts called the value "exceedingly conservative." Totals do not include the value of ad revenue lost for breaking news or weather emergencies, nor public service at the network level.

European Radio Set for Olympics

by Michael Hedges

GENEVA Next month, as U.S. broadcasters cover the 2004 Summer Olympics, foreign broadcasters plan to follow their athletes and events as well.

Competition in more than three-dozen sports plus opening, closing and awards ceremonies will fill two and a half weeks of August.

Athens Olympic Broadcasting is the official host broadcaster, responsible for producing and distributing general radio and television coverage. Rights-holding broadcasters will produce their own individualized coverage in cooperation with AOB.

International Sports Broadcasting administers broadcast activities as a concessionaire of the International Olympic Committee.

Broadcasting plays a dominant role in the Olympic organizing committees as it does in all major sport events. The first venue completed in Athens and turned over to the IOC was the International Broadcast Center.

Built to accommodate 10,000 broadcast personnel from 200 countries, the 40,000-square-meter complex sits next to the main athletic venue.

Broadcast rights fees are negotiated years in advance for major sporting events. The IOC sells broadcast rights to major broadcast consortia.

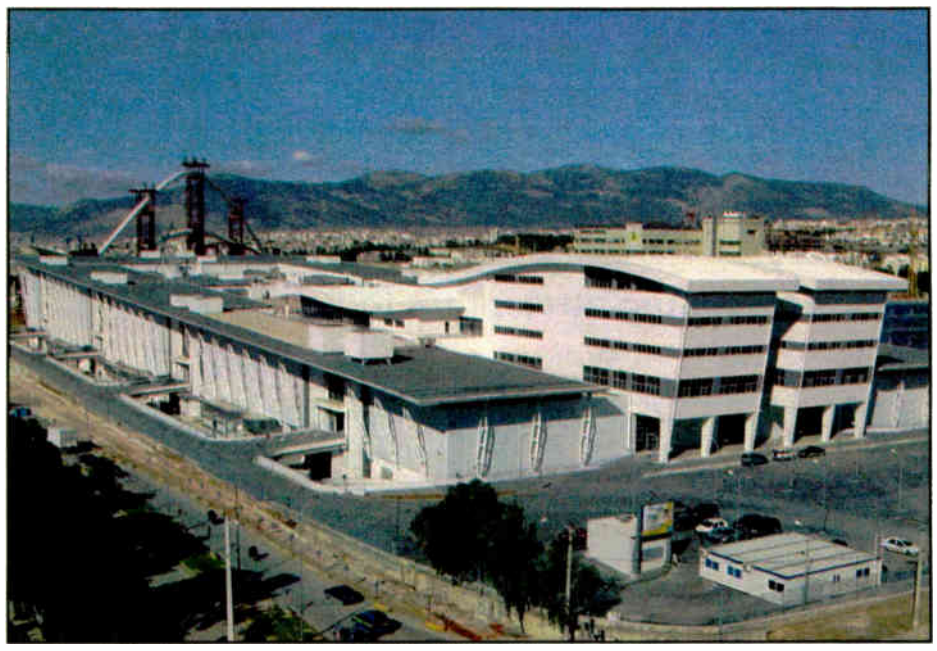
The European Broadcasting Union negotiated a $394-million deal on behalf of European public broadcasters for radio and television rights to the Athens Olympic and Paralympic Games.

Specific rights

NBC television bid $793 million. Rights fees do not, however, include any actual broadcast costs, such as talent, equipment, uplinks, downlinks, travel expenses and so forth, according to NBC.

Successful bidders for broadcast rights are free to sell specific rights to other broadcasters. For example, Australian broadcast rights for the Athens games went to Seven Network, which sold radio rights to Sydney broadcaster 2GB, which can resell rights to individual coverage areas.

Although the EBU has negotiated European broadcast rights for the Olympic Games on behalf of its members since 1960, this may change. The European Union may rule, in fact, that rights should be sold on a country-by-country basis and, maybe, unbundled into separate rights for radio, television, pay-TV and the Internet. It has not set a timetable for the decision.



The International Broadcasting Center for the XXVIII Olympiad in Athens

According to the IOC Radio News Access Rules, non-rights holders may not broadcast "Olympic material" nor attend any Olympic event with broadcast equipment.

Looking at the figures, a Euro 2004 soccer championship is more valuable than the Athens Olympics for European broadcasters. The EBU paid nearly $600 million for total European broadcast rights, not quite double the fee paid for the Athens Olympics. Sixteen teams were due to play 31 matches in Portugal between June 12 and July 4.

French media analyst Alain Neuville likes soccer but expects the matches to have a greater impact for television advertising. "Radio traditionally benefits more from indirect revenues, like promotions derived from the Olympics or soccer," he said.

Inspired branding idea

Media forecaster Zenith Optimedia expects global advertising spending in 2004 to jump by 4.4 percent, and slightly higher in Europe, due to increased buys connected to major sporting events.

Sports and sports sponsorship offer brand-building advantages for broadcasters.

European public broadcasters, as official rights-holders, exploit this asset even when denied commercial revenue by their founding charters.

Athens 2004 Executive Director Spyros Capralos addresses international journalists.

To prepare public broadcasters for the Athens Olympics, the EBU presented a seminar on sports-associated marketing for Athens in late 2002.

A branding idea from BBC local radio took a page from the British version of "American Idol," by inviting sports fans and aspiring broadcasters to compete for the microphone at the Olympic warm-up in Cyprus.

Colorful commentaries

Some events, like races and team sports, are compelling on radio thanks to the color commentary and descriptions provided by announcers.

Radio sports journalists, freed from the fixed positions of cameras and sets, can place themselves in the heat of the action and bring that sense to their audience.

Radio made its debut at the Paris Olympics in 1924. Angry newspaper reporters forced Radio Paris reporter Raymond Dehorter to leave the Olympic arena but he continued his reports from a dirigible above the stadium, according to the Petite Encyclopédie de la Radiodiffusion, a radio history Web site.

This year, the IOC has further restricted coverage and commentary via the Internet or other new technologies. There will be no digital radio broadcasts and no instant messages sent to mobile phones.

As the invitation for bids for European rights for 2010-12 was announced in March, IOC President Jacques Rogge pledged to embrace new technologies.

Four separate rights packages will be awarded: television, radio, mobile platforms and shared fixed memory media.

BUSINESS NEWS

Harris Restructures, Cuts Jobs

by Leslie Stimson

QUINCY, Ill. Harris broadcast employees are being asked to increase productivity with fewer people.

The broadcast and microwave communications divisions have been restructured and both business units are in the process of eliminating jobs to help contain expenses.

In June, Harris announced that it intended to eliminate 100 broadcast jobs, some in the United States and others in its European operations, which includes the Middle East and Africa.

A spokeswoman confirmed there had been a staff reduction of approximately 5 percent of U.S. broadcast division positions as of mid-June. Before the cuts, Harris employed 1,150 people in its broadcast division. Five percent of that would be about 58 people, although the company declined to specify the exact number of jobs lost.

Some of the jobs were positions left vacant when employees left the company earlier in the year; others were part-time positions, according to Harris. The company would not release a figure for how many of the lost positions were full vs. part-time; nor would it release the names of former employees. Broadcast sources said spokeswoman Jackie Broo and Senior Manager for Radio Product Management and Planning Daryl Buechting were among those whose positions were eliminated as were those of Stu Ledger, who worked in software sales, and Sandy Berenics, who also worked in sales.

Asked about cuts in other countries, Manager of Communications Martha Rapp said the company was still reorganizing its European operations. She had no timeframe for when those jobs would be affected.

Rapp said the cuts are meant to "return Harris to a level of profitability. We've been able to maintain our market position, but the market is down."

Economy, DTV

Speculation among broadcast sources is that Harris isn't meeting its DTV equipment sales targets as broadcasters purchase lower-power transmitters to cover only their city-grade contours with a digital signal, rather than using a higher-power unit to cover their entire coverage area. Over the past year the company also has cited the impact of the economy on broadcast product sales.

Harris Chairman, President and CEO Howard Lance was blunt about the situation earlier, as he announced the acquisition of Orkand, a $66 million cash deal for a company that provides technical services and information technology for federal government agencies.

Lance said profits have been small for the broadcast division and that the microwave division has experienced losses. "We need to have those two segments contributing in a material way to our earnings," he said.

The microwave communications division also is losing 100 jobs, and another 140 will be moved to lower-cost locations.

The parent company in April said overall net income in its fiscal third quarter increased 57 percent and revenue increased 23 percent, primarily as a result of continuing strong performance in its government businesses. But its broadcast segment reported revenue of $73.3 million in the quarter, a 3 percent decline from the same period a year earlier; in the quarter before that, the broadcast division saw a 30 percent drop in revenue.

The restructurings will allow the company to save about $4 million a year in broadcast and $8 million in its microwave division, the company said.

As it contracts those divisions, Harris is putting more resources into its government unit. Harris believes the Orkand purchase will improve the company's '05 profits overall. Orkand revenue for the 12 months ended in March was $80 million. Lance said Harris gains customers with the purchase.

"Most government contractors require a track record of past performance" to bid on new business. He said the acquisition provides Harris with established customers and positions it for further growth. "This is not just a one-time step up in revenue."

The cutbacks in the broadcast unit are part of a division-wide restructuring. Harris has reorganized the division into five business units: Television Broadcast Systems, Radio Broadcast Systems, Broadcast Systems Europe, Broadcast Automation Solutions and Networking & Government Systems.

The restructuring is intended to streamline operations and cut operational costs, said Rapp.

Several managerial changes have taken place at the company recently. Among them:

Jeremy Wensinger is the new head of the broadcast division, replacing Bruce Allan.

Dale Mowry is now vice president of Television Broadcast Systems. He had been vice president of transmission for Harris Broadcast Communications, a position in which he became familiar to U.S. radio broadcasters.

Debra Huttenburg, vice president of sales and marketing, becomes vice president of Radio Broadcast Systems, responsible for product development, product management, manufacturing, worldwide sales and strategic marketing for U.S.-standard radio products, as well as radio and television sales in the Caribbean, Latin America and the Asia-Pacific regions.

Jim Woods continues as vice president of Broadcast Automation Solutions in Sunnyvale, Calif.

Jim Denny was promoted to vice president of Broadcast Networking and Government Solutions.

Westwood

▶ Continued from page 1

2004 Summer Olympics in Athens.

"It helps that this will be our fifth consecutive Summer Olympics, beginning with Barcelona, Spain, in 1988. Experience is a good thing, but yet it's like starting over every four years," said Larry Michael, senior vice president of sports at Westwood One.

Prep

He said company executives have heard the reports of Olympic organizers being behind in preparations for the games, but believes the broadcaster is prepared for what it will face.

Westwood One plans to air approximately 150 hours of long-form Olympic programming from Aug. 13-29, with hourly updates and additional play-by-play broadcasts of events. Michael said some 400 WW1 affiliates are expected to clear long-form coverage.

Westwood One will feed long-form programming from 6 to 10 a.m. Eastern and again from 1 to 5 p.m. West Coast affiliates will receive the feed on a delayed basis.

Michael expects track and field, gymnastics, swimming and basketball will dominate Westwood One's coverage. Twenty announcers and six producers will make the overseas trip to Athens, arriving one week prior to the start of the Summer Olympics in mid-August.

Westwood One is sending a veteran announcer crew led by John Tautges and Kevin Wall to host the morning long-form program. Steve Mason and Kevin Kiley will anchor afternoon coverage.

Map of Greece

Michael acknowledged WW1 can't cover everything, noting the modern Pentathlon, which includes five disciplines: shooting, fencing, swimming, riding, and cross-country.

"However, we have scheduled ourselves enough flexibility in our coverage to go to any event that needs our attention," Michael said.

Westwood One has coordinated with Athens Olympic Broadcasting S.A., an organization owned by International Sports Broadcasting and the Athens Olympic Committee, which ensures suitable working conditions for 11,000 accredited international broadcasters. AOB is the host broadcaster and was organized to meet the broadcast requirements of radio and television broadcasters there.

Conrad Trautmann, senior vice president of engineering for Westwood One, said WW1 will have three studios æ a master control room and two edit suites æ in the 130,000-square-meter International Broadcast Center, across the street from the main Olympic stadium. Studios will be built within the NBC Television complex in the IBC.

Trautmann's team of technicians, including Mitch Gilder and Wally Tienken, will arrive in Athens three weeks before the Aug. 13 opening ceremonies to build out studios.

Compared to past Olympics, Westwood One will rely less on analog equipment and more on a modular digital studio design in Athens, Trautmann said.

"Before, we lugged along cart machines and reel-to-reel players and put it all together on site. We brought along way too much gear that was totally unnecessary. We decided this time around we wanted to just roll in racks and run cable and be ready," Trautmann said.

In addition to having cross-connects for phone lines done ahead of time, Trautmann wanted an integrated system routing audio from any Olympic venue to the International Broadcast Center studio of his choice. Westwood One is using an SAS 32KD digital routing system for 64-line in/out flexibility.

"We're using a special QCP patch-bay panel from ADC that is rack-mountable and is numbered and lettered. Below the wire tray is a group of Amphenol connectors. ... When we arrive we'll just run the home run cables through the ceiling and plug them in the back of the rack, and we're up and running," Trautmann said.

The modular components to Westwood One's studios allowed Trautmann and technician Mitch Glider to assemble the systems ahead of time and go through a trial run of sorts. "We found a few things that didn't work and caught them early so there won't be such a rush on-site," he said.

The equipment was packed into an air-land-sea container and shipped by boat to Athens in late May, Trautmann said.

Trautmann visited Athens in March to inspect the site. He said the "commentary areas" would consist of a mixer board, microphone and headphones.

Four-wire pairs at each site will constitute the transmit-and-receive path back to the International Broadcast Center. IFB is returned to the commentary positions to allow for cueing, he said.

For the first time, Westwood One sports reporters will carry Marantz PMD670s, which record directly to Compact Flash cards, eliminating the need for cassette, MiniDisc and DAT recording gear, Trautmann said. This allows for easy file transfer to a computer hard drive for editing.

This begins what Trautmann describes as "a completely linear transmission path" from Athens back to the United States with "no transcoding at all."

"We are taking great pains to make sure every piece of audio that gets delivered originates as a linear file. We're not compressing anything before it gets back to the United States. The production of this event will be linear and as uncompressed as we can get it," Trautmann said.

Westwood One will mix the Olympic broadcasts and play commercials on-site in Athens. It will use the NBC TV satellite uplink as the primary path from Athens to New York. "From 30 Rock we T1 it to our CBS Broadcast Center on West 57th Street," Trautmann said.

Westwood One uses the StarGuide multi-channel satellite transmission service, which will compress audio into the MP2 format for delivery to affiliates. Still, Trautmann believes the decision to keep things linear to the United States will be worth the effort and improve the audio quality of the broadcasts.

Logitek ROC-10 audio consoles will be used in Westwood One's master control and edit studios in the NBC TV facility. Consoles are purely "control surfaces" for Westwood, Trautmann said. ENCO DADpro32 digital audio delivery systems are the backbone of the studio for on-air playback.

Editing material

"In our case, we expect the hourly update announcer to simply walk into a studio and start talking on cue. That's it. The computer will do everything else. We'll program it to start the theme music, turn on the (Shure SM7) mics with automation tones, count down the time and then play the commercial at the end," Trautmann said.

Producers will edit segments on digital editing workstations, Dell computers loaded with Adobe Audition multitrack audio editor, formerly Cool Edit Pro, Trautmann said.

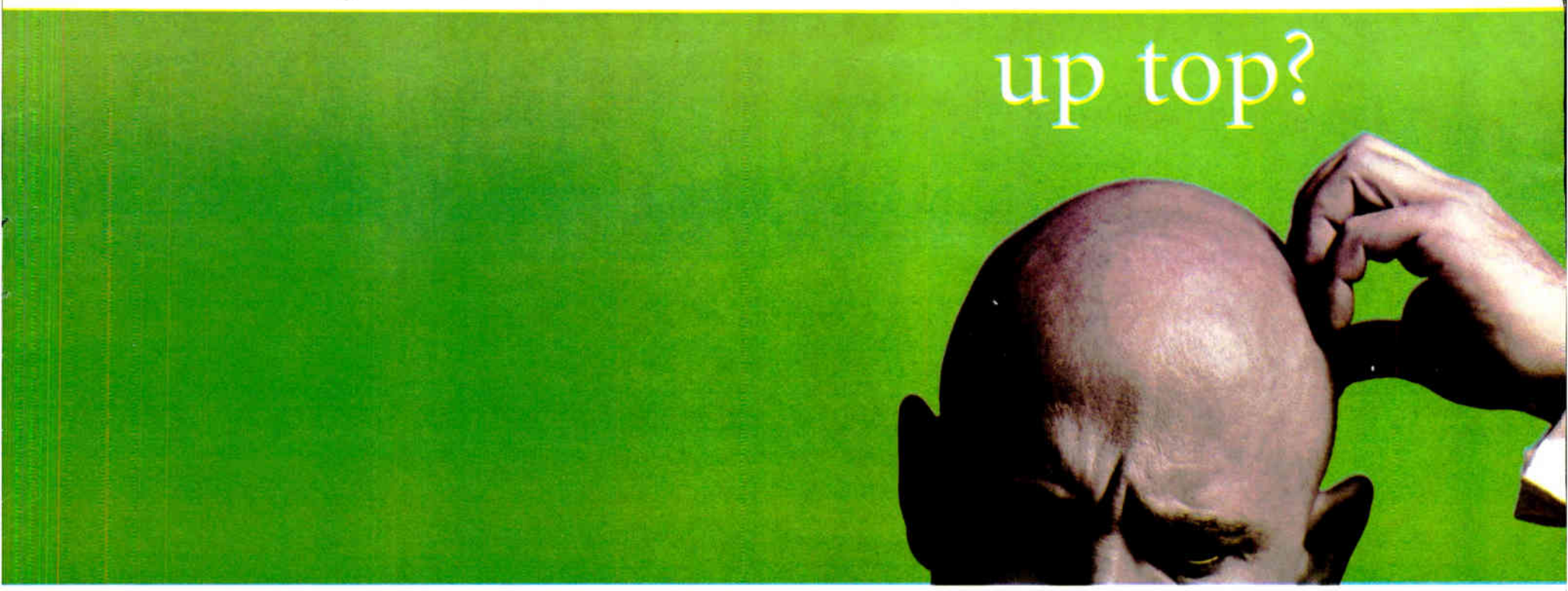
Outside of some traffic congestion in downtown Athens, Trautmann does not expect major difficulties or disruptions during the games.

"The International Broadcast Center is beautiful. It's also a very English-friendly city, so language won't be a problem. The modular aspect of our broadcast systems should allow us to concentrate on putting out the best product we can," Trautmann said.

Just in case, Trautmann said he is packing one Denon DN-C630 CD player, a Fostex D-5 DAT machine and a few Sony MDS-E11 MD recorders for backup.

"But no analog tape this time."

Wish you had more



Announcing Omnia-6EX.

There's a lot of buzz about the new HD Radio codec. We've heard it and agree with the many others who like it and say it's now time to get on with radio's transition to digital.

Because HD Radio can transmit audio frequencies up to 20kHz, listeners will finally be allowed to hear the full CD spectrum – if their radio stations choose the right on-air processor. On this point, you should know something important: Some "HD" processors simply hack off everything above 15kHz... robbing listeners of the full HD Radio experience and keeping our industry in a fidelity backwater.

The new Omnia-6EX won't short-change your listeners. We've built Omnias with sampling rates of 48kHz and higher from the start. All along, we've needed the sampling headroom to keep analog FM audio grunge-free. Now it's essential for HD Radio. Even if some listeners wouldn't notice the missing high frequencies, there's a fair chance they would hear a sharp 15kHz low-pass filter operating within HD Radio's codec range.

The new Omnia-6EX has enhanced processing for analog FM, and is ready for HD Radio with a second limiter section and digital output. Both FM and HD limiters and outputs are included as standard.

Omnia-6EX is also full of processing enhancements that result in yet more bass punch, yet more voice clarity, than the original Omnia-6. A sound so powerful and free of artificial constraints, you'll crave it for your station the first time you hear it.

More than 50% of the US' Top 100 FM stations have already upgraded to Omnia. Maybe you're next?

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FIRST PERSON

Athens Frequencies to Be Corralled

Covering the Olympics? Here Are Some Important Things to Keep in Mind

by Mario Hieb

ATHENS, Greece It's a lot of things: The world's largest broadcast. The world's biggest party. A frequency coordination nightmare.

As the largest event in the world, the Olympic Games present a challenge to planners and professionals. One of these is Andreas Chrysikakis, radio systems project manager for the Athens 2004 Organizing Committee for the Olympic Games, or ATHOC.

I have a unique perspective on Andreas' job; I held the same position during the Olympic Winter Games of 2002 in Salt Lake City. I met him when he and his colleagues came to Salt Lake City as part of a "secondement" program, whereby hosts of future Olympic Games work with current Games organizers to gain experience. ("Secondement" is a British military term meaning backup or fill-in.)

The radio professionals from the Greek contingent came to Salt Lake City curious about frequency coordination. Andreas and his colleagues asked a lot of questions: "Where do the frequencies come from?" "What types of equipment are used during the Games?" "What frequencies do they use?" "How many do they need?"

Inquisitiveness is good

"Where do we start?"

I had these questions too when I started my job. My impressions of Andreas and his colleges were positive. Very pragmatic, they asked good questions and showed strong technical skills. Skilled in RF, they also showed great aptitude for computers.

Fast-forward two years. With a few weeks until the Games, at what point are the Greek spectrum managers in this metaphorically appropriate "Herculean" task?

Like the organizers at the games in Salt Lake City, the Greek spectrum managers established a frequency coordination Web site, called *e-Spectrum*, located at *http://services.athens2004.com/espectrum*.

I helped create the Salt Lake City frequency coordination Web site, and I can honestly say that the Greek site is a big improvement over ours. Consider that thousands of detailed applications for spectrum have been filed and processed in preparation for the Games.

Having spectrum users enter their data into your database is a godsend over the paper application. Communication is easy and efficient when the coordination database is accessible from anywhere in the world, at any time of the day.

The Games will take place in 36 competition venues and four main non-competition venues, which are Athens International Airport, International Broadcasting Center, Main Press Center and Olympic Village.

The main area of coordination is the Attika region in the southern part of Greece where most of the Olympic activities take place.

Use of WiFi in Athens started to spread quickly about two years ago. Most is based on the 802.11 b/g protocol.

The use of WiFi inside competition venues is authorized to specific accredited agencies at 2.4 and 5 GHz spectrum. Each agency will be assigned a channel for operation. At non-competition sites the use of 2.4 and 5 GHz spectrum is authorized on a non-exclusive basis.

All users need to apply at the Web site to receive authorization.

To date, the National Telecommunications and Posts Commission, known by its Greek acronym EETT, has assigned temporary licenses to approximately 9,000 frequencies, mainly Olympic users including rights-holding broadcasters such as NBC, BBC, ATHOC, the Athens Olympic Broadcast organization (AOB), press, teams, sponsors and so on.

As part of the Games-time enforcement effort, EETT has implemented an advanced National Spectrum Management and Monitoring System, comprising fixed monitoring stations, mobile monitoring stations and light portable monitoring stations. The portable units will be at various venues to provide a first level of support if an interference problem occurs.

What you need to know

EETT is cooperating with ATHOC and other police and security bodies to ensure efficient spectrum monitoring and enforcement. ATHOC is cooperating with EETT in order to collect, assign and monitor radio spectrum to Olympic users.

ATHOC serves as the liaison between Olympic users and the regulatory authority.

If you're one of the thousands of accredited media types attending the Games, and if you plan to use RF equipment, there are several things you should know. First, you will need to apply for frequencies. Do this via the eSpectrum Web site at *www.athens2004.com*.

Next, when you arrive in Athens, bring your radios to one of three radio inspection locations. Inspection will take place mainly at three certification centers at the International Broadcasting Center, the Main Press Center and the Olympic Village.

If your radios have not been inspected and certified, do not try to take them into the venue. Users should transmit according to their license terms and conditions. The emissions power output should be kept as low as possible.

Mario Hieb, P.E., is a consulting engineer now in Greece for his third Olympic Games.

Athens Games Fast Facts

Nearly 300 Olympic Games have been held in Greece.

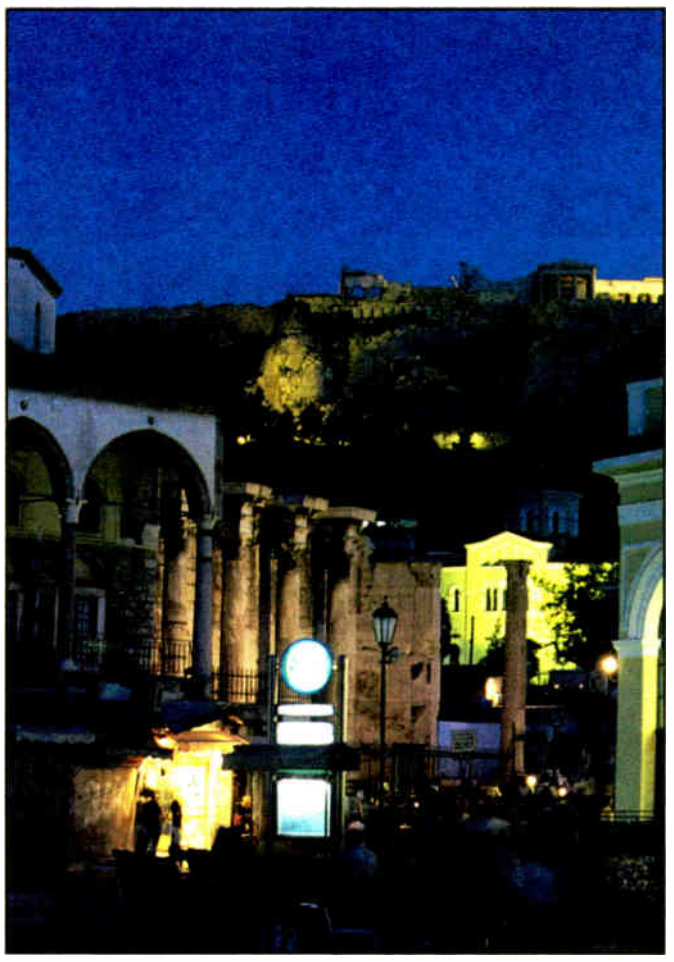
An Olympiad is the four-year period between Games.

As in ancient times, the Olympic torch, ignited by the sun, is lit in the ancient city of Olympia.

In August 2004, the Olympic cauldron will be lit for the first time since the revival of the modern Olympic Games, in the country of their birth.

An estimated 20,000 broadcast workers will be working during the Games.

Source: IOC



A view of Plaka, Athens, with the Acropolis in the background.

◆ NEWSWATCH ◆

Willis Must Surrender Licenses

WASHINGTON If you accumulate thousands of dollars in unpaid fees to the FCC, you can lose stations. That's what's happening to Levi Willis, president of Willis Broadcasting Corp.

Under a Consent Decree, Norfolk-based Willis surrendered four AM licenses to satisfy more than $84,000 in fines. The stations are KLRG, Little Rock, Ark; KVLA, Vidalia, La.; WCRY, Fuquay-Varina, N.C.; and WSVE, Jacksonville, Fla.

Under the agreement, Willis, known to some in radio as Bishop Willis through a position with the Church of God in Christ, agrees to stop alleged illegal activity without admitting guilt and the government's action against him would cease.

Willis has pending applications to assign licenses for WWCA(AM), Gary, Ind. and WJNS(FM), Yazoo City, Mich. The agency will renew those licenses, and then Willis must sell those and apply the proceeds to the $85,000 as well as other unpaid fees and taxes. The remainder must be applied to bringing six other Willis stations into compliance.

Should Willis not follow through, he would lose the licenses for the remaining six stations. For the rest of those license terms, every six months he must certify that each station complies with FCC rules.

The case dates to 1999. The commission said Willis repeatedly failed to answer official notices of violation and other agency correspondence.

Willis told the commission he tried to correct the violations but has had a serious illness. The commission stated that re-inspections in 2003 showed a number of violations remained outstanding.

Shortwave WSHB Sold to LeSea

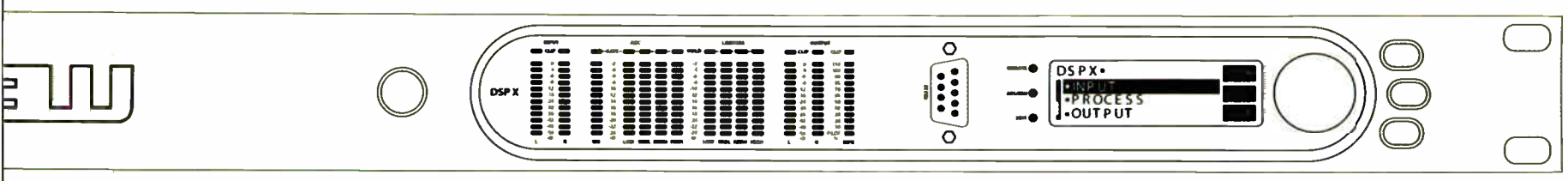
BOSTON Two million dollars was the selling price for one of the largest privately owned shortwave radio station in the United States, WSHB in South Carolina. The station has been on the block for some time and the figure is about a third of the asking price two years ago.

The First Church of Christ, Scientist in Boston plans to sell WSHB in South Carolina to LeSea Broadcasting Corp., which airs non-denominational Christian programming. The deal is subject to regulatory approval.

The Christian Science Publishing Society has used the station near Savannah, Ga., for shortwave broadcasts since 1989. The station was one of several such facilities the church owned at one time. Officials now say they realize they don't need to own broadcast facilities in order to distribute programs.

Station officials told Radio World in 2002 that WSHB cost $19 million to build and that the asking price at that time was $6.5 million.

WSHB has two 500-kilowatt transmitters, operating independently into high-gain curtain antennas that serve audiences worldwide.



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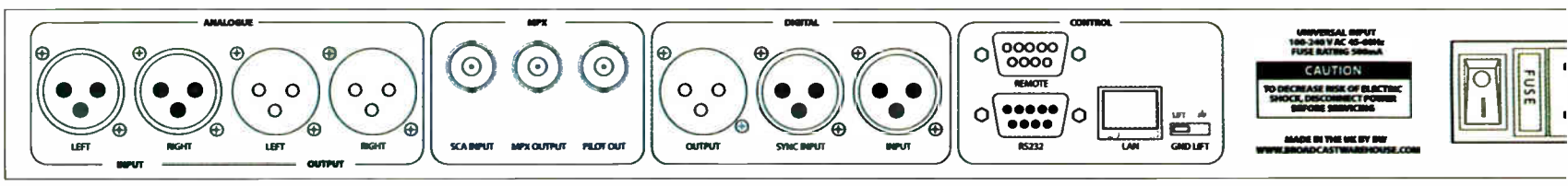

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IBOC

▶ Continued from page 1

Radios. For this reason, WGN proposes that the commission authorize broadcasts of HD Radio *only* from 5 a.m. to 7 p.m. without regard to the time of local sunrise and sunset. ...

We believe the importance of DAB is ultimately more about content than just audio quality.

— NPR

"As an AM station that has been in operation continuously since 1924, WGN has a keen interest in providing the best possible service to our listeners. WGN sees digital radio as an exciting enhancement to the existing service that will provide much-needed improvements in audio quality as well as new digital data services that were previously unavailable on the AM band.

"WGN cannot, however, support the proposal by NAB and others that the FCC authorize immediately unlimited operation of HD Radio by all stations authorized to operate at night. WGN submits that the NAB's proposal may unnecessarily cause severe interference to existing service at a time when there are very few digital receivers in the marketplace. ...

"Because the interference testing of nighttime HD Radio done to date is limited in scope, the actual amount of interference to existing service could be more severe than predicted in the testing. ...

"One advantage to the WGN proposal is that it would give the commission time to evaluate how severe the interference from nighttime HD Radio will ultimately be by observing the impact of HD Radio on existing service during the pre-sunrise and post-sunset periods that will occur in the fall and winter of this year and next year. Ultimately, as more and more HD Radios are sold in the marketplace, the commission will be in a position to decide when there is sufficient penetration of new digital radios to justify the loss of service that may result from full time HD operation at night."

National Public Radio wrote:

"We believe the importance of DAB is ultimately more about content than just audio quality, and we are excited by the opportunity to expand our program service offerings to the public. ... In short, based on the Tomorrow Radio test results, including the lack of interference associated with subdividing the digital bitstream, and the public interest benefits inherent in multicasting, we urge the commission to authorize digital audio multicasting without delay and without requiring special licensing. ...

"With respect to NCE radio stations specifically, the commission should authorize such stations to offer ancillary and supplemental services for remuneration and without having to pay spectrum fees. ... Just as NCE radio stations were authorized to use their analog SCAs for remunerative purposes, the digital capacity will allow stations to further diversify their revenue sources.

"At least during the period of hybrid operation, NCE radio stations should be required to offer free over-the-air analog and digital NCE services, but they should be free, as a commission matter, to utilize their remaining capacity for other purposes. ...

"NPR is committed to preserving existing SCA-based analog services during the digital transition. In addition, NPR will work to address instances of harmful interference that may result from the deployment of the Ibiquity IBOC system.

"NPR is also committed to developing the Ibiquity technology so that radio reading services may be offered via stations' digital spectrum for reception by generally available radio receivers. Toward that end, NPR has taken the initiative in exploring the use of the extended hybrid spectrum for the digital transmission of radio reading services.

"In collaboration with the International Association of Audio Information Services, NPR will conduct audio and transmission platform tests this summer to determine the suitability of the extended hybrid digital spectrum for radio reading service transmission, pursuant to a Corporation for Public Broadcasting funded grant. This testing will measure the coverage capabilities of extended hybrid operation and provide full perceptual testing of the latest digital audio codecs that may be used for radio reading services. ...

"(W)e believe it is premature for the commission to consider specific receiver-based mechanisms to prevent the copying and distribution of copyrighted works. It is incumbent on the Recording Industry Association of America ('RIAA') to demonstrate a concrete harm associated with DAB, and, given the nascent state of the technology, we do not believe such a showing can be made at this time."

David P. Maxson, managing partner of Broadcast Signal Lab LLP, wrote:

"The beauty of the IBOC approach is that there is no spectrum to return at the end of a transition period, as there is in the DTV arena. Adoption can take as long as it needs to, enabling it to remain transparent to the consumer.

"If adoption of IBOC by the consumer becomes slow or stalled at some point in the future, the consequence is primarily that other digital media may be developing a market advantage over local digital radio broadcasting. Perhaps the best bellwether of a failing IBOC adoption in need of FCC intervention is in a measure of the industry's confidence in the technology — the number of stations transmitting hybrid IBOC signals. The commission could annually inventory the number of stations transmitting IBOC signals, say, 90 percent or more of their analog broadcasting time.

"This figure should rise steadily for several years and then plateau. If industry confidence wanes, it will be apparent in an erosion of the transmission of hybrid IBOC systems. Industry confidence will be a valuable indicator of the interest the public has in IBOC broadcasting and ultimately the probable success of the technology. ...

"The biggest obstacle to a smaller broadcaster is the cost of the system. Other than offering spectrum fee rebates to smaller broadcasters who adopt IBOC by a deadline, the best incentive that the FCC could provide is in its regulatory structure of the IBOC medium. Ibiquity Corp. has done a fantastic job developing what many predicted would be impossible and it deserves recognition and recompense for its efforts.

"At the same time, the company holds a central position in the IBOC marketplace. With such dominance of the technology comes the potential for too much control in the hands of one enterprise. As the regulatory authority, the FCC should be certain that all standards and policies encourage competition in all levels of the IBOC marketplace.

"Chipsets, firmware, protocols, system control software, data service definitions, receiver features and functions, and much more must be placed on a level playing field so that real competition and innovation can occur. Innovators should not be forced to get the permission of the dominant competitor to develop new ideas. ...

WGN proposes that the commission authorize broadcasts of HD Radio only from 5 a.m. to 7 p.m.

"The role of the commission is best played in setting the tone for innovation and competition in the digital radio marketplace and in permitting industry cooperation through open standards to guide the development of features that serve the public demand."

Kenwood USA Corp. wrote:

"With or without a regulatory mandate requiring conversion, we expect that there will still be a significant number of analog-only products in the field well past 2014. Therefore, the sheer magnitude of analog receivers in the field will not be forced out by a regulatory mandate in the next decade.

"Consumer action to replace existing receivers is the strongest leverage to bring to bear on this situation. Commission action to make IBOC broadcasting highly desirable over analog broadcasting will help drive demand and accelerate the conversion of the analog base of receivers in the field to a digital base.

"History has shown that new content available only on digital receivers is the best way to stimulate this demand. ... Broadcasters and their listeners should determine the appropriate number of audio streams based on their different content requirements. ...

"Our strong belief is that the FM supplemental channel capability is absolutely critical to the success of IBOC in this country. ... Our belief is that most receiver manufacturers will consider this capability a requirement on future IBOC receivers. ...

"We expect this ability to tune to multiple supplemental channels on a single frequency will be a standard feature on receivers within a year. More specifically, Kenwood is preparing supplemental channel radios in anticipation of possible commission action permitting supplemental channel broadcasts in hybrid and extended hybrid modes.

"When the commission feels the time is right, Kenwood will be ready with products. We believe our competitors are similarly positioning themselves.

"The commercial stations have a different business model, and there is less of a clear picture on how the commercial station owners and radio groups will use supplemental channels.

"Several proposals are common. One idea is to put dedicated local traffic and weather on the first supplemental channel. A listener would never be more than a minute or so away from current traffic and weather. Another proposal is to simulcast in a second language. The third is to revive formats previously enjoyed in the community of license but no longer available. ...

"We support radio reading service digital deployment in ways that can be integrated into mass-market products for little or no additional cost. The intent of this goal is to make reading service products available at mass-market retailers. It is possible that the average digital radio can have reading services as a standard feature in a few years."

Roach

▶ Continued from page 4

broadcasting. He pestered his way in to Pete Charlton's operation, The Electric Works, on one of Pete's first installs, and later came to work for us.

"He was one of these guys that worked best for you if you just gave him a desk and let him put his feet up and think," Schad said. "From time to time ideas would pop out; and they were usually good ones.

"Dane helped steer our company away from mainstream computer interests such as the Windows operating system in order to allow us to build products that were a much better fit for broadcast operations. He was always on the lookout for new ways to make computers communicate with each other and new features that could be added to automation systems.

"He was one of the rare engineers who also had the insight to look at two different things and realize that they would work well together."

Schad said Roach was involved in very early digital automation systems both with his company and with Charlton's, and was installing systems before most broadcasters even knew of the existence of such automation.

"He did pioneering work in such areas as multi-tasking, such as recording while playing back; detecting relay closures from satellite networks; and designing computer-controlled switchers. In more recent years he has done considerable work on developments such as Linux-based systems, socket-based communications — allowing complex unit-to-unit communications over an Ethernet, LAN cable or the Internet — and many more deeply technical features that allow for faster and more reliable equipment."

Roach also worked at stations in Texas and Michigan and briefly for TM Century in Dallas. He had a malignant brain tumor, Schad said. Roach leaves a wife, Koni Roach; he died on the eve of their 13th anniversary. The couple had no children. Donations to the American Cancer Society are requested in lieu of flowers.

The routing switcher gets a new twist.

(About five twists per inch, actually.)

Everybody needs to share audio. Sometimes just a few signals — sometimes a few hundred. Across the hall, between floors, now and then across campus. Routing switchers are a convenient way to manage and share your audio, but will your GM really let you buy a router that costs more than his dream car? Unlikely.

If you need a routing switcher but aren't made of money, consider Axia, the Ethernet-based audio network. Yes, Ethernet. Axia is a *true network*. Place our audio adapter nodes next to your sources and destinations, then connect using standard Ethernet switches and Cat-6. Imagine the simplicity and power of Ethernet connecting any studio device to any other, any room to any other, any building to any other... you get the idea.

Routers are OK... but a network is so much more modern. With Axia, your ins and outs are next to the audio, where they belong. No frame, no cards, no sweat.

Scalable, flexible, reliable... pick any three.

An expensive proprietary router isn't practical for smaller facilities. In fact, it doesn't scale all that well for larger ones. Here's where an expandable network really shines. Connect eight Axia 8x8 Audio Nodes using Cat-6 cable and an Ethernet switch, and you've got a 64x64 routing switcher. And you can easily add more I/O whenever and wherever you need it. Build a 128x128 system... or 1024x1024... use a Gigabit fiber backbone and the sky's the limit.

Are you still using PC sound cards?

Even the best sound cards are compromised by PC noise, inconvenient output connectors, poor headroom, and other gremlins. Instead, load the Axia IP-Audio Driver for Windows® on your workstations and connect *directly* to the Axia audio network using their Ethernet ports. Not only will your PC productions sound fantastic, you'll eliminate sound cards and the hardware they usually feed (like router or console input modules). Just think of all the cash you'll save.

Livewire

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There's a better way to get audio out of your PC. No more consumer grade ⅛" connectors – with Axia your digital audio stays clean and pristine.

Put an Axia Microphone Node next to your mics and send preamplified audio anywhere you need it, over Ethernet — with no line loss or signal degradation.

Put your preamps where your mics are.

Most mainframe routers have no mic inputs, so you need to buy preamps. With Axia you get ultra-low-noise preamps with Phantom power. Put a node in each studio, right next to the mics, to keep mic cables nice and tight, then send multiple mic channels to the network on a single Cat-6 cable. And did we mention that each Mic Node has eight stereo line outputs for headphones? Nice bonus.

Put your snake on a diet.

Nobody loves cable snakes. Besides soldering a jillion connectors, just try finding the pair you want when there's a change to make. Axia Audio Nodes come in AES/EBU and balanced stereo analog flavors. Put a batch of Nodes on each end of a Cat-6 run, and BAM! a bi-directional multi-channel snake. Use media converters and a fiber link for extra-long runs between studios — or between buildings.

An Axia digital audio snake can carry hundreds of channels of digital audio on one skinny CAT-6 cable. We know you're not going to miss soldering all that multi-pair...

ENCO SYSTEMS, INC

Scott Studios

radio

BALSYS Technology Group

Axia is already working with some great companies. Like Enco Systems, Scott Studios, Radio Systems, Balsys Technology Group, and of course Telos and Omnia. Check AxiaAudio.com/partners/ to find out who's next.

With a little help from our friends.

A networked audio system doesn't just replace a traditional router — it *improves* upon it. Already, companies in our industry are realizing the advantages of tightly integrated systems, and are making new products that reap those benefits. Working with our partners, Axia Audio is bringing new thinking and ideas to audio distribution, machine control, Program Associated Data (PAD), and even wiring convenience.

Would you like some control with that?

There are plenty of ways to control your Axia network. For instance, you'll find built-in webservers on all Axia equipment for easy configuration via browser. PathfinderPC® software for Windows gives you central control of every audio path in your plant. Router Selector nodes allow quick local source selection, and intelligent studio control surfaces let talent easily access and mix any source in your networked facility.

Control freaks of the world, rejoice: intelligent Axia mixing surfaces give talent complete control of their working environment. Reconfigure studios instantly and assign often-used sources just where they're most useful.

"This sounds expensive." Just the opposite, really. Axia saves money by eliminating distribution amps, line selectors, sound cards, patch bays, multi-pair cables, and tons of discrete wiring — not to mention the installation and maintenance time you'll recover. And those are just side benefits: our hardware is about half the cost of those big mainframe routers. That's right... *half*. Once you experience the benefits of networked audio, you will never want to go back. AxiaAudio.com for details.

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HD Radio News

5.1 Audio Hits Broadcasters

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Radio World | Covering Radio's Digital Transition | July 14, 2004

GUEST COMMENTARY

For IBOC, a Better Way to Combine

Developer of Split-Level Combining Touts Its Energy and Space Efficiencies

by Steve Fluker

HD Radio is catching on and starting to spread across the country; however, several issues have caused many stations to delay implementation. These include a lack of physical space in the transmitter room, replacement of an existing transmitter, increased HVAC demands and a higher power bill.

These issues are all caused by an inefficient and cumbersome combining system, which has produced a challenge to "find a better way."

The new split-level combining answers the call.

Each of the three current methods of combining comes with its own set of challenges. Low-level combining works well, but only at lower power levels due to the cost of the linear solid-state transmitters.

High-level combining can be used at any power level by combining the outputs of two transmitters, one analog and one digital, through a 10 dB hybrid. Unfortunately, with this method 10 percent of output of the analog transmitter is lost into a reject load, and 90 percent of the digital transmitter's output power is lost.

Traditional combining challenges

It is common for this reject power level to be 3,000 watts to 9,000 watts, turning this load into an expensive space heater. This can put a strain on any HVAC system, and adds up to a higher power bill.

To add to the hardship of this method, radio stations will be forced to turn up the power on their existing analog transmitter to compensate for losses in the combining system. If the radio station already is pushing its transmitter to the limit, it will be forced to purchase a new, higher-power model.

The third and more recent method of combining is through the use of dual antennas, using a second antenna for the digital signal. This method is efficient and attractive for stations that already have an auxiliary antenna licensed and mounted on the same tower as their main. For other stations, it requires installation of a new antenna and transmission line, which could be costly and may incur additional monthly tower rental fees.

Another issue with the dual antenna method is that the propagation of the two signals will not match. In fact, this method is not permissible for directional FM radio stations. This is of particular interest to public radio stations, as many of them require directional antennas.

Another headache for broadcasters is lack of physical space. Transmitter buildings are not known as spacious.

Both the high-level and dual antenna combining methods require installation of a new transmitter while the old main and aux transmitters must remain in the space. Without the proper space, stations using these methods could be faced with having to expand their buildings, putting an even bigger strain on the implementation budget.

Harris RF Design Engineer George Cabrera and I have found that better way. The patents-pending technology, called split-level combining, addresses these problems.

High-level combining is inefficient because the output signals of the two transmitters are so different. Split-level combining takes advantage of the ability to add an analog signal component to the digital transmitter. Now, with both transmitters carrying

See SPLIT, page 15 ▶

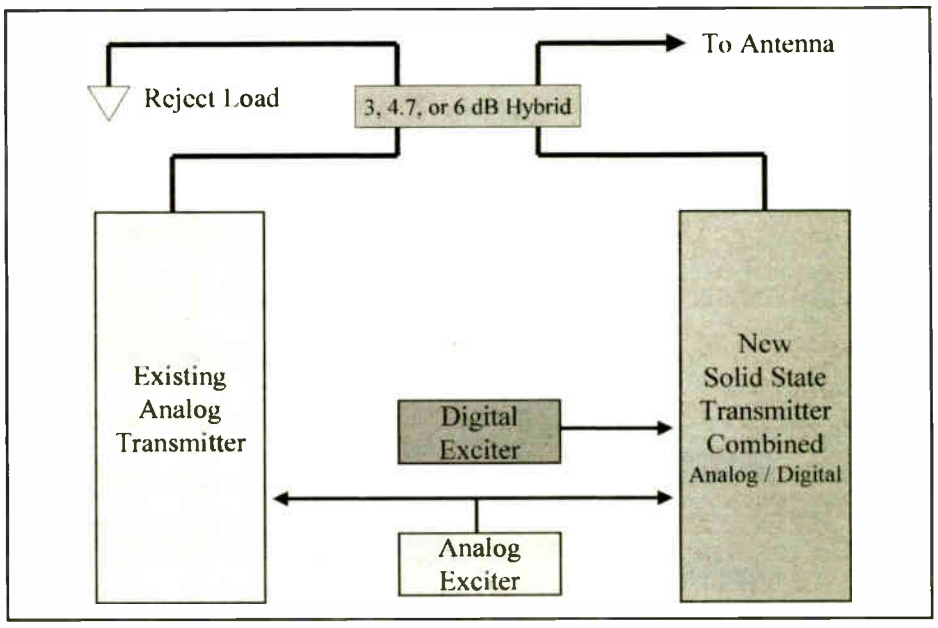

Fig. 1: Generic layout for split-level combining. There are several values for the hybrid, part of the flexibility of the system.

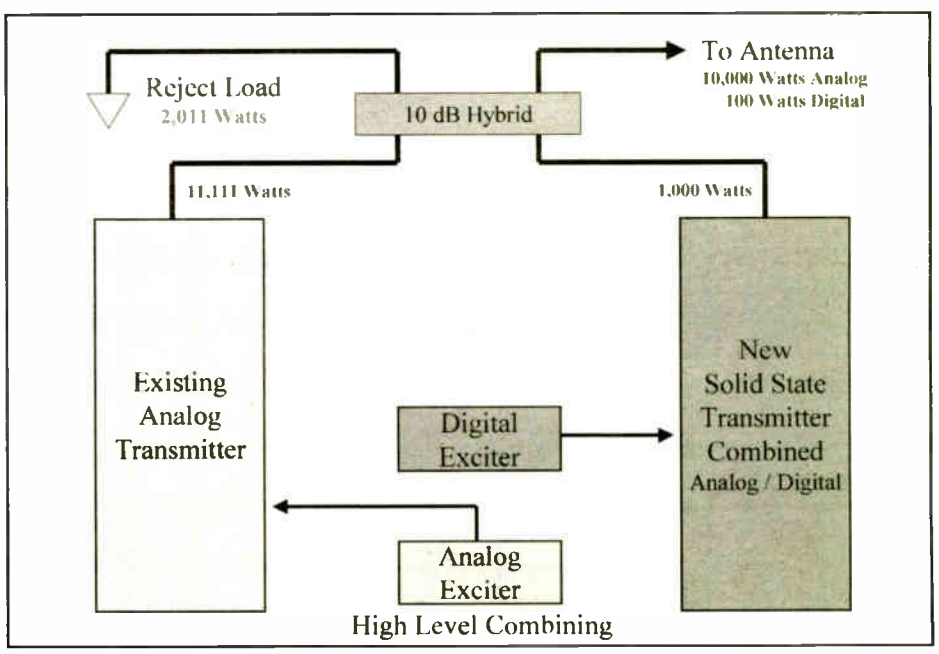

Fig. 2: Example of an IBOC system using high-level combining with 10 kW TPO. Compare to Fig. 3 on page 15.

Split

▶ Continued from page 14

a portion of the analog signal, the outputs more closely match, reducing the losses sent to the reject load.

We tested split-level combining on WPYO(FM) in Orlando in April. Operating with a TPO of 7.3 kW analog and 73 watts digital, the reject power level dropped from 1,560 watts in the high-level combining mode, down to 73 watts with split-level combining.

Both the analog and digital transmitters produced 3,650 watts of analog signal, eliminating all of the analog signal losses. Because the digital signal was present only in the digital transmitter side, it did still see a 50 percent loss.

The digital signal was set at 146 watts to compensate for the loss. Since the WPYO TPO is low, the station could operate in the low-level combining mode; however efficiency improvements can still be realized through the split-level mode.

Digital transmitters must run in a less-efficient Class AB mode in order to provide the linearity necessary to carry the digital carrier. Because of this, we can carry 50 percent of the analog signal through the Class C amplifier, recovering even some of those losses.

At higher power levels, the savings realized through split-level combining become more substantial. At a TPO of 15,000 watts, for example, the power to the reject load will drop from approximately 3,200 watts down to about 150. With this amount of reduction, the reject load can remain inside of the building without worries of overloading the HVAC system.

Another benefit is reduction of operating costs. With the improved efficiency, which could range from 5 to 25 percent, a radio station can save hundreds of dollars each month in its power bill as compared to a high-level combined system. Your electric bill will still rise once your station goes digital, but not as much as it would have with high-level combining.

In the example with 15,000 watts TPO, the average savings should be around $400 per month. The savings will vary depending on power costs in your area.

Split-level combining can be used for virtually any transmitter power level. The combining system has several variables that will allow improvements in efficiencies even with very high TPOs.

The system has patents pending, and Harris is selling it. The company's application engineers can help determine the setup for station needs.

Lowered costs

One of the big advantages of split-level combining is the ability to reduce the cost to convert a radio station to digital. Because the digital transmitter is now handling some of the analog signal, you no longer need to increase the output power of your existing transmitter.

Many stations that were faced with replacing a perfectly good transmitter can save that expense. In fact, the power output level of your analog transmitter will actually be reduced, thus increasing your tube life and saving more on your operating costs.

If space in the transmitter building was an issue, split-level combining can help there as well. Once again, because the digital transmitter carries an analog component, it can become a lower-power backup transmitter in an emergency and keep you on the air, allowing you to remove your old auxiliary transmitter to make room for the new one. You may even find you have more space available in the transmitter building now.

Customizing

The split-level combining system has flexibility in its configurations. Slight changes in the combining ratio can make a huge difference in the installation costs.

For example, if a station with a high TPO decides to give up a slight amount of the efficiency, that station may find that a smaller digital transmitter can be used, which in some cases could save tens of thousands of dollars in the installation costs.

The author is director of engineering for Cox Radio, Orlando, and co-inventor of the split-combining system, offered through Harris Broadcast. Patents are pending. Reach him via e-mail to steve.fluker@cox.com.

RW welcomes other points of view.

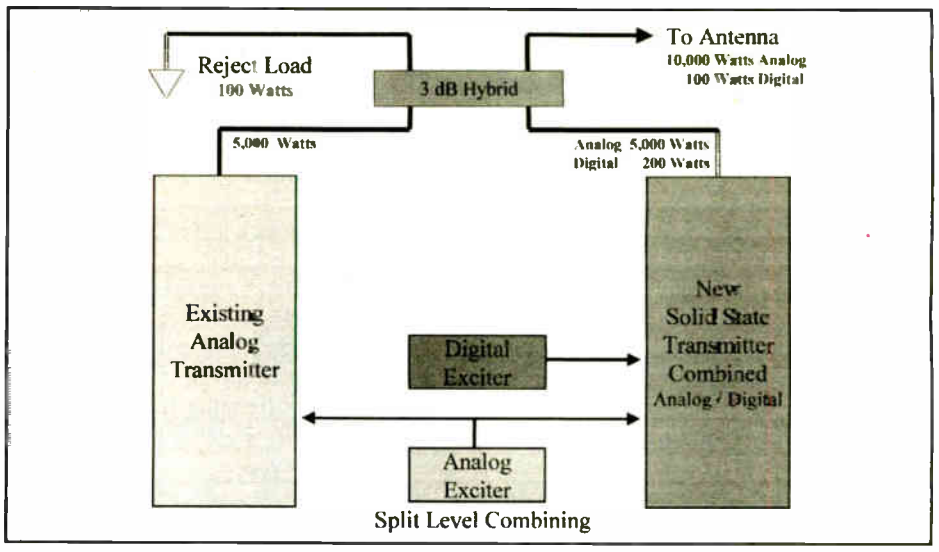

Fig. 3: The scenario shown in Fig. 2, but using split-level combining. Notice the reduction of power to the reject load.

5.1 Audio Hits Europe, Japan

by Michael Lawton

BERLIN Broadcasting multichannel audio is easier than early users expected, according to presenters at a special symposium that preceded the spring AES convention in Berlin.

The symposium, which featured presentations by broadcasters and engineers on the practical concerns surrounding multichannel broadcasting, looked at the effects it will have on radio in terms of production, archiving and broadcast distribution.

With U.S. broadcasters beginning to think about their options using in-band digital, including multichannel, the international discussions provide insight into the kinds of issues involved.

Optimizing workflow and costs were key discussions.

Japan's NHK has found ways to save money — through simultaneous mixing of stereo and 5.1, reducing post production time, using low-price digital equipment and co-producing with video or record companies.

Kimio Hamasaki, senior research engineer at the 3-D audio-visual systems division of NHK Science & Technical Research Laboratories, reported on "5.1 Day" in Japan, when public and private stations broadcast special programs, concerts, dramas, documentaries and sports events.

Japan has had broadcast surround sound programming on radio since 2000; surround programming is now delivered via satellite, terrestrial digital television and terrestrial DAB. One private Japanese station broadcasts a 5.2.5 matrix coded signal on analog FM, designed to appeal to people in cars.

For Hamasaki, one of the most important justifications for multichannel radio is that radio should be at the highest quality as an audio provider.

Reduce costs

But Hamasaki warned that producing surround sound programming can be expensive.

Even though NHK, with the help of the Japanese government, is extraordinarily generous to multichannel pioneers, they have to find ways of saving money — for example through simultaneous mixing of stereo and 5.1, reducing post-production time, using low-price digital equipment and co-producing with video or record companies.

Hamasaki said NHK was trying to reduce the cost of post-production by developing tools such as intelligent surround panning and effects systems, and by simultaneously using multiple engineers at multiple digital audio workstations at the final mixing stage.

The symposium heard from Udo Appel, a Bavarian pubcaster and IBM Senior Project Manager for Media Solutions Yvonne Graf, who agreed that archiving multichannel productions should not be such a problem.

They argued that such productions were data-files like everything else, only bigger. But bigger files require expanded metadata. Larger file sizes introduce new issues similar to those faced in archiving television — for example, the need to download only part of a production to save transfer capacity.

To address this, Graf called for the development of a multichannel version of the Broadcast WAV file format standard.

Large questions arose around the issue of broadcasting multichannel programming. But the biggest concern came from Ernst Dohlus, head of production and radio operations at a Bavarian pubcaster.

Dohlus said radio should have priorities other than what's included in the technical aspects of multichannel programming.

As Arbitron and other radio audience experts in the United States have pointed out, Dohlus said the medium is losing young listeners at a rapid rate and has no strategy to win them back.

"That is our question, not multichannel audio," he said. "Stravinsky in 5.1 will not win back our young listeners."

Dohlus argued that pubcasters should air some 5.1 programs to keep engineers up to date on the technology, but they should not see multichannel as a serious program option.

Despite Dohlus' concerns about the format, his station recently equipped three new vans with 5.1 equipment.

Bosse Ternström, a producer with Swedish public radio, agreed that simply airing Stravinsky in 5.1 would not win back young listeners, but disagreed that multichannel should not be a serious program option.

Ternström also argued that multichannel audio broadcasting has a big advantage in the marketplace. "We already have most of the infrastructure and many listeners already have the equipment," he said.

Currently, most European multichannel broadcasts are carried by DVB(S), which causes some problems because set-top boxes often do not recognize audio programs.

Ternström solved this problem by disguising the signal as television, but allocating 256 kbps of the datastream to video and 1.5 Mbps to audio.

SR multichannel activities are also on the Internet, with programs available for download and burning to DVD. In the first quarter of 2004, the SR Web site booked 850,000 downloads, 80 percent of SR Internet traffic, Ternström said.

During the symposium, Florian Camerer, senior audio engineer at an Austrian public broadcaster, asked for technical help with downmixing to stereo from 5.1.

When ORF aired its traditional New Year's Day concert by the Wiener Philharmoniker, 90 percent of listeners heard an automatic stereo downmix.

Camerer called on the industry to develop a downmix steering box with parameters that change depending upon the level of signal in the five channels. Even a time-code interface would be useful, he said.

"Such a tool would restore boldness to the mix," he said.

Currently, said Camerer, ORF has to compromise on the 5.1 mix so that the stereo mix is acceptable.

Directional positioning

Günther Theile, subject leader for the IRT Audio Systems Engineering division, discussed mixing for multiple audio formats. IRT is the technical research and development department for the public broadcasters of Germany, Austria and Switzerland.

Most European multichannel broadcasts are carried by DVB(S), which causes some problems because set-top boxes often do not recognize audio programs.

While stereo could easily handle positioning across the three front channels achieved by panning, he said, it's harder to handle directional positioning achieved with interchannel delay.

And what should be done with the surround channels? Theile also raised the question of whether broadcasters should transmit left-right matrix coding.

The issue of monitoring was controversial, too.

For the foreseeable future, stations would need to transmit 5.1 broadcasts in stereo, while the ideal solution, panelists said, is to have separate mixes separately monitored. But financial constraints make that almost impossible.

The NHK solution, Hamasaki said, is to monitor in 5.1 during rehearsals and mainly in stereo during the transmission. But a Bavarian radio engineer noted from the audience that this would not work in opera, where every scene has a different acoustic picture.

Another participant said that, with experience, monitoring would become easier. He said that sound engineers on the U.S. television series "NYPD Blue" were mixing into stereo, left-right and 5.1. They started out monitoring everything, but after a month, they just listened to 5.1 and let the rest look after itself.

Bandwidth limitations

Audio quality is the key issue for Francis Rumsey of the Institute of Sound Recording at the University of Surrey, who spoke about his research into "how bad you can make quality without people noticing."

Often bandwidth was limited, and there had to be compromises. His tests showed that it made a difference whether rear channels carried content information or only resonance. Whether or not the center channel carried discrete speech content made a difference, too.

Often listeners noticed less degradation if whole channels were dropped than if all channels were given a limited bandwidth. In some cases, selective bandwidth limitation worked best.

For example, when content came from the front and there was no central dialog, left and right front channels could stay at 20 kHz, the central channel could decrease to 13 kHz and the rear channels to 3.5 kHz — listeners would still get 89 percent satisfaction, he said. That saved 40 percent total bandwidth.

An equivalent saving would be possible by reducing all channels to 12 kHz, but with only 60 percent satisfaction.

Rumsey has developed a tool that proposes the best strategy for specific content types and bandwidth limitations.

Heinz-Peter Reykers of a German pubcaster described a solution for multiplexing signals to the transmitter using five mono channels at 384 kbps.

His station uses a standard DVB premultiplexer, which makes changing the configuration, transmission bandwidth and channel allocation easier. He developed two configurations so that newer set-top boxes and the widespread Nokia dBox II set-top box would decode two stereo channels and the AC-3 encoded multichannel signal.

Multichannel workflow

Gerhard Möller, marketing and sales director for software company DAVID GmbH, elaborated on the consequences of multichannel for workflow.

He wanted to see a standard multichannel/stereo file format usable from archive to office listening to post production and transmission.

A 4 GB limit on file size would have to be overcome, however.

"Existing solutions have too many files, which means too many errors," he said. Single files would be cheaper and more reliable.

IRT Senior Engineer Gerhard Stoll delivered an energetic presentation about the work of the EBU project on Broadcast Management: Multi-Channel Audio Transmission (B/MCAT).

The committee is developing studio production, encoding and transmission standards for both radio and television multichannel audio.

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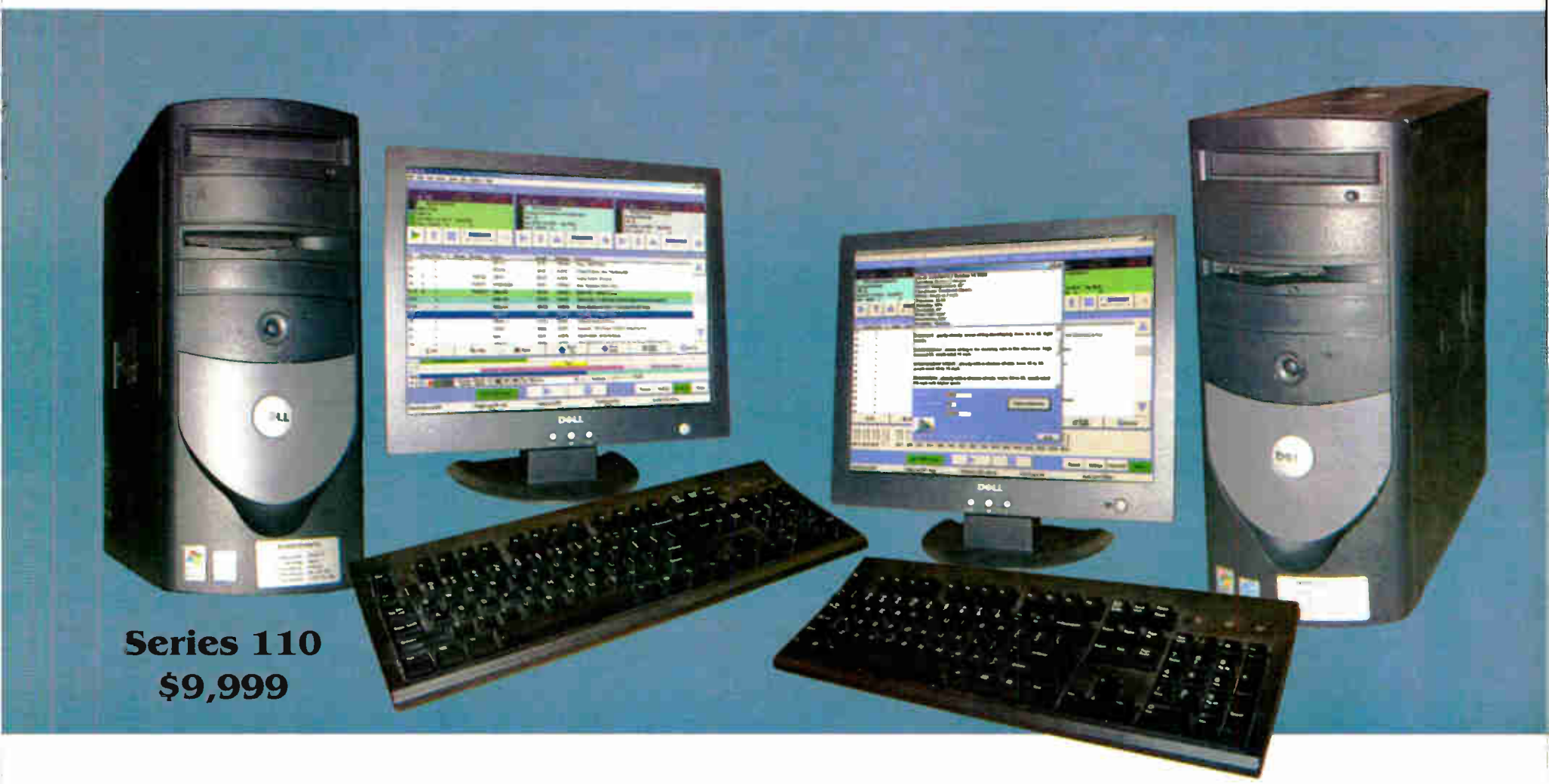

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BSI

HD Radio Data Moves Forward

by Leslie Stimson

Previously we looked at IBOC transmission gear introduced at NAB2004; in this article, we'll see how the companies working with Ibiquity seek to illustrate the data capabilities of terrestrial digital radio.

Although Ibiquity had a demo to display the ability of HD Radio receivers to display road traffic information at the Consumer Electronics Show in January, "it was real-time, but not from the source," said Vice President for Advanced Applications Joe D'Angelo. "It was a file, to show the transmission end would work."

By April, Ibiquity had teamed up with Microspace, NAVTEQ, Mobility Technologies, Broadcast Electronics, Panasonic and Beasley station KSTJ(FM) in Las Vegas for a prototype transmission of real-time traffic data using HD Radio.

D'Angelo explained how the system would work for a typical station in the Los Angeles area using these type of traffic information services; traffic sensors for Mobility Technologies embedded in highways would gather road data, which would be handed off to NAVTEQ, a map database company.

"They scrub the data and code it for their system," said D'Angelo. NAVTEQ would send the data to a Microspace Satellite Broadcast system that distributes the information to a receiver at the station. From there, the traffic signal would be combined with the audio and broadcast. This real-time closed-loop system would take about 45 seconds from end to end, said D'Angelo.

This real-time closed-loop system would take about 45 seconds from end to end.

— Ibiquity's Joe D'Angelo

As satellite radio has announced it will be introducing this capability, "It's important for broadcasters to know they have the partnership, the commercial players to deliver that same service," he said.

Moving data around

Microspace "takes other people's content, aggregates that into our system, and broadcasts that on a satellite to remote locations," said Joseph Amor III, vice president and general manager of the company, a privately-held subsidiary of Capitol Broadcasting headquartered in Raleigh, N.C. Microspace performs this function for businesses that are transmitting data for applications such as background music, paging services and weather information.

"People use us as the backbone to the transmitter and then from the transmitter," to wirelessly send that data into a pager, for example, he said. The satellite distribution system Microspace is using with Ibiquity, called Velocity, can distribute applications ranging from business television to streaming audio/video broadcasting to high-bandwidth data transmission.

Ibiquity plans to test the prototype transmission system on a trial basis in four of its target markets: Chicago, Detroit, Los Angeles and New York.

The other part of data story unveiled in Vegas was in the studio end — BE's data platform, which D'Angelo called "the biggest breakthrough for us at this show."

Microspace 'takes other people's content, aggregates that into our system, and broadcasts that on a satellite to remote locations.'

— Joseph Amor III

"We've done a lot of prototypes, but now we've worked with BE's AudioVault division, the studio automation side, to integrate a core set of enabling software modules that Ibiquity provided, into this data management system. This is how we will commercialize the data platforms."

He said this "core software would be offered to any (licensed Ibiquity) partner that wants to develop a similar data management tool." Unlike the transmission end, he said there's no "clear" segment of the industry that should "own" the data space.

Once the data is received at the station via satellite, the Microspace receiver is literally plugged, via a third-party socket, into the back of a data management system that BE is calling Big Pipe. The software takes the data through the studio automation system, then through the transmission system with the HD Radio signal. Big Pipe is a broadband, high-frequency link for transporting audio and data.

BE's Tim Bealor, vice president of RF systems, said the point-to-point wireless link is scalable. "The front end, the multiplexing system is a bi-directional radio, that operates at 5.8 MHz and will transport 45 Megabits of data. It will handle several AES signals, all the HD Radio information, video, Ethernet, serial data, the last-mile telephone data."

He said it is good for installations with multiple stations in a single studio that are transporting data to a multi-station site. It has a 40-mile range.

BE also introduced a data management system, Radio Data Dimensions, a software suite for RDS and HD Radio data applications. Its data packages for AudioVault studio automation system "allow us to generate and manage internal data, the program-associated data, and near-PAD data. We can generate secondary audio and PAD data," said Bealor.

RDS, too

He likened the data management system to a "wrap-around kind of software and hardware" that handles the data, and the multiplexing of the data, but also third-party data or advanced data applications. Traffic information and navigation information — many of those third-party systems called 'tunnel data' because it comes into the system — get multiplexed and traffic-managed through the system.

Once a station knows how it will use data such as PAD and other data, it again uses Big Pipe to decode it and send it to the transmission system as part of a single stream. "It's decoded in the exciter with the analog information (for RDS), HD Radio information, all of the data, the secondary audio channel, all of the PAD," said Bealor.

The software can also help stations decide what text messages to send and for what length of time they should remain visible on the receiver faceplate, for both RDS and HD Radio, said Ray Miklius, vice president, studio products for BE.

Multichannel Audio Focus at Europe AES

by Marguerite Clark

BERLIN Radio in the new Europe needs to embrace new technologies, such as multichannel audio. So says David Wood, head of New Technology in the European Broadcasting Union's technical department.

In the keynote speech at the 116th meeting of the Audio Engineering Society this spring, Wood took a look at radio's future here.

"This is a momentous time for us in Europe," said Wood. "There is much that we can achieve in this new environment. It will be fun, yet it won't be easy, but in the end it will be worth it."

He emphasized the importance radio plays for the EBU, stating that the organization is dedicated to radio's immediate survival and long term future.

"Radio is the most trusted medium," he said. "We believe in radio and in the European model of radio."

The 116th AES convention had a 10 percent visitor increase from the 2003 show in Amsterdam and welcomed many first-time attendees from new E.U. member states including the Czech Republic, Estonia, Hungary, Poland and the Slovak Republic.

According to organizers, approximately 259 exhibitors from 21 countries and 6,100 visitors from 80 countries attended this year's European AES event in Berlin.

"With this convention, the mood of the pro audio business has changed once again. The exhibitors have shown a lot of new products, many more than in former years," said Roger Furness, executive director of the AES.

Photo courtesy AES

Attendees visit the Neumann booth.

"The number of innovations from the manufacturers, and the customers' willingness to invest in new equipment have both significantly increased," said Furness. "These all are positive signs, and AES is very proud that our Berlin convention marks the turning point in the pro audio climate."

Radio took center stage during a preconvention symposium, which attracted more than 170 people and focused on the effects of multichannel sound in radio. (See related article, page 16.)

The next European AES convention will take place in Barcelona, Spain, in May 2005, the first time the convention will have been held in Iberia.

Be Nice to the Soda Machine Man

by John Bisset

Professional Engineer Charles S. Fitch, a fellow contributor to Radio World, writes, "Always love your column, as it is one of the most continually helpful contributions to broadcast engineering that we have. Also appreciate your high stress on safety."

Thanks, Buc, glad we are of help.

He continues: "With consolidation and the incumbent consolidation of studio and transmitters, there are a lot of racks and rigs to move around."

We've all been there, that's for sure. Usually moving a transmitter involves a big rigging or hauling company. But Buc offers another choice.

If you want to move big rectangular devices with care, consider people who do it all the time: the folks who transport vending machines.

The vending company that has done business with your station for years probably can arrange to send over a couple of stalwarts with the specialized dollies, appliance movers, truck with lift gate and roller skates to get your gear carefully from where it is to where it needs to be. These folks definitely know how to do it and they are flexible.

Buc raises the important issue of liability insurance. Make sure they, and you, are covered.

In a case study, Buc saw one single vending guy move a 2 kW FM transmitter and terminal rack, complete with gear, out of a transmitter building, drive it 10 miles and reposition the two exactly in their new location on a second floor in about an hour. I guess one knows how to do it after moving 1,000 juice machines.

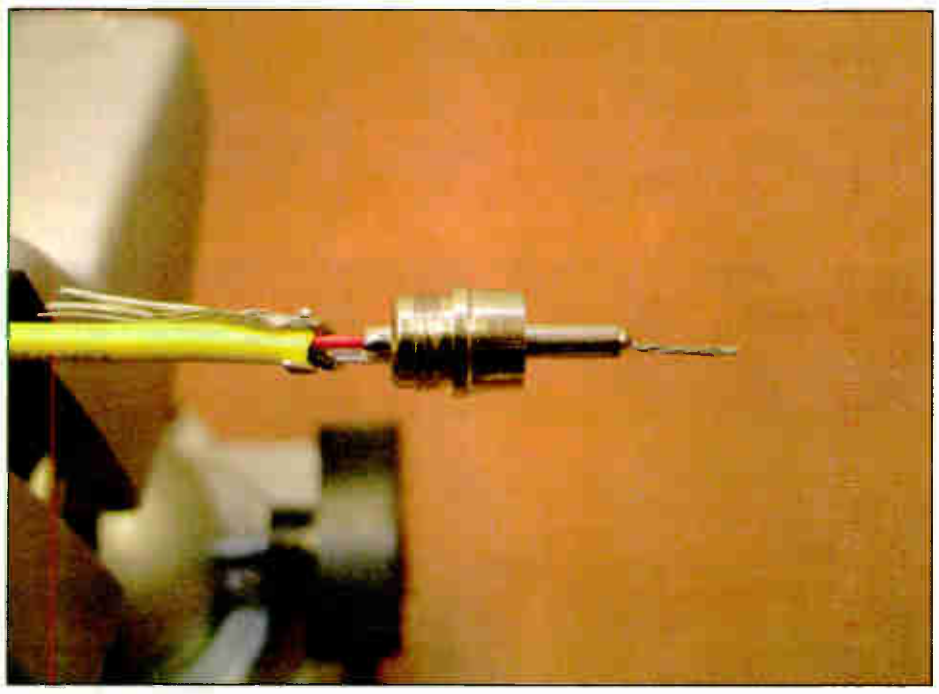


Fig. 1: With patience, you too can enjoy neatly soldered RCA plugs.

Fig. 2: Cloth-coated vertical blinds like those in the rear of this photo help reduce window sound reflections.

Fitch can be reached at *fitchpe@comcast.net*.

★ ★ ★

Jess Meyer, chief at the Clear Channel Minneapolis cluster, writes, "I don't know what all the groaning is about. I was taught how to put on RCA connectors a long time ago and I haven't had a problem since."

I guess that's the problem, Jess; too many people weren't taught how to attach RCA connectors properly.

To help those struggling with these plugs, Jess offers first-rate suggestions. He begins by insisting on using a quality RCA connector such as the Switchcraft 3502. This may be part of the problem: cheap connectors.

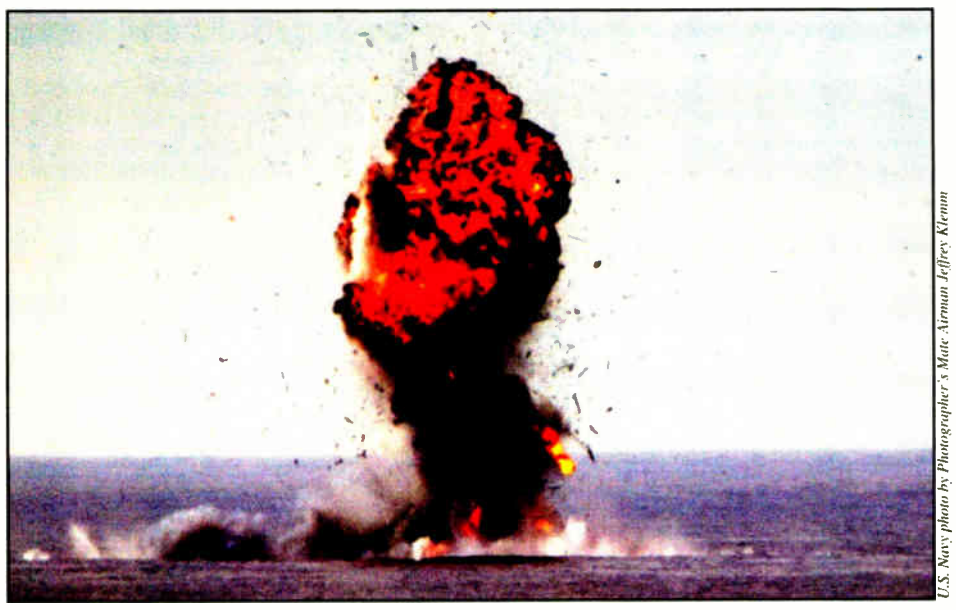
Jess generally only uses Belden 8451, Gepco 61801 or the equivalent with these connectors. Perhaps this is how he lucks out? Quality wire is just as important.

See WORKBENCH, page 20 ▶

Military Uses SW to Battle Terror

by James Careless

In a bid to preempt terrorist attacks, the "Coalition Maritime Forces" patrolling the Persian Gulf have taken to the airwaves. Using shipborne 250-watt transmitters in the Gulf of Oman and the northern Arabian Sea, the CMF is now broadcasting 10 hours of daily programming via shortwave to passing tankers and freighters. The first five hours run from 0300-0800 GMT on 6125 kHz, and the second between 1400-1900 GMT on 15500 kHz. Both are in popular parts of the shortwave radio spectrum.



U.S. Navy photo by Photographer's Mate Airman Jeffrey Klemm

U.S. Navy and Marine Corps personnel destroy a captured dhow that had been carrying 2,800 pounds of hashish. Several such small craft have been seized as part of maritime interception operations and the war on terrorism.

The broadcasts feature "regional and international music as well as information in Arabic, Farsi, Hindi, Pashtu, Urdu, and English," said a news release issued this spring by the U.S. Naval Support Activity Maritime Liaison Office, or MARLO, in Bahrain. MARLO coordinates communications between the U.S. Navy and commercial shipping in the Gulf.

"The information portions will provide listeners methods to continue assisting Coalition Maritime Forces in identifying and reporting terrorist activity conducted at sea."

Real risk

To promote these broadcasts, the CMF, the multinational naval force maintaining security in the Persian Gulf, is distributing leaflets in the region. They feature pictures of CMF ships, frequencies and airtimes, plus a plea for anyone with "knowledge of current or future terrorist activities to report it immediately to a boarding team member, the nearest Coalition Embassy or the U.S. Rewards for Justice Program."

That program, run by the U.S. government, promises awards and anonymity to anti-terrorist tipsters. For example, an unnamed Iraqi received $1 million for information that led to the arrest of Khamis Sirhan al-Muhammad, a Ba'ath Party regional chairman and Iraqi insurgent leader. Its Web site is *www.rewardsforjustice.net*.

The threat of seaborne terrorism is very real in the Gulf.

In fact, according to the Maritime Liaison Office, just nine days after the broadcasts began on April 15, three U.S. servicepeople were killed while foiling two attacks on Gulf oil terminals. At about 6 p.m. local time on April 24, a dhow, a traditional Middle Eastern sailing ship, was heading towards the Khawr Al Amaya Oil Terminal when it exploded while being approached by a seven-person coalition

See GULF, page 21 ▶

Workbench

▶ Continued from page 19

Now to the process.

Strip the outer jacket about an inch and a half, removing the foil shield. Strip the black wire of its insulation right down to the jacket that you just stripped off. Twist the drain wire and the now-stripped black wire together. Now strip approximately a half-inch of the red wire's insulation and tin it.

Making sure the backshell is on, shove the red wire up through the center pin and solder it, making sure the cable's outer jacket is in the clamp portion of the plug. Trim off excess solder and wire that may be sticking out the barrel end. See Fig. 1 on page 19.

Going back to the shield and black wire, wrap them around and through the cable clamp, soldering to the middle portion between the bulk of the connector and the clamp, then trim the excess.

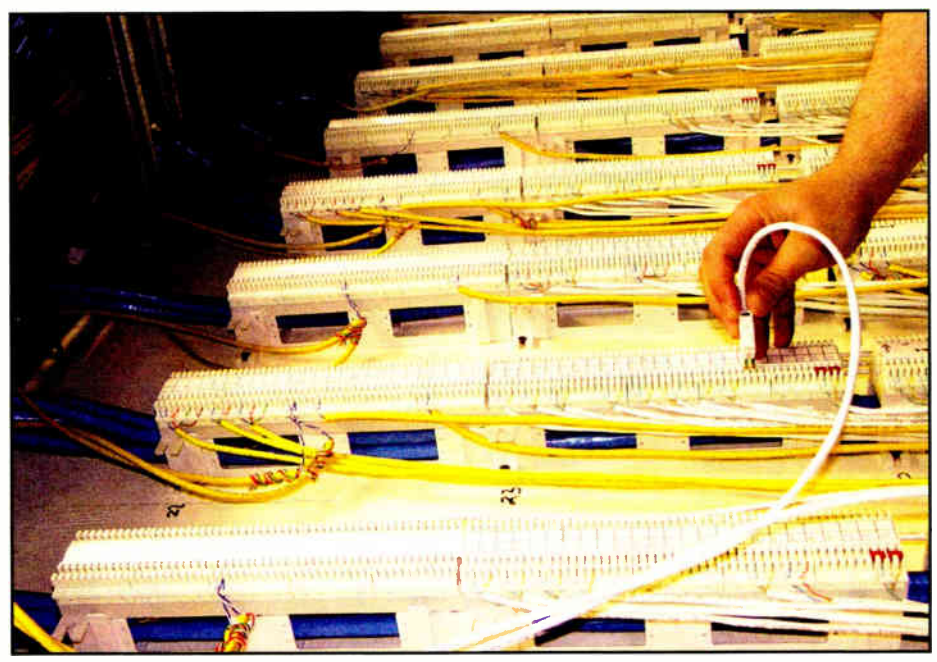


Fig. 3: Jumper cables help you bridge and test lines in a high-density punch block.

Bend the clamp if needed to get the backshell to fit, but it shouldn't take much adjustment.

Tinning the wires is important. If you heat the connector and the wires to the point solder will flow, you'll have melted wires. By pre-tinning the wires, the solder flows easier, securing the wires without so much heat as to melt the insulation.

Reach Jess at *jessmeyer@clearchannel.com*.

★ ★ ★

Even though Fire Prevention Week is several months away, now is a good time to check smoke alarms at the transmitter and studios, given prevalent summer storms. Even though these devices are the most effective early fire warnings available, they're useless if not operating.

The National Fire Prevention Association offers tips on maintaining smoke alarms. Test the detector monthly; change the batteries every year or when the device "chirps." Many people change them twice a year, using the change of clocks as a reminder.

If you're installing new alarms, remember that smoke rises; mount the alarms on ceilings or high on walls.

Here's news: Smoke alarms won't last forever, so replace any that are older than 10 years.

NFPA offers a range of fire safety information on the official Fire Prevention Week Web site, *www.firepreventionweek.org*.

For 80 years the NFPA has been providing and advocating scientifically-based standards, research, training and education. Its Web site is *www.nfpa.org*.

★ ★ ★

Are studio window reflections giving you grief? Stop by a Next Day Blinds store or other outlet and consider woven or wool-covered vertical blinds for your next studio project, as seen in the background of Fig. 2 at Clear Channel Salisbury's cluster in Maryland.

Market Chief Chris Kelley says the blinds not only prevent glare and offer some privacy, they also provide sound absorption. Best of all, these vertical blinds are inexpensive and easy to install.

★ ★ ★

If you're using high-density "digital" terminal blocks as shown in Fig. 3, make sure you invest in several plugs that allow you to bridge onto the terminals.

Constructing several pigtail jumpers can help you test or jumper around terminals in a high-density block.

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is the northeast regional sales manager for Dielectric Communications. Reach him at (571) 217-9386, or john.bisset@dielectric.spx.com.

Submissions for this column are encouraged, and qualify for SBE recertification credit.

Gulf

▶ Continued from page 20

boarding craft. Three seamen were killed, four others injured.

Twenty minutes later, two speedboats were seen heading towards the Al Basrah Oil Terminal. Both exploded when fired upon by the terminal's security forces. In this instance, no coalition servicepeople were hurt, MARLO officials said.

Should terrorists attacks succeed in the Gulf, either by damaging oil terminals, blocking the region's narrow shipping lanes, or both, some experts say the result would be oil shortages and rising oil prices, effects that could damage international economies.

Given this danger, seeking help from passing ships makes sense. After all, these ships dock at local oil terminals and the ports between. Chances are that some of the sailors might have overheard something on shore that could matter to coalition forces.

Is anyone listening?

Unfortunately, the current 250-watt broadcasts are not really strong enough to cover the Gulf effectively, said Mika Makelainen, editor of the radio listeners' site *www.dxing.info*.

"There's very real doubt as to whether anyone is really listening to the CMF signal, since it is so weak," he said.

This was acknowledged by U.S. Fifth Fleet spokesman Lt. Garrett Kasper. "There is really no way to monitor how many people are actually listening," he said. "We do our best to send out a signal to the regional maritime traffic and hope that it pays off."

According to *www.dxing.info*, the CMF hopes to resolve its transmission problems by moving its programming onto more powerful transmitters leased from VT Merlin Communications in the United Arab Emirates. However, even after it does, there's no guarantee that people will tune in.

Thanks to local availability of AM and FM stations, "Shortwave listening isn't as popular in the Middle East as it is in other areas of the world," said Larry Magne, editor-in-chief of the annual publication "Passport to World Band Radio."

Meanwhile, "the broad range of languages and music offered by the CMF doesn't exactly make for an appealing format," Makelainen said.

Kasper agreed, but said that a multilingual, multicultural service was the best option open to the CMF.

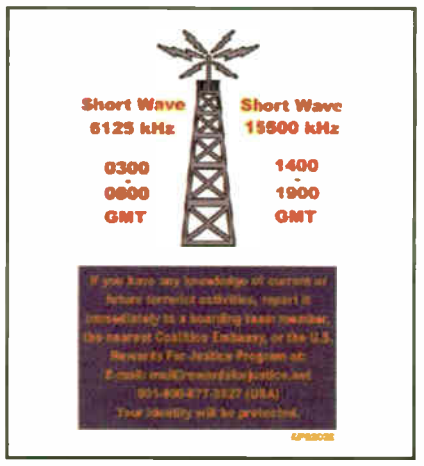
"By giving each language a certain amount of time each day, we're at least appealing to those audiences for a little instead of neglecting all of them but one for a longer period of time," he said. By doing so, the CMF hopes to maximize its chances of generating terrorist tipoffs.

Calling All Mariners

This statement was distributed in April.

The following information was provided to the Maritime Liaison Office in Bahrain by the Coalition leadership, for dissemination to the international and regional shipping industry.

In response to all Mariners that have helped Coalition Maritime Forces in the Global War on Terror and to continue building relations with a larger audience, Coalition maritime broadcasts began short-wave HF radio broadcasts on 15 April disseminating popular regional and international music as well as information in Arabic, Farsi, Hindi, Pashtu, Urdu, and English. The information portions will provide listeners methods to continue assisting Coalition Maritime Forces in identifying and reporting terrorist activity conducted at sea. Mariners can listen to the morning broadcast between the hours of 0300-0800 GMT on 6125 kHz and the evening broadcast between 1400-1900 GMT on 15500 kHz.



In recent months, several countries have experienced an increased level of terrorist attacks directly affecting the citizens' economy and way of life. The Coalition requests your continued support in identifying and reporting any activity suspected of supporting terrorist groups in the region. With your help, the Coalition can provide increased safety and well-being for your families. Individuals or companies caught transporting terrorists or terrorist-related cargo are advised they may be subject to imprisonment, confiscation of property or both.

The attached document shows a sample of the handbill your vessels may receive. They are distributed in hopes that shipping agencies, shipmasters or crewmembers will provide Coalition forces assistance stopping illegal or terrorist activity on your waterways. Report terrorist activity to any Coalition Boarding Team member, Coalition Embassy or to the Coalition Rewards For Justice Program *www.rewardsforjustice.net* or 001-800-877-3927.

A Recap of 40 Years of Service

In Recent Years, the Society Expanded Its Staff, Certification, Publications

by John L. Poray

In the July 1 issue of Radio World, the author, executive director of the Society of Broadcast Engineers, related the early history of the SBE, which celebrates its 40th anniversary this year. Here, he completes the timeline.

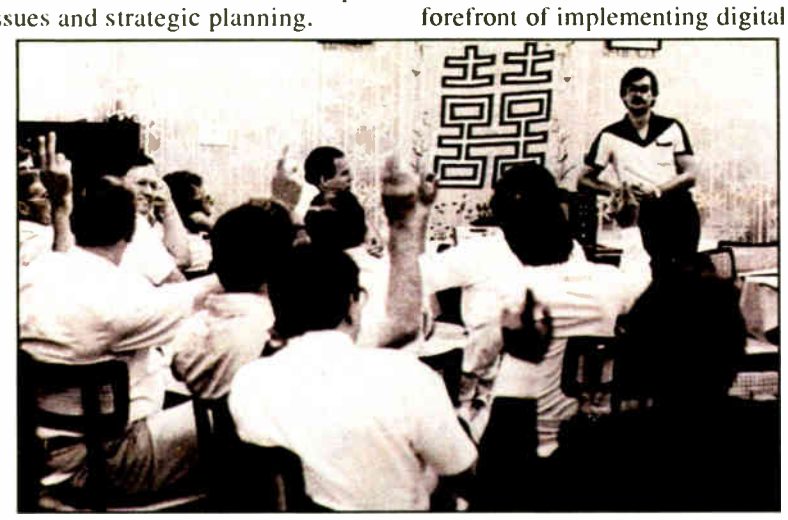
During the 1980s, SBE continued to work on legislative and technical regulatory issues of interest to members. Meetings were often held in Washington or at industry conventions among Society leaders, FCC officials and members of Congress.

This work continues in earnest. SBE's FCC Liaison Committee, led by its long-time chairman Dane Ericksen, files written comments on technical broadcast issues with the FCC, with the guidance of SBE's general counsel of more than 20 years, Chris Imlay. SBE has been the only organization consistently out front, trying to protect broadcasters' use of the Broadcast Auxiliary Bands, addressing other broadcast technical issues and supporting broadcast engineers' right to use the term engineer in position titles.

SBE's national office

As the '80s were coming to a close, the Society's national board struggled with handling the growth of the organization, trying to keep up with the expectations of membership while living within its budget.

By this time, SBE had a small clerical staff in Indianapolis, but day-to-day management still was largely being handled by officers and other members of the board, who had full-time jobs of their own. SBE hired its first professional association manager on a part-time basis in 1989 to help alleviate this problem and allow the board more time to concentrate on policy issues and strategic planning.



San Antonio Chapter 69's first meeting in 1980

A number of individuals have served the SBE in a staff capacity over the years. The national office staff implements the programs and services established by the board of directors and operates the national office on a daily basis. The small but capable staff supports the board and 18 national committees while providing service to all members and chapters.

Staying on the cutting edge

In the 1990s, as the regulatory and economic realities took their toll on broadcasting, the need for engineers to be prepared with knowledge of the latest technological developments became even more important.

In 1995, Jim Wulliman, one of the founders of the SBE certification program and its heart, soul and leader for 20 years, decided to retire fully, creating a challenge for SBE's 19th president, Terry Baun, to appoint someone to take on this demanding volunteer position.

Baun tapped David Carr, who had served a number of years on the certification committee and had been at the forefront of implementing digital television facilities at his station in Houston. Under Carr's leadership, SBE developed new certification levels for video and audio engineers. Several years later, as immediate past president, Baun chaired the certification committee, and the Society addressed the reality of the convergence of traditional broadcast engineering duties with those of information technology by developing a certification level for computer networking in the broadcast environment.

Since the early '90s, SBE has published a number of books that have been helpful to engineers at all experience levels. Some include optional exams that lead to SBE certifications. These have included the "Television Operator's Certification Handbook," the "SBE Introduction to DTV-RF," the "Radio Chief Operator's Handbook," the "EAS Primer," the "SBE Guide to Writing Broadcast Station Operations Manuals" and the "Certification Handbook for Radio Operators."

A handful of members have made these publications possible by committing the large amount of personal time necessary to write them. Most of these publications are in use today and their popularity has required multiple printings or new editions.

In the last few years, SBE certification has reached new highs in the number of individuals who hold certification. The certification committee, now under the leadership of Chriss Scherer, has developed new sample test software to help people prepare for SBE certification exams. With the goal of providing certifications that encompass both legacy and today's technology standards, the certification committee is undergoing a strategic planning process to ensure that it provides what today's broadcast engineers need.

SBE's certification program has itself been certified by the National Skills Standards Board. Established by Congress, the NSSB only recognizes those certification programs that meet its rigorous requirements.

SBE's commitment to members

Through the years, SBE has developed other services designed to benefit members.

One of those is Chapter 73, SBE's "Chapter of the Air," started by member Chuck Kelly more than 25 years ago for members who were also amateur radio operators. Chapter 73 was intended for those located in far-flung areas, too far to travel to regular chapter meetings. Today, the Chapter of the Air attracts participants from all over the world, including some that regularly participate in their own local chapters. WA7BGX, Hal Hostetler, as he has for more than 15 years, calls the meetings to order on the second Sunday of each month at zero hundred GMT.

In the late 1980s, SBE began a service of providing a list of available broadcast engineering jobs around the country to members. The list was prepared weekly by national staff and was made available via a recorded message members accessed by calling a dedicated telephone number at the SBE national office. Member Bill Hineman, then of Indianapolis, was the voice of that early SBE Job Line. By 1995, SBE had switched its content delivery method of the Job Line to its new Web site at *www.sbe.org*.

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As the '80s were coming to a close, the Society's national board struggled with handling the growth of the organization.

SBE

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With the help and generosity of members Dave Biondi and the late Mike Pingenot, Jim Bernier, a member of the board at that time, established the SBE site in 1995 after overseeing a national SBE Bulletin Board system the previous two years. The Job Line, now known as JobsOnline, has become the most visited item on the site, which itself is a central point of contact for members and non-members for information about SBE.

The late Ben Wolfe, an original SBE steering committee and Board member, was instrumental in starting SBE's Certification program.

In the mid-1990s, the national board, realizing station engineers were going to need assistance in implementing the newly mandated Emergency Alert System, created an EAS committee, first chaired by board member Leonard Charles. Not long after, Charles, with help from his committee, wrote SBE's "EAS Primer" and hundreds of copies were soon in circulation. That committee continues its work in the challenging post 9-11 world, under the leadership of board member Clay Freinwald. Recent SBE EAS meetings have commanded large crowds during the NAB convention and have been streamed to listeners around the world.

With the regulatory and economic changes in the broadcasting industry in the 1980s and '90s, it was apparent that the number of young people entering the field of broadcast engineering was dwindling. Under the leadership of 20th SBE president Ed Miller, in a long-term effort to attract young people to consider broadcast engineering as a career, SBE adopted a new youth member category and program in 1998. It included the establishment of a new publication, the SBE Connector, geared towards high school youth and their instructors.

SBE also has developed, and continues to provide, other programs and services to its members, such as leader-skills training for engineers with management responsibilities; life, health and business insurance; and the SBE bookstore, résumé service and video library.

SBE's publications have varied in purpose, scope and frequency during its history. The SBE Journal was first published in 1964 and edited by Battison. Several other Journal editors followed, including Jerry Whitaker, who would later serve the Society in several capacities at the national level, including vice president. The Journal, which was intended to be more technical in nature, was followed by the SBE Signal, which concentrated more on Society news, programs and members. The title was changed for a short time to the SBE President's Letter, but in 1992, during the presidency of Rick Farquhar, SBE's 17th president, it once again became the SBE Signal.

It has since grown to become a self-supporting, bimonthly, four-color publication and was recently recognized with an award for its content, visual appearance and financial self-sufficiency.

SBE can credit the efforts of individual SBE members and local chapters for its growth and success. More than 100 chapters collectively provide more than 1,000 opportunities each year for SBE members to keep up with changes in technology and to maintain professional relationships with other broadcast engineers in their markets.

It's all about the members

Hundreds of members volunteer their time to serve as chapter officers, arrange chapter programs and serve as certification chairmen and local frequency coordinators as well as chapter newsletter editors and webmasters. Their service is invaluable. A dozen SBE chapters present regional conventions each year, providing an avenue for thousands of members to see the latest technology. These regional conventions provide an affordable alternative, in time and money, to many members who cannot attend the big national shows.

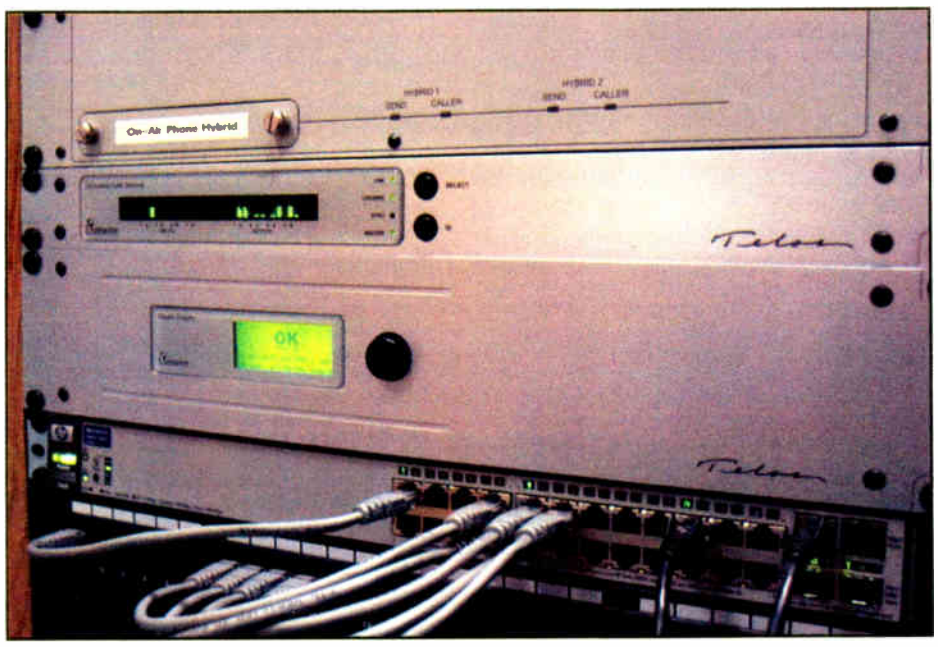
It's impossible to condense 40 years of SBE history into this limited space and include all of the people who have made important contributions to the growth of the Society. There are so many members who have made a positive impact at all levels. If we've missed you, please accept our apologies, but also our thanks. And our thanks to all SBE members; for each of you, through your active membership, is making an important contribution to the broadcast engineering profession and the Society of Broadcast Engineers.

TCP/IP Networks for Audio & Data

by Tom Vernon

The first wave of the digital revolution in radio broadcasting has come and gone. AES/EBU became the standard for digital audio transmission in the broadcast plant. The conversion of program sources from analog carts, tapes and records to digital files on a hard drive is pretty well over at most stations. In a similar fashion, analog metering/control signals and relay logic have been replaced by digital systems.

But the transformation is far from complete. The next wave is underway: bundling program content with related information, total integration with the Internet and using TCP/IP as the interconnect medium throughout the plant. Forces external to broadcasting such as telematics and the evolution of fast Ethernet technology also are at play.



WEGL at Auburn University was the first station to interconnect studio gear via TCP/IP connections using the Livewire protocol.

This is not your father's digital infrastructure.

Although it was only introduced about 15 years ago, AES/EBU is showing its age. It is a single-source, one-way system. Control and data capabilities are limited. The standard XLR connector most often used for AES3 is expensive and takes up a lot of real estate on the rack chassis. TDM audio routers that can handle AES/EBU may be expensive, as are PC sound cards for pro audio.

Until recently, however, AES/EBU was the only game in town. With the introduction of Voice over IP (VoIP) switches, the potential for sending live broadcast-quality audio over Ethernet using TCP/IP or IPX/SPX protocols has been developed.

Keeping the intelligence

The concept of a network has been changing as well. Once defined as multiple connected computers, today it is just as likely to be an array of connected devices, including computers.

Using VoIP technology, devices interconnect via Category 6 cable. Multiple devices connect through a switched Ethernet hub. The same infrastructure that transmits audio, control and program-associated data can handle general IP traffic.

Mike Dosch, president of Axia Audio, says the cost difference between traditional digital audio and Ethernet-based systems is enormous.

Using Ethernet technology, it's possible to replace a $50,000 TDM router with a $750 Hewlett-Packard switch and realize an order of magnitude in savings for hardware.

— Mike Dosch

"Using Ethernet technology, it's possible to replace a $50,000 TDM router with a $750 Hewlett-Packard switch and realize an order of magnitude in savings for hardware." Dosch says a conservative estimate for a traditional computer sound card and an interface into the station's infrastructure is about $1,000, costs that are eliminated with a TCP/IP network.

Along with the financial savings of TCP/IP vs. AES/EBU comes the ability to bundle data with the associated program content.

"Until now, we've used the computer as another audio source that is connected to the system, but all of the intelligence is stripped away." With an Ethernet-based system, data such as artist, song title and other promotional information, generally known as program-associated data or PAD, can be kept with the sound files as they are distributed through the system, and sent to RDS coders or used for retrieval in audio databases.

Ethernet also brings the possibility of simplifying the digital plant. Most stations have one network for business use and Internet access, another for digital audio, and often a third for the phone system. Switched Ethernet allows for the possibility of prioritizing audio packets to ensure minimal delay, and also distributing more traditional network traffic such as e-mail. The same Voice over IP technology that facilitates live audio also can be used for its original purpose, managing the phone system. The net result is a simplified plant requiring far less cable to be installed than in the past.

While TCP/IP integration may reduce operating costs, Jon McClintock, commercial director of APT, cautions that managers should be aware of hidden costs, most notably the need for broadcast engineers to be more fully trained in IT and the networking infrastructure.

Two of the most popular formats to emerge for transmitting live audio via Ethernet are Livewire from Axia and CobraNet from Peak Audio.

Although they have many similarities, a standards war does not seem likely. CobraNet is targeted primarily to the sound reinforcement market, while Livewire is aimed at broadcasters, with features such as low latency and multicast capability. Broadcast managers and engineers will need to track both of these technologies, as radio coverage of sporting events, concerts or political conventions will probably involve interfacing with a house sound contractor who is using CobraNet gear.

Control and more

The audio path isn't the only part of the broadcast plant that is being transformed by TCP/ IP. Remote control systems are changing as well.

Peter Burk, president of Burk Technologies, said, "We're seeing a departure from traditional point-to-point data paths in favor of point-to-multipoint remote control over TCP/IP."

Burk said this technology makes it easier to channel data from multiple sources back to a central control facility, or to disperse that data to any number of distributed control locations. As for the human interface, Burk notes a shift away from the box in the control room rack to network-friendly software, Web browsers, cell phone displays and PDAs. However, he says, there remains a need to continue support for traditional remote control topology in situations where TCP/IP is not an option due to remote location, service availability or cost.

Telematics, or the merging of communications and information technologies is influencing the evolution of broadcast equipment. Allen Hartle, president of The Radio Experience, notes an increased interest on the part of broadcasters in using subcarrier and auxiliary data channels as poten-

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TCP/IP

▶ Continued from page 24

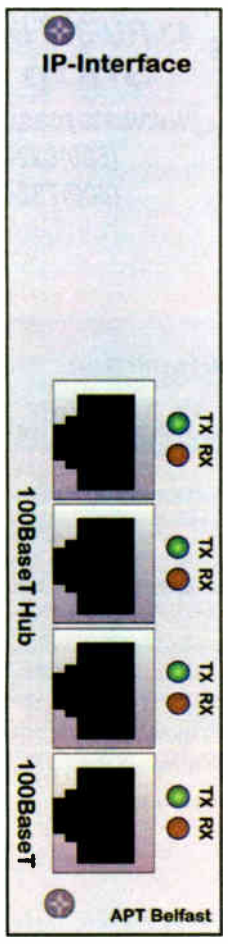
tial revenue streams.

In many of these schemes, "now playing" information such as artist and song title are extracted from an automation system, sent to an RDS coder at the transmitter site and displayed on RDS home receivers. In some instances there is the ability to purchase a CD of the music being played.

"This technology enables a physical response to an emotion," Hartle said. "Right now there are still stations that don't have TCP/IP connectivity to every point in the broadcast chain, but that is quickly changing. TCP/IP is the common protocol that glues together everything that we do."

Equipment suppliers have also had to adapt to TCP/IP, as McClintock of APT points out.

"Supplying TCP/IP solutions requires a more sophisticated sales process, i.e. establishing the requirement and ensuring a TCP/IP solution is the best for the project — latency, reliability, choice of algorithm, choice of processor (DSP or PC)," he said. "Once these facts are established, gaining knowledge of the network and ensuring the customers gets the optimum performance from their investment requires a higher degree of pre- and post-sales support."



Connector Panel on APT's Oslo Codec

Thinking big

Most TCP/IP infrastructures will interconnect one facility, but much larger installations are possible.

CBC/Radio-Canada recently announced plans to deploy the Dalet Plus Radio Suite across the entire network, making it one of the largest TCP/IP networks for audio distribution in the world. Stephane Guez, chief technology officer of Dalet Digital Media Systems, said it marks a radical change in the way that CBC/Radio-Canada handles program distribution.

"CBC/Radio-Canada is currently transferring programming between sites using analog and digital channels such as satellietes, leased telco lines, etc. With the new system, they are planning to use a TCP/IP network to transfer digital audio files along with the associated metadata."

The existing corporate WAN will become the core platform for broadcast production and distribution. File transfer can be automated, on demand, or users can do a search for what is available at other CBC/Radio-Canada locations. Guez said, "In addition to file transfer, it will provide a unified platform for production and broadcast operations, as well as a media warehouse for consolidating national audio archives."

The system will be deployed over the next 18-24 months at 48 CBC/Radio-Canada, including the two broadcast centers in Toronto and Montreal, with a total of around 2,000 digital audio workstations

Once TCP/IP interconnectivity is established throughout the broadcast plant, can you forget about network technology for a while? Probably not. The next generation of network gear already is being developed. It is protocol-agnostic, self-healing and self-configuring. It is already finding applications in telecommunications, and its impact will soon be felt in the radio environment.

The digital infrastructure of the broadcast plant is a work in progress. Among the benefits of TCP/IP are cost reductions, increased flexibility and simplified wiring topology, while the ability to transmit program-associated data and to use the data channel or subcarrier for revenue generation may be profitable in the near future.

Whirlwind's E-snake uses TCP/IP and the CobraNet protocol to create a link using Cat-5 or IR technology.

Products & Services

SHOWCASE

Radio Copes With Insufficient Data

As the Industry Considers IBOC Datacasting, Uncertainty Reigns

The Big Picture

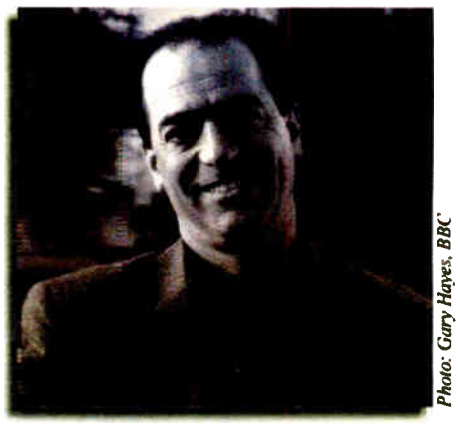


Photo: Gary Hayes, BBC

by Skip Pizzi

Last time we considered the general prospects of radio datacasting. This time we'll look more closely at HD Radio's datacasting features.

First, note that the IBOC AM system allows only a small amount (~400 bits per second) of data to be carried, in either hybrid or all-digital modes, and this is not likely to produce significant impact for consumers or broadcasters. Therefore most of the discussion of datacasting in HD Radio involves the FM system.

As is well known by now, IBOC FM comes in three flavors, hybrid, extended hybrid and all-digital modes. The amount of ancillary data that can be carried in each mode is the result of several variables, so the answer to broadcasters' primary question of how much data IBOC FM can carry is not a straightforward single value.

Counting the bits

One of these variables involves HD Radio's ability to provide ancillary data in *fixed* and/or *opportunistic* forms. In the fixed case (during hybrid operation), ancillary data simply replaces some of the 96 kbps of payload that would otherwise be allocated to audio. In other words, a broadcaster could opt to reduce main program audio service to 64 kbps and use 32 kbps for a fixed data service.

(Recent subjective listening tests of the HDC codec conducted by Ibiquity showed that perceived audio quality was quite similar at 64 and 96 kbps, so such a datacasting arrangement apparently could be accomplished with little audio quality impact.)

Independent of fixed data services, IBOC FM also allows opportunistic data services, in which bits that are not needed for perceptual audio coding in a particular frame are allocated to ancillary data transmission. Naturally, the amount of data that can be carried in such a way will vary according to the audio program's characteristics. In general terms, the less rigorous the audio signal's coding requirements are, and the more silence the program includes, the greater the availability will be for opportunistic data transmission.

Beyond the hybrid mode, datacasting capacity projections become even more complex. In the extended hybrid mode, additional datacasting capacity of up to 50 kbps could be added, in steps that are multiples of the IBOC FM *frequency partition*. These partitions are the building blocks of the IBOC baseband. Each partition delivers ~12.5 kbps of digital information on 18 OFDM subcarriers (plus a reference subcarrier), occupying ~7 kHz. (Each partition is duplicated on upper and lower sidebands around the FM channel's analog signal.) The extended hybrid mode could add one, two or four of these partitions (at the broadcaster's option) to the 10 partitions used in the hybrid mode, thereby providing 12.5, 25 or 50 kbps of additional bandwidth.

In the all-digital FM mode, suffice it to say that overall digital capacity of an FM channel would approximately double from what the fully implemented extended hybrid mode could carry. Of course, this mode would also require shutoff of all analog subcarrier services currently used for data transmission, so the net gain in a broadcaster's overall datacasting capacity would be somewhat tempered.

Also remember that the data rates cited above are raw information rates, and that data service payload rates (i.e., the usable signal a data service can deliver to the receiver) in any wireless data delivery system will be reduced below raw rates by the error correction and other overhead required for robustness. Data services typically require higher levels of accuracy than digital audio signals, so the amount of throughput that may be required for assignment to overhead could be substantial. Therefore net payload rates for datacasting services may be significantly less than the simple baseband analysis above indicates.

In the extended hybrid mode, additional datacasting capacity of up to 50 kbps could be added, in multiples of the IBOC FM frequency partition.

Robustness is a complex question in its own right. Unlike digital audio, in which the error-threshold performance of the single codec used is well known, datacasting could present a wide range of services (for example, file downloads vs. real-time streaming services), each with its own — and possibly quite divergent — transmission error-rate requirements. This implies that the reliable coverage area for some data services may be smaller than that of others, or of main program audio service area, of an IBOC FM station. Alternatively, it could require heavy error correction overhead to be applied to match main audio coverage for some data services, resulting in considerably reduced overall datacasting capacity.

Note that the all of the above comes from Ibiquity Digital's proposals for its HD Radio system and other industry discussion, and it assumes that the FCC will issue rules that conform to these proposals. The FCC's recent Further Notice of Proposed Rule Making on Digital Radio (the comment process for which is now just concluding) asked for input on datacasting, and the resulting rules that the FCC adopts will very likely include IBOC datacasting regulation.

Up in the air

Beyond these empirical issues are some deeper questions on IBOC datacasting.

First, how will the allocation of datacasting bits be controlled? It is possible that multiple data delivery services will vie for space into the datacasting bandwidth described above, and the algorithm that prioritizes this procession of data could have considerable impact on the performance of one or more of these services as received by end-users.

This is quite different than the FM subcarrier environment, in which a given service is permanently allocated a fixed piece of the FM channel's spectrum, which the service can pack, code and modulate with bits as it sees fit. In the IBOC data world, the bits representing all audio and data signals are mapped into a single bitstream that is scrambled, interleaved and modulated onto multiple OFDM carriers by the HD Radio system. Therefore the "traffic control" or gatekeeping function of any data bandwidth-allocation system could be pivotal to a broadcaster's IBOC data-delivery business.

Ibiquity claims to have a solution for this it calls Advanced Application Services or AAS, but it has not yet been disclosed. This has kept datacasting service providers and broadcasters in the dark about the actual capabilities of IBOC data delivery, thereby thwarting any serious planning for future services. Further, Ibiquity plans to issue a public API for datacasting application developers later this year, but this may not fully answer the prioritization questions noted above. It also might not adequately serve those providers that wished to provide proprietary services equivalent to numerous FM subcarrier data services in use today, which provide some welcome supplemental revenue to many FM broadcasters.

Absent further disclosure, it would also lock in AAS as the only platform that IBOC datacasting developers could write for. (Consider that this would include *all* digital radio datacasting in the all-digital IBOC FM era.) And, as noted on previous occasions, Ibiquity also may levy an additional tier of licensing fees to broadcasters for the use of AAS. While this uniformity could help stimulate datacasting application development and consumer usage, some comments in the FNPRM have suggested that the FCC should avoid specifying such a singular approach to IBOC datacasting, and allow broadcasters to choose among a marketplace of options for datacasting transport controls to best serve their data-service customers.

Another area of datacasting under discussion today is Supplemental Audio Service. Based on the interim FCC Rules, where only main-channel audio (a simulcast of the analog signal) was considered — and as reflected in Ibiquity documentation —Supplemental Audio is currently considered a data service. Apparently Ibiquity is reconsidering this, in light of the recent groundswell of interest in the Supplemental Audio concept. The IBOC FM system may be reconfigured to treat Supplemental Audio as its own service

See DATA, page 28 ▶

NEWS MAKER

Paul LeBlanc, On Air and On Call

by Carl Lindemann

Paul LeBlanc is a radio renaissance man. Much as Renaissance artists mastered their craft from making paint to creating images with it on canvas, LeBlanc started during a time when being on the air meant knowing the engineering that makes it possible.

Paul LeBlanc of Garrison City Broadcasting's WTSN(AM). The console is a Harris Diplomat.

As he celebrates his 40th year at the mic in the mornings at news/talk station WTSN(AM) in Dover, N.H. — "A Place to Talk and a Place to Listen" — he delights in what it means to be a broadcaster and how technology has shaped his work.

For LeBlanc, combining engineering and on-air talent was a smart career choice.

"When I started, all directional stations needed a First Class Operator on site all the time. So being a 'combo operator' was a valuable commodity," he said.

Behind the board

LeBlanc started as a board operator after spending time hanging out after school at WTSN, then the new rock and roll station on the dial, when it opened in his home town in 1956. He was hooked for life. After, he learned technical skills via correspondence school while working at several local stations. Eventually, he ended back where he began on March 23, 1964, as the morning man at WTSN.

In addition to his host duties, LeBlanc served as chief engineer at WTSN from 1965 to 1997. Over that stretch, he had many run-ins with gear that sometimes had to be coaxed to help him start the day for his audience.

For a good stretch, the longest-running component of the station was the Collins M21 5 kW tube transmitter that operated from sign-on in '56 till 1986. In the early days, station management tried to get double duty from the unit. A flinty New England owner thought that the heat generated by the transmitter could serve as a furnace for the station. That might have worked but for the fact that the cold New Hampshire winters wreaked havoc overnights while the station was off.

When LeBlanc came in one morning to begin his broadcast day, the transmitter room was flooded from burst pipes. Despite the risk, he knew that the show must go on. He climbed to a dry, safe spot on a counter and switched on the M21 with a stick.

The audience never knew his potential peril but management soon heard about it and installed a furnace fast. But the Collins transmitter stayed in use for a full 30 years before being replaced by a Harris 5X5 solid state with a Gates BC-1J 1 kW as a backup.

Acetate

Even greater than the transition from tubes to solid state was the evolution of recording technology.

When he started, LeBlanc worked with 78 rpm acetate records. These soon gave way to cart machines. Though the format at the station has changed time and again over the years, the cart machines proved to be one of the most durable broadcast technologies despite the challenges that came with them.

"It took constant work keeping the cart machines tuned and adjusted. The linkage was held together with screws and springs and I'd have them apart constantly to keep them going well," he said.

The need for the cart machines' constant care was a far cry from today's digital technologies. LeBlanc delights in the simplicity, quality and low cost. He helped oversee the transition to digital production in the early 1990s.

"No heads, no tubes, no hiss and you get the same sound play after play. We take that for granted now, so it's easy to forget what it used to be like."

Playing favorites

Over the years LeBlanc has had a few favorite gadgets in his engineer's toolkit. What's the standout? Henry Engineering's Matchbox.

"I love live assist. I could not do a show without it now. I used to have nightmares about pulling carts. This is like having an assistant in the studio who takes care of all that."

Garrison City Broadcasting has been owned by Bob Demers since 1996; Demers had been part of a group that owned the station before that. Mark Ward is the station chief engineer.

Even with the complete changeover in technology, LeBlanc keeps his hands-on connection with the engineering details. He continues to program the clocks for automation and to make sure all the systems continue to operate well together. Though specialists are on call, he is the go-to guy when anything goes amiss. And, in four decades of early mornings, he has only had one slip up himself. He overslept once arriving at the mic at 6:40 instead of the usual 4 a.m.

"I just started the record right in the middle, acted like nothing happened and kept on."

LeBlanc with the station's Harris 5X5 solid state and Gates BC-1J.

"We've always tried to adapt consumer equipment for on air use, but the levels would be too low or they simply wouldn't sound right. The Matchbox made it possible to get a professional sound from this gear."

After transforming production, the transition to digital was complete when carts were finally retired with the arrival of a Broadcast Electronics AudioVault in 1997. Is LeBlanc nostalgic for putting the workhorse that played through most of his career out to pasture? Not a chance.

And now, going into his fifth decade at locally owned WTSN, the past is preface. LeBlanc keeps getting his local audience up and going and the station's equipment up and running. Any chance he'll slow down anytime soon?

"The technology's gotten so much better over the years and so have I!" he said.

The author is director of special projects for the World Media Foundation, which produces NPR's "Living on Earth." His e-mail is carl@loe.org.

Data

▶ Continued from page 27

category, essentially as a variant of main program audio, and separate from actual (non-audio) data services. It also may be licensed to broadcasters in a separate tier.

Obviously there are numerous issues yet to be sorted out in the IBOC datacasting environment. The industry's ongoing review of comments to the FCC's FNPRM, and the FCC's own conclusions from this process, may settle some of these matters, while others will only be clarified with experience from speculative investment. Such dabbling in digital radio datacasting may cause broadcasters to learn some lessons the hard way (it wouldn't be the first time), but it could also prove to be a venture that pays substantial dividends. Before this process can begin, however, at least some of these fundamental questions will need to be resolved.

Next time we'll conclude our examination of radio datacasting with a look at emerging competitive services.

Skip Pizzi is contributing editor of Radio World.

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Burk Has Trade-In Offer on Remote Controls

Broadcasters using the Burk Technology TC-8 transmitter remote control system can upgrade to the ARC-16 and take advantage of a $500 trade-in.

When customers purchase a new ARC-16 and trade in a TC-8, Burk will offer $500 cash back. The deal is good through the end of August. This replaces an earlier promotion involving the VRC1000 and VRC2000.

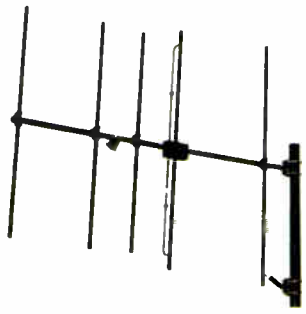
The company said the ARC-16 has twice the control and monitoring capacity as well as multi-site capability with site-to-site control and other features not in the TC-8.

For information visit www.burk.com/trade-in.

Kathrein-Scala Yagis Serve FMs

Kathrein-Scala offers yagi FM antenna arras, among other products.

YA7-FM (L and H) series antennas provide a 7 dB gain in a highly directional pattern, making it an option for stations that need to erect a temporary antenna (it mounts on a 2-3/8-inch diameter mast) or need to ensure that a signal is transmitted with extreme directionality, as with a translator.



The antenna can be used in a stacked configuration as well as the normal stand-alone setup.

The FML model covers frequencies of 88-98 MHz; the FMH model covers frequencies from 98-108 MHz. Both come in center- or rear-mount models.

Call the company in Oregon at (541) 779-6500 or visit www.kathrein-scala.com

Plug, Patch and Play Studio Networking

The I/One break-out box uses FireWire to create a distributed routing system geared to the specialized of broadcasters.

Users can connect analog or digital audio sources and route them wherever needed in 24-bit, up to 96 kHz audio quality.

I/One takes advantage of the IEEE 1394 FireWire standard and Yamaha mLAN connectivity to simplify cabling throughout a facility. Each 3 RU I/One chassis can support 32 channels of audio I/Os with hot-pluggable eight-channel modules. XLR connectors are standard.

Analog cards allow for +4 balanced or -10 unbalanced levels (per channel); the digital cards allow for AES/EBU or SPDIF (per connector). The digital output cards come with a sample rate converter.

If more than 32 I/O channels are needed, additional nodes can be connected to the network. FireWire has the bandwidth to handle hundreds of channels of audio on one cable.

The FireWire/mLAN card has two FireWire bidirectional connectors for copper cabling and optionally a glass-optical transceiver for distances beyond the FireWire standard of 4.5 meters. Distances of hundreds of meters are possible with multimode glass-fiber cabling.

Each node has an internal word clock. The BNC connector on each node provides word clock out, making it easy to have all digital devices within a facility synchronized. For machine control, there are up to 16 relays and contact closures.

A PC and Windows XP-based software is used to configure the patching/routing and to monitor/ change parameters. Patching/routing is a drag-and-drop operation; dozens of connections can be made or changed in a minute.

According to the company, with I/One, setting up a network is a matter of arranging a FireWire cable drop in each location to be connected and then plugging in the I/One nodes and configure the connections.

For information contact the company in Ontario at (519) 729-1394 or visit www.ioneconnects.com.

LARCAN Has Low-Power FM Gear

LARCAN is promoting compact FM transmitters and exciters, part of its line of exciters and transmitters from 25 watts to 5 kW. Among the transmitters shown at this spring's conventions were low-power models in 100- and 250-watts, weighing 31 pounds and fitting in two units of rack space. These units are powered on 110 volt AC, 24 volts DC (for the 100-watt model) and 48 volts DC (for the 250-watt model). The units are frequency agile and include SCA and RDS capability; available options include a stereo encoder and audio limiter as well as RS-485 telemetry interface.

For information call LARCAN USA in Colorado at (303) 665-8000 or send e-mail to sales@larcan.com.

Company Offers Digital Clinometer For Tilt Correction

Applied Geomechanics offers the Model MD900-T, a digital clinometer that measures changes in antenna inclination over time.

The serial output of the clinometer is used to correct antenna pointing errors, compute antenna position with respect to the tower base and determine the zenith on start up.

On-board control outputs give the MD900-T the ability to improve the performance of antennas in the field. The user can automatically adjust antenna alignment or issue alerts when user-programmable thresholds are exceeded.

With an angular range up to +/-50 degrees, the improved MD900-T clinometer is housed in a weatherproof box and provides an RS-232 or RS-422/485 serial interface via six-pin NEMA 4X connector. Factory calibration values are stored in nonvolatile memory. Output data (x, y, temperature and serial no.) are provided in common digital formats. The unit is shipped with ZAGI, real-time Windows-compatible graphing and logging software for set up and troubleshooting.

For information contact the company in California at (925) 947-6972 or visit www.geomechanics.com.

Cummins Offers Gensets

Cummins Power Generation is promoting its line of power generation systems, which range from permanent —on-site back-up generators and smaller units — to temporary, including trailer-sized units that can power buildings in contingency situations.

Cummins designs and manufactures diesel and gas power systems from 7.5 to 2700 kilowatts for use in studio, transmitter and remote backup applications. Its Onan-branded product includes generators from 1 kilowatt and up, for remote applications.

For more information, call (800) 888-6626 or visit www.cumminspower.com *or* www.onan.com.

Your Signs May Not Be Up to Snuff

by Tom Osenkowsky

"Integrating ANSI-Compliant RF Signs Into Corporate RF Safety Programs" was a paper presented at this spring's NAB convention by David P. Maxson of Broadcast Signal Lab LLP, which has an RF warning sign division.

"Most broadcast facilities have signs that do not meet current ANSI standards for informing people of the key facts: the level of risk, the nature of the risk, the consequence of the risk and the action to avoid the risk," Maxson states.

Proper signage is important for risk, liability and responsibility issues. In the past, it was common to see a "Danger. High Voltage!" sign posted on a tower fence. This is no longer sufficient to satisfy FCC and OSHA safety rules.

FCC matters

There are two defined environments defined by FCC Rules. In an occupational/controlled environment, access to areas where RF levels may exceed FCC limits is controlled and restricted, whereas general population/uncontrolled areas are open and accessible to the public. An occupational/controlled area may be inside a hot AM tower fence, transmitter building or AM ATU cabinet or on a tower near an FM antenna. A general population/uncontrolled area may be outside a tower fence, or on a road passing near a tower farm.

A family of facility safety signs that conform to ANSI Z535.2

The primary source for FCC Rules pertaining to RF exposure is the National Council on Radiation Protection (NCRP) Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields." There is also a mention in 47 CFR §1.1310 of the IEEE C95.1 limits, which are part of the IEEE/ANSI standard. These exposure limits are similar to the NCRP limits adopted by the FCC.

The American National Standards Institute oversees the formation of all manner of standards, but does not itself form standards. Organizations such as the Electronic Industry Alliance and Institute of Electrical and Electronics Engineers are accredited by ANSI to form standards under the ANSI protocol and are called sponsors or secretariats. Such a group is embodied in the Z535.2 committee responsible for environmental and facility safety signage.

This committee is formed under the secretariat of the National Electrical Manufacturers Association. The current Z535.2 standard was updated in 1998 and should be common to all environmental and facility safety signs.

The FCC, IEEE and NCRP all require signs to be posted to warn of RF hazards.

OSHA rules rely on consensus standards, even if in conflict with established government standards.

Section 5(a)(1) dictates employers provide a workplace that is free from hazard. Signs need to accurately inform the reader of risks and consequences. ANSI Z535.2 signal words are employed to convey exact information.

"Danger" indicates an imminently hazardous situation that, if not avoided, can result in death or serious injury. Use of this word should be limited to the most extreme situation.

"Warning" indicates a potentially hazardous situation that, if not avoided, can result in death or serious injury. Such a sign is appropriate outside an area of, or on the exterior of, enclosures containing a "Danger" level hazard.

"Caution" indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices that can cause property damage.

"Notice" signs indicate statements of company policy directly or indirectly related to the safety of personnel or protection of property.

Each signal word is associated with a safety color: Red=Danger, Orange=Warning, Yellow=Caution, Blue=Notice.

Signs should meet formatting criteria so that they are uniform in appearance and meaning. ANSI safety signs have up to three functional panels: A Signal Word panel, a symbol or pictorial panel and a word message panel. In areas where a language other than English is predominant, it is wise to post signs written in that language.

Advising employees, contractors and the general public using appropriate signage is important to minimize risk, liability and responsibility. Additional measures such as lockout/tagout, physical barriers and other devices may be employed to ensure safety in a broadcast facility. This is especially true of transmitter plants where RFR and high voltages are present.

Maxson's paper deals with these questions in detail. For a copy, find the link at *rfsigns.com.*

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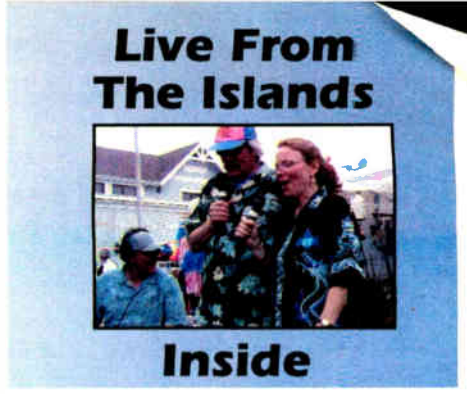


SMALL-MARKET RADIO

A Mile-High Small-Market Move

Solar-Powered KPPV Keeps History Alive From Facility in First Arizona Capital

by Doug McLeod

Before Willis Haviland Carrier invented air conditioning, Old Arizona Territory simmered for most of the year in brain-frying desert heat. Accordingly, its first capital was sited well north of Phoenix, in the cool pines of Prescott.

Gold was discovered in the nearby Bradshaw Mountains and the weather was bearable, so even the cantankerous Territorial politicians of the 1860s agreed that beautiful Yavapai County was where they would conduct their affairs.

Now state government functions in air-conditioned comfort in Phoenix, but Prescott remains a historic and vital market. More than 525 local homes are listed on the National Register of Historic Places. A burgeoning population of over 35,000 lives in Prescott (pronounced "PRESS-kit") alone, and thousands more have moved into the immediate market area.

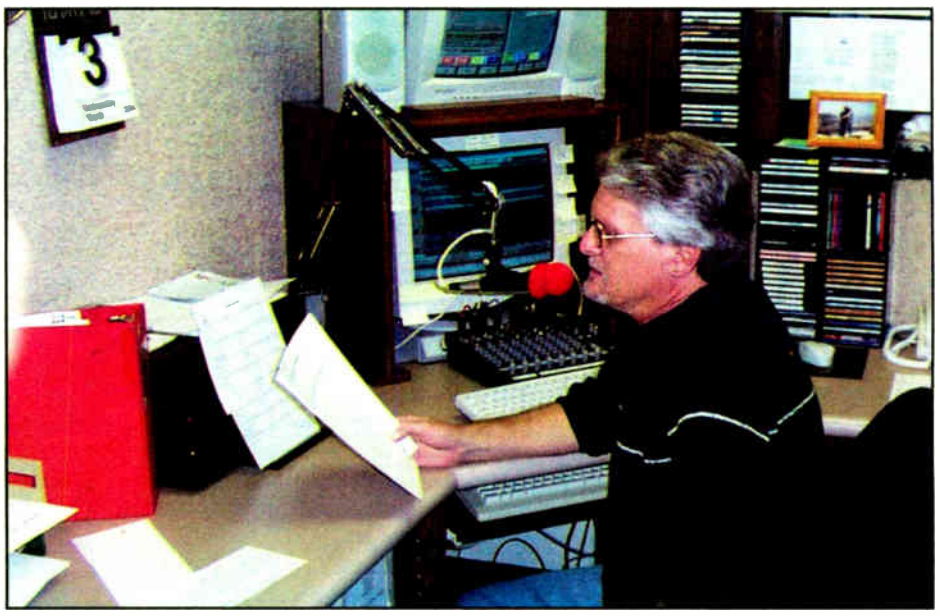
Residents enjoy the nearly mile-high climate of 5,042 feet and breathe clear, cool air — air that is flooded with radio signals.

Prescott or bust

Sanford Cohen and his wife, Terry, arrived in Arizona from Atlanta the day before Thanksgiving 1984 to launch a new venture. Until then, Cohen's career on the air had been as a talent and "news guy." It had spanned the breadth of small-market radio, beginning in Michigan, where he lived for a time in a tent at the local state park. He hit major-market radio in Atlanta, at WSB (TV), WPLO(FM)/WVEE(FM) and WRNL(AM), now WCNN.

Cohen officially became a broadcaster on Sept. 9, 1985, when he put KPPV, a Class C2 FM, on the air in neighboring Prescott Valley with an adult contemporary format.

Like many small-market owners, Cohen ran it lean and mean. "We purchased a used Schaeffer 903 automation system and ran the station with that from the day we signed on until the day we moved," he said.



News Director Ken Byers in the KPPV/KQNA production studio

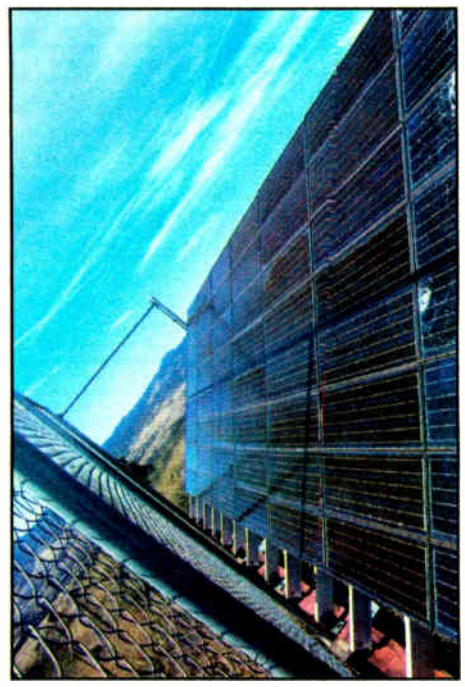
Cohen purchased KQNA(AM), a daytimer with PSA and PSSA, in 1993 and ran it even leaner. "For that, we produced a commercial cart for every hour that was cued by CNN's network tones. So we ran that station with no automation, really," he said.

The stations' recent move to new quarters across town actually completes a relocation cycle for KPPV. Its first move was a transmitter site change that not only improved the station's coverage area, but made history.

Look to the sun

KPPV's original antenna had been mounted on a telephone pole outside the old studios at about 400 feet below average terrain. With intentions of juicing up the signal, Cohen went hunting for a better site. He found one, high up on historic Glassford Hill, a few miles from town.

The hill commands a broad view of the Prescott Valley and historically is significant as an Army heliograph station during the Apache wars. It is nearly 6,200 feet in elevation and puts KPPV's antenna at 500 to 600 feet HAAT. The site is desirable in almost every way, except one. It doesn't have commercial power.



KPPV's mountain-top solar array is shown in a tilted side view.

"I had worked for the only wind-powered station in the country, KFMU in Oak Creek, Colo.," Cohen said, "so I thought about that. But the wind on Glassford is only sustainable for about 200 days a year. Somebody brought up solar, which we certainly have plenty of, and I was able to get a company to put up a solar plant on Glassford Hill at no initial cost for the P.R. value."

The plant consists of 54 solar panels on a large grid, producing nearly 2.5 kW of power. Its uniqueness has landed KPPV a number of awards and citations, including recognition from the U.S. Department of Energy, the Small Business Administration and a Crystal Award from

See PRESCOTT, page 34 ▶

Back to the @#%&!! Future, Part II

by Alan R. Peterson

Note: Any resemblance between this article and a certain well-known movie and its sequels, right down to its implausible use of technology, is purely coincidental. Yeah, that's the ticket...

From the conclusion of Part I ...

Dr. Emmett Brown stood in front of his television, transfixed by a broadcast of "Inherit the Wind" on a classic movie channel. A defined expression of determination was chiseled into his features as he spoke to his teenaged fellow time-traveler Marty.

"Warm up the DeLorean and ramp all the delays to maximum. Looks like we've got a job to finish!"

(Now, the rest of our story.)

"Oh Doc, not now," groaned Marty. "We just got back from 2003! And that attempt to stop Bono from dropping the F-bomb, well, that was just plain luck on our part!"

"We didn't go back far enough, Marty," Doc Brown retorted as he strode quickly to the gullwing door of his DeLorean automobile. "2003 wasn't even the tip of the iceberg!"

The heavily hacked and modified Delorean had been converted by Brown into a combined time machine and broadcast delay line, in his efforts to stave off a future radio indecency disaster yet to come.

As he climbed into the vehicle and started punching numbers into the Eventide, Doc Brown told Marty, "If we're to save modern radio as we know it and keep the economy from falling into ruin by excessive fines and dopey DJs, we're going to have to calibrate the Flux Capacitor to the year 1960."

In a brilliant flash, the two vanished once again, starting a new journey back into time.

False starts

The car bucked and shook its way through the time stream, skimming and bleeping hundreds of thousands of hours of broadcast material as it traveled.

> **You're thinking of the 'Bozo the Clown' telecast when a kid told the host to 'cram it.' Go back and read last month's column, Marty.**
>
> — Dr. Emmett Brown

"Doc, I don't understand," Marty finally asked. "Why are we only going back to 1960 if we're trying to stop broadcast indecency before it starts? Shouldn't we be going back to 1928 instead?"

A look of confusion washed across Doc Brown's face. "1928? What happened then?"

"You know, Doc, the 'Uncle Don' incident," Marty replied. "Uncle Don ended his radio kiddy show one night, and when he thought the mic was off he said, "That ought to hold the little bast—"

"Marty," the Doc interrupted, "there was never any proof that actually happened. That story has been circulating for decades and has been attributed to any one of a dozen radio announcers. It's a myth."

"Okay, then shouldn't we try stopping off in 1964 then?" asked Marty.

"I'm already ahead of you, Marty," Doc Brown replied. "You're thinking of the 'Bozo the Clown' telecast when a kid who lost a contest told the host to 'cram it.' While that's also a great story, it's also pretty much untrue.

"Even then," the Doc continued, "there were so many local Bozo hosts scattered around the country that we'd never find the right one. But if we play our cards right and we're successful back in time, we will have set both television and radio right."

"What then?" asked Marty. "Are we starting with television instead of radio? Do we stop off at 'To Tell the Truth' to keep the elephant from relieving himself on stage?"

"Nope," Doc answered. "A cow does the same thing on the 'Red Skelton Show' and we don't have enough fuel to visit both."

Marty offered, "What about the kid on 'Howdy Doody' who took the top off a pumpkin, stood in front of it and ..."

"Don't even get me started on 'Howdy Doody', Marty," the Doc grumbled. "Even the title alone ..."

"So what's so special about 1960?" Marty inquired.

"That was the year that Spencer Tracy, Gene Kelly, Dick York and Harry Morgan all starred in 'Inherit the Wind,' the very same movie we were watching back in my workshop a few minutes ago," Doc Brown answered.

Can't say that on radio

Now Marty was completely flummoxed.

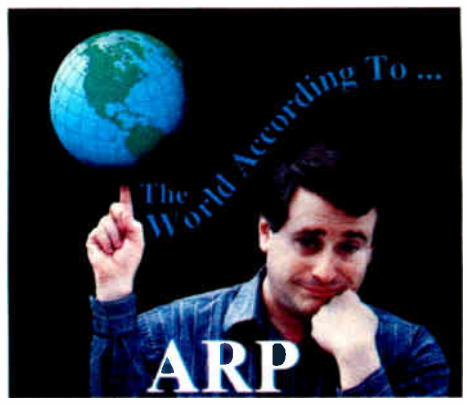
"Doc, I don't get it. Tracy and Kelly are cool. York became Darrin No.1 on 'Bewitched' and Harry Morgan was on 'Dragnet' and 'M*A*S*H.' I can't see the connection."

"You will in a moment, Marty," said Doc Brown as he hit the big red Dump button on the dashboard-mounted AirTools delay. The Delorean lurched and, with a white hot flash, materialized behind a soundstage in Hollywood in 1960.

"Follow me, Marty," whispered the Doc, as he stepped out of the vehicle and tiptoed over to a service door leading into the closed set. Inside, the pair found themselves witnessing the filming of the very movie they had been talking about.

"Now, watch the scene they're rehearsing, Marty," the Doc whispered barely audibly, "and you will see why this is such a pivotal moment in radio indecency history."

There was Spencer Tracy, in character as attorney Henry Drummond, standing before a prop radio microphone. Drummond, marveling over the thought of the trial being broadcast to a nationwide radio audience, had just uttered



the word "God" in amazement.

The actor portraying the radio engineer clapped his hand over the mic. Horrified, he said, "You can't say 'God' on the radio!"

"Why the hell not?" retorted Drummond.

Even more shocked, the engineer said, "You can't say that either!"

As filming proceeded, Marty and Doc Brown sneaked off and huddled behind some scenery in a dark corner of the soundstage.

"Doc, you gotta be kidding. That's greasy kid stuff," Marty scoffed. "My kindergarten teacher had a worse mouth than that. How can that scene possibly be the turning point for radio indecency?"

"Marty, you're just not thinking fourth-dimensionally!" the Doc shot back. "That was the first time somebody stood in front of a radio microphone and got away with saying two formerly unutterable words without being fired or otherwise ostracized."

"But Doc, it's a movie," Marty argued. "Nobody really stood in front of a mic in 1925 and spoke like that!"

"Marty, you don't get it. This is where it has to be stopped before it starts. Nobody cares it's a movie. Some years from now, some young jock that has sat through this flick is also going to stand in front of a mic and try it on for size. He'll get a tongue-lashing at worst, after which he'll realize he won't get fired. The stakes will get higher, the language saltier, and in just a few years, the economy is going to collapse!"

Marty inquired, "How do you know that's going to happen, Doc?"

"Go back and read last month's column, Marty," Doc snapped back. "I hate repeating myself for the sake of exposition."

A plan is needed

"Somehow," Doc Brown continued, "we've got to stop this scene from making it into the movie. Otherwise every shy, pimply kid that ever got beat up in gym class will think its okay to go on the radio and start lipping off, costing his station millions in fines and distracting folks from the real issues of the day."

"Well Doc," Marty offered. "I don't feel right about this. I mean, that's Stanley Kubrick over there producing and directing this movie. I'd feel real bad about messing with his work. I didn't even like when they started colorizing old movies."

"You're right Marty," Doc Brown nodded, then sunk into thought. "We need a plan. A good one."

Marty also slumped down into thought, then leaned up slowly, his eyes burning with a grand idea.

"We never fixed that power surge in the DeLorean, did we, Doc?"

Doctor Brown shook his head. "No. The surge that momentarily knocked Bono off the air is probably going to happen again. Why?"

Marty stood up and broke into a slow smile. "I think there's a way to save radio, save the movie and fix the future all at once, Doc. Let's head back to the DeLorean!"

To be concluded ...

Think you know everything there is to know about Uncle Don and Bozo? Al suggests you visit www.snopes.com *and see what the pros have to say.*

Prescott

▶ Continued from page 33

the National Association of Broadcasters.

With dependable transmitter power for the FM assured, Cohen began to eye new quarters for the stations' studios and offices. Relocating across town did not involve the magnitude of a major-market group buildout, but it had its moments.

"The move happened on a weekday night at 11 o'clock. We decided that, rather than take all the equipment out of the racks and reinstall it at the new place, we would just leave it in.

"So two friends and I got the racks onto a flatbed trailer and stood there holding them upright for the entire four-mile trip. Needless to say, we attracted the attention of local law enforcement and we got stopped. After we explained ourselves, the cop actually gave us a police escort to the new building."

Yesterday meets today

KPPV-KQNA's new digs, in a strip business center partly owned by Cohen, include a mixture of old and new equipment. A veteran Urei console came along as the main FM air board along with a Broadcast Electronics 5S250 for the AM studio. The new production room houses a Mackie 1202 VLZ Pro mixer. The old Schaeffer 903 has been supplanted by an ENCO DADpro32 automation system that carries the spot load for both stations.

Everyone likes the newer technology. "After the old method, this was a real culture shock to the staff, a new-fangled thing to get used to, but in some respects there was a comfort zone right away," Cohen said. "We could move files between the AM and the FM so quickly, it was a breeze."

The DADpro32 system's dependability is critical to the stations' operations, he said. "DADpro32 is very dependable, very reliable, as bullet-proof as you can get."

The system handles two polar-opposite formats: KPPV is branded "The Mix" and airs an adult contemporary music blend from Jones Satellite, while KQNA is news-talk with CNN programming.

The stations also carry plenty of sports, including Arizona Cardinals football, Diamondbacks baseball and Phoenix Coyotes NHL hockey. Those broadcasts run unattended with F.A.S.T. commercial automation provided by Skyview Satellite Networks of Scottsdale, Ariz.

To add punch to that solar-powered mountain top transmitter, KPPV also acquired a new digital processor, an Orban 8200. "Three words: sharper, cleaner, nicer," Cohen said.

For the part of the operation that receives little sun, KPPV-KQNA relies on commercial power, with plenty of backup.

"All our air equipment is daisy-chained into two large UPS units, APC3000s. Through a couple of power outages, we've found that we can run the studio gear for 15 to 20 minutes on the UPS power, which is plenty of time to haul our 5,500-watt generator outside and fire it up," he said.

If he had to do the move again, Cohen said he would make only one major improvement: "I'd have set up a second production studio and another DADpro32 production workstation right away. We have two now and we're adding a third."

Where heliograph mirrors once blinked warnings of Geronimo's raiders, Cohen's solar-powered FM now rocks Northern Arizona. It's another instance of radio adapting to — and improving — an already rich environment.

Doug McLeod is CEO of Desert Tracks, a TV/radio voiceover and video production company in Scottsdale, Ariz. He can be reached at dvoxcoyo@aol.com.

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	Comrex Matrix	Tieline Commander	**Zephyr Xport**
Audio Bandwidth @ 24 kbps @ 19 kbps	14 kHz 11.2 kHz	15 kHz 9 kHz	**15 kHz** **15 kHz**
Direct Internet Software Updates	No	No	**Yes, via Ethernet port**
Digital PC Audio Input	No	No	**Yes, via Ethernet port and supplied driver**
Audio Metering (XMIT/RCV)	Transmit only	One-at-a-time	**Simultaneous**
Audio Processing	None	Simple AGC	**Digital multi-band AGC with look-ahead limiter by Omnia**
Remote Control	No	RS-232 and dedicated computer	**Ethernet via Web browser**
Auto Dial Storage	19 Numbers	50 Numbers	**100 Numbers**
Frequently-Used Settings Storage	none	none	**30**
Standards-based POTS Codec	No - Proprietary	No - Proprietary	**Yes - aacPlus (MPEG HEAAC)**
Transmit-Receive Quality Display	No	Yes	**Yes**
Contact Closures	2	2	**3**
Display Resolution	120x32 LCD	120x32 LCD	**128x64 LCD**
Analog Cell Phone Interface	Optional	Standard	**Standard**
Mixer Inputs	1 mic, 1 mic / line	2 mic / line	**1 mic, 1 line**
Phantom Power	No	No	**Yes - 12 volt**
Automatic Voice-Grade Backup	No	No	**Yes**
Power Supply	External	External	**Internal auto-switching**
Local Mix Audio Outputs Headphone Line Level	 Yes Yes	 Yes No	 **Yes** **Yes**
Direct Receive Audio Output	No	Yes	**Yes**
Uses ISDN at the Studio Side for More Reliable Connections	No	No	**Yes - your Zephyr Xstream becomes universal POTS and ISDN codec.**
Available ISDN Option	$850.00 (adds MPEG L3 & G.722)	$850.00 (adds G.722)	**$495.00 (adds G.722 & state-of-the-art AAC-LD for high fidelity and low delay)**
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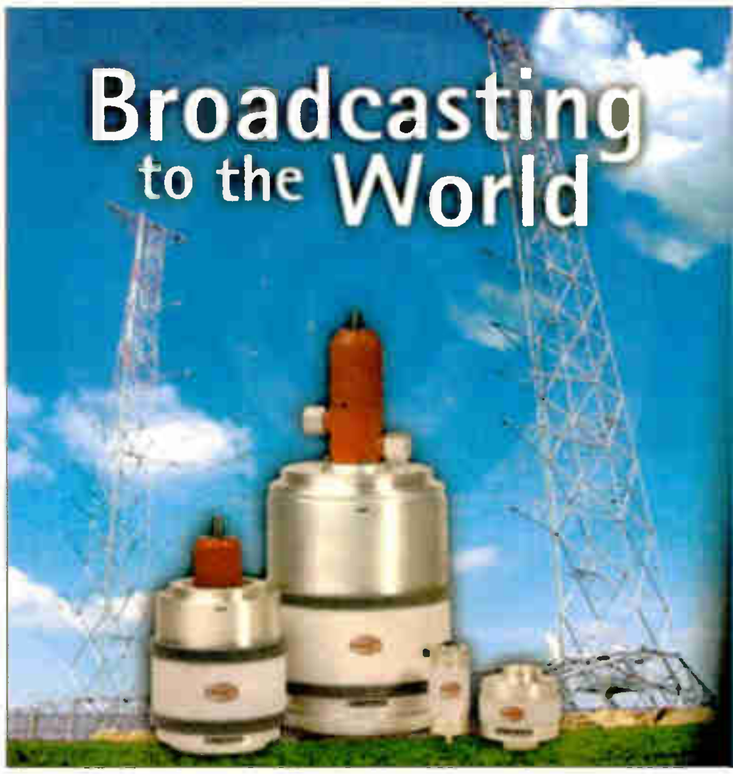

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FIRST PERSON

Gonzo Radio, Live from the Islands

Comrex, A-T, Mackie Products Help Make a Dream Remote Possible

by Judith Walcutt

I don't know what came over us. It must have been the heat and the wild blue sky with a pair of eagles soaring over our heads — a typical day in a paradise we call home, Whidbey Island, Wash.

David Ossman and I are die-hard independent radio producers. We were possessed by an idea conceived Jan. 1, 2003, and had been wrestling with it since.

Husband and wife as well as professional partners, we wanted to do a show that let us go places together instead of keeping us locked up in a box someplace else, away from home, while the beautiful days of the northwest summers just rolled by without us.

As we discussed it, the idea coalesced. We wanted to do a live radio show — an adventure on the road with the talent, talk and entertainment on location from wherever we ended up.

We wanted to do it simply and easily, with maximum sound and minimum gear. And we wanted to have fun.

The show we envisioned would be something lively and different from what we had been hearing on the radio lately. That immediately put us in a bind as to where to pilot the show, and give it a chance to breathe, make mistakes, find a voice — all those really important things that give birth to creative stuff in any medium.

Fighting the same old, same old

Given how everything in broadcasting now seems the same, the question became, how could we try out something new in live radio? On what station? With what funds?

We deemed commercial radio simply out of the question. Even the local NPR affiliates have become fairly calcified in formats and schedules. How exactly would we make something new — and live — if there were no place to try it out? But we just could not let this idea go. We had to give it a whirl.

Luckily, we have access to our regional community radio station, KSER(FM) in Everett.

Ed Bremmer, KSER's general manager, was willing to let us have a fling and gave us the thumbs-up to do a pilot show last July during "Choochokam," the summer music and arts festival that fills the streets of Langley, a charming village by the sea on Whidbey Island.

A simple plan

The plan was to do a live two-hour broadcast from the local performing arts center, then switch to the live outdoor music stage for the rest of the day into the evening, when the street dance took over the intersection of Front Street and Anthes down to the Puget Sound.

Engineer Wayne Newitt works the Main Stage of the Choochokam Arts Festival on Whidbey Island.

With no budget to speak of, we did not have the more than $2,600 needed to install one balanced 8 kHz line into the theater and down the street to the main stage, and then from the theater back to the station off island. Not only was an ISDN line costly to set up, it required a mandatory one-year commitment. There had to be another way.

We called Wayne

We called our friend and colleague, Wayne Newitt, a great engineer who is always up for fun feats of production bravura.

He reminded us of the Comrex Blue Boxes we had seen in action a year earlier when David, a member of the Firesign Theater, did a live remote from home to the Warren Dewy Studios in Santa Monica, Calif., over the plain old telephone (POTS) lines.

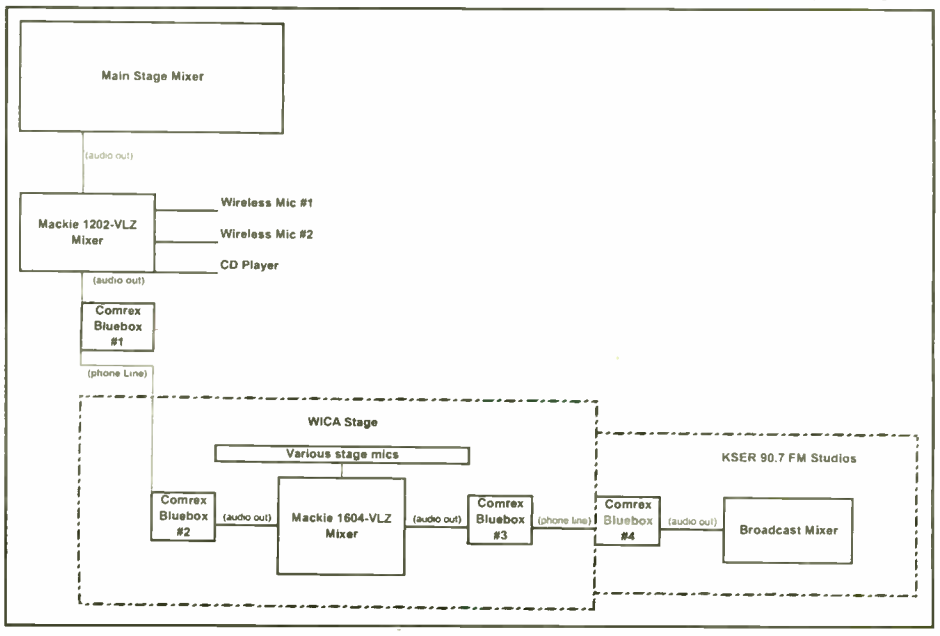
It seemed like a miracle then — just a good microphone and a little Blue Box buried in the basement with David. But the results were pretty incredible.

I was listening upstairs on our XM Satellite receiver to the show Firesign Theater was creating live for the XM Comedy Channel, and David sounded like he was in the studio with the other three guys, Peter Bergman, Phil Proctor and Phil Austin. It just sounded like he was on a slightly different microphone, which he was.

Newitt was right. POTS codecs were the answer. We dropped a phone line from a trunk that was close to where the main music stage was to be set up and stashed it until the festival started. The Whidbey Island Center for the Arts already had enough phones built in so we did not need to activate one. Total cost for the activation and one month of service: $47.50. The long-distance charges for two days and a total of 12 hours live on the air came to about $80. Peanuts.

The Comrex Blue Boxes were demos through Broadcast Supply Worldwide. We used four of them: one pair to handle the interconnection between the performing arts center and the outdoor main music stage and a second pair to get us from the theater back to the station.

The setup in the theater was a hybrid of live performance, recording stunts and radio without a net. We used a central Mackie 1604-VLZ mixer to be the interface between the two Blue Boxes, which connected the whole operation to the station, and then created the link between the outdoor stage and the theater.



'Live From the Islands' Audio/Telephone Interface Diagram

A variety of performance microphones were used flexibly to adapt to the needs of 16 performers spread over eight separate sets, but the best and most flexible of these were the astounding Audio-Technica wireless mics (Artist Elite 5000 series).

These microphones were great in the theater, for the roaming host and easy hand-off to guests coming and going over the fast-paced two hours. We had over 16 performers spread over eight sets. But where they really gave us the gas for Gonzo Radio was out on the street.

After we finished our first leg of the day, we went live to the main stage with a simple phone call. Gonzo Radio festival coverage was on the air. Bluesy-rockin' girl and lead singer Janie Cribbs opened the set with a performance by her band. They played a 40-minute set, after which we announced the set, gave a soft ID and picked up the threads of our "Gone Gonzo Gab-about."

Festival in your living room

Those Audio-Technica wireless mics really came into play then. We walked and talked and perused the booths for good food and art works that made noise, such as music boxes and wind chimes and handmade marimbas. Newitt cranked up the antennas on those microphones and we found we could go 300 feet with a clear line of site and still be heard and presentable on the air.

With those mics, we were able to duck into the back of a theater where a youth production of "Oklahoma!" was in progress, and also scoot over to where a boat was leaving from the dock for a tour of the harbor.

Being able to bring this level of the live festival ambience to the listeners was what we had wanted when we conceived this idea.

We switched over to a cell phone given to our co-hosts who had taken the boat, and they told us all about it until they faded away into the ether. Because we were monitoring the broadcast with tiny radios we carried with us, we knew just when to take the show back into our own hands and were ready for the next act to pick up on the main stage.

Blue Box rocks

The Comrex Blue Boxes kept on plugging. We never even had to have a second handshake, once we got from one box chain to the other. The units were easy to use, for which I was grateful since there were times during the eight hours on the air when we had to spot each other for breaks.

David had no problem babysitting the Blue Box, and I was relieved to see that even I could have figured out the right button to reinitialize and reconnect if we dropped off the line.

In fact, it monitors the line quality for you and automatically connects at the highest possible rate supported by the telephone connection. Additionally, it will renegotiate for you if the line degrades too much.

Blue Box has a full-duplex FM quality (15 kHz) audio bandwidth at a connection rate of 24 kilobits per second and above. It has a voice mode and a music mode, which we were set for a sound with greater bandwidth. It also has a multi-purpose port for connecting to GSM wireless phones and taking flash upgrades — another perfect tool for Gonzo mischief.

Sunday was a different story and a surprising matter for us. We did not go through the Broadcast Central that we had set up the day before at the performing arts center. Instead, we built our Gonzo Studio right on the street.

This caused us a moment of true panic when 15 minutes before we were to join with the station, we tried to dial out on the Blue Box and got a recorded message

See ISLANDS, page 39 ▶

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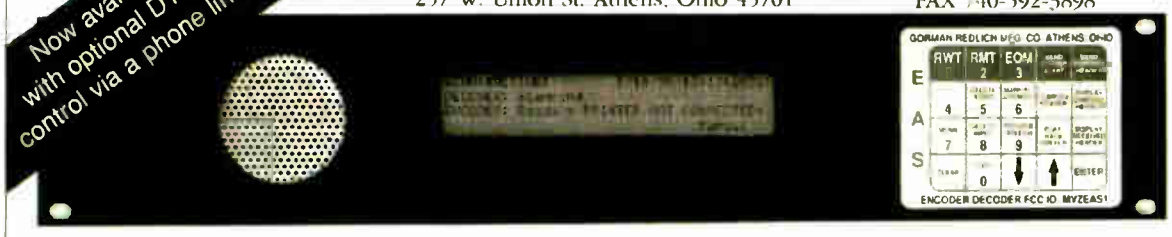

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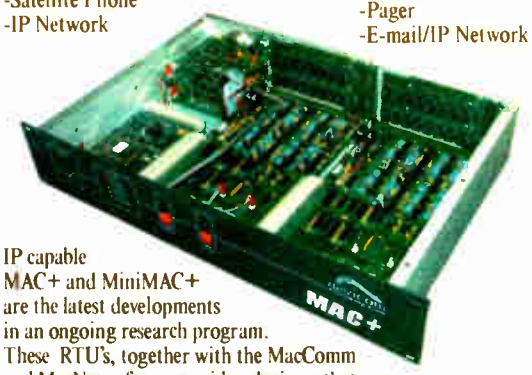

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CDs: They Aren't Forever

With cassette tapes banished to obscurity, compact discs have become a consumer's primary method for listening to music. But more important, the multi-functional discs have changed and streamlined all aspects of studio and on-air production, such as digital data storage, archiving, recording and editing.

The Information Technology Laboratory at the National Institute of Standards and Technology, an organization that develops technology test methods and improvement strategies, acknowledged the staying power of compact discs and DVDs by offering on its Web site (*www.itl.nist.gov*) a list of tips on how to extend the life of discs and preserve stored information through proper care.

Do:

- ✓ Handle discs by the outer edge or the center hole.
- ✓ Use a non solvent-based felt-tip permanent marker to mark the label side of the disc.
- ✓ Keep dirt or other foreign matter from the disc.
- ✓ Store discs upright (book style) in plastic cases specified for CDs and DVDs.
- ✓ Return discs to storage cases immediately after use.
- ✓ Leave discs in their packaging (or cases) to minimize the effects of environmental changes.
- ✓ Open a recordable disc package only when you are ready to record data on that disc.
- ✓ Store in a cool, dry, dark environment in which the air is clean.
- ✓ Remove dirt, foreign material, fingerprints, smudges and liquids by wiping with a clean cotton fabric in a straight line from the center of the disc toward the outer edge.
- ✓ Use CD/DVD cleaning detergent, isopropyl alcohol or methanol to remove stubborn dirt or material.
- ✓ Check the disc surface before recording.

Photo by Bob Kovacs

Don't:

- ✓ Touch the surface of the disc.
- ✓ Bend the disc.
- ✓ Use adhesive labels.
- ✓ Store discs horizontally for a long time (years).
- ✓ Open a recordable optical disc package if you are not ready to record.
- ✓ Expose discs to extreme heat or high humidity.
- ✓ Expose discs to extreme rapid temperature or humidity changes.
- ✓ Expose recordable discs to prolonged sunlight or other sources of UV light.
- ✓ Write or mark in the data area of the disc (area where the laser "reads").
- ✓ Clean in a circular direction around the disc.

For CDs especially, do not:

- ✓ Scratch the label side of a CD.
- ✓ Use a pen, pencil or fine tip marker to write on the disc.
- ✓ Write on the disc with markers that contain solvents.
- ✓ Try to peel off or re-position a label.

Additional tips include the use of discs that feature a gold metal reflective layer for archiving recordable discs, and temperature recommendations for long-term storage conditions. For instance, if CDs and DVDs are to be stored together, the temperature should remain between 39 and 68 degrees Fahrenheit, with a relative humidity between 20 and 50 percent. The site specifically recommends 64.4 degrees with a 40 percent RH for long-term storage, and a lower temperature and RH for extended-term storage.

Islands

▶ Continued from page 37

relaying the news that we could not dial long-distance from that phone line. Uh oh. We had forgotten to order a long-distance service for our POTS on the street.

David Ossman and Judith Walcutt on the streets of Langley, at the Whidbey Island arts and music festival, Choochokam.

We phoned home with the news and solved the problem with a phone call from the other direction. Blue Boxes are a kind of telephone, so the signal goes both ways. The board operator at the station called us back, and we were on the air in time and stayed there for the next five hours. Once again, no break-up, no drop out, no redials.

More music

We continued to take the music feed from the main stage mixer, into a Mackie 1402-VLZ that we used as our audio hub. Input 1 was an Audio-Technica 4043, used as an ambient microphone to pick up crowd ambience as a bed under our husband-and-wife banter and street interviews.

Inputs two and three were the pair of Audio-Technica Artist Elite 5000s. To provide a mono mix of CDs to forward promote the upcoming, Inputs seven and nine were used to combine the stereo feed of a Panasonic portable CD player, while David and I took tiny breaks to taste the fare and find the rest rooms.

Input 13 (left input only) was used as a monitor point from a portable mono FM radio, so Newitt could keep tabs on the broadcast off-air via the headphone jack on the Mackie.

Channel 13/14 was muted to route the input signal to the alt 3/4 Bus. The alt 3/4 button was depressed in the C/R Phones Source Selection section of the 1402-VLZ to punch in and out of the broadcast. He was also able to monitor and cue any of the other inputs or prefader (with the "Solo Mode" button set to PFL) by selecting the solo button for the channel he wanted to hear.

Newitt had it under control and David and I were wild on the streets. The music played on and the Comrex Blue Boxes stayed connected. "Live from the Islands" was born, and we'd gone gonzo for the duration.

In an upcoming issue, "Live from the Islands" moves indoors for the winter with the Tieline codec.

Judith Walcutt has been writing about broadcast media and producing in the public radio arena for 25 years. Visit www.livefromtheislands.com.

SUPPLY SIDE

I/One Connects

"Supply Side" is a new series of articles about radio broadcast suppliers you don't know, or facts you don't know about companies you do.

What does your company do?

I/One Connects develops and sells a distributed routing system based on Firewire with mLAN connectivity. I/One is modular in design; it allows facilities to connect their audio sources (consoles, hard-disk systems, networks, etc.) and keep them in the digital domain throughout with one cable.

I/One is a cost-effective way to upgrade to a totally digital infrastructure without locking into proprietary technology. We're now touring the United States with it; readers can see I/One at their next meeting by contacting us at our e-mail address.

Who owns the company? How many employees do you have?

I/One Connects is a privately owned company with five employees.

Why should a station engineer consider using this product?

I/One gives a facility a total digital infrastructure and the flexibility of a router. It can be gradually deployed, connecting existing equipment making it easier to budget. For a new facility, what now takes hundreds of cables, weeks of work, can be done with a single cable in a matter of hours, thus saving weeks of installation/planning time.

When you move, you take I/One with you; saving tens of thousands of dollars.

What is the system's audio capacity?

I/One carries up to 200 channels of 24 bit audio @ 44k (in addition to control and word clock); 87 channels @ 96k. (Note: a channel being 1/2 of a stereo pair. Channel calculation: one transmitter to any number of receivers.) A bridge allows for larger systems.

With fiber optic cabling, distances greater than 500 meters are possible and up to 3 km using bridges. Standard Firewire copper cables will allow for 4.5 meters (though better-quality cables have been tested to 20 meters before needing a repeater).

Bus latency is 0.35 millisecond.

What is the cost for a typical configuration?

I/One systems are modular, therefore the client can choose the number of inputs *and* outputs in modules of eight (ins and outs do not have to be the same) and the type (analog or digital) to a maximum of 32 inputs and 32 outputs per node/box. Daisy chaining two or more nodes increases the matrix.

Examples: A small single station (on-air to engineering) two nodes with 16 in and out = $10,494; three nodes (AM/FM and engineering) = $15,741. Four studios with 16 in and out each and one engineering node with 32 in and out = $29,482.

For more I/Os, the user can hot-plug in an I/O card, $575 or $799.

Cables and repeaters extra.

Why Firewire, and how does this approach compare to others on the market?

Firewire is a high-bandwidth (more audio channels) real-time (constant bus lattency of 0.35 ms regardless of the number of devices) standard (IEEE 1394) with defined and accepted audio protocols. Firewire audio is already in use in products from many companies and part of Microsoft/Intel's new generation high-quality audio being released.

Others, while using some off-the-shelf hardware, solve the problem using proprietary implementations.

Info

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PRODUCER PROFILE

PD Moonlights as Voiceover Service

Randy McCarten Runs His After-Hours Production Business From the Comfort of His Own Basement

by Ken R.

The American dream used to be a chicken in every pot. Now perhaps it is a production studio in every basement.

In these times of corporate downsizing, "outplacement" and the same radio job security enjoyed by a Yankees manager, production people are looking for new solutions.

By day Randy McCarten is program director of Clear Channel's WTRY(FM) and WRVE(FM) in the Albany-Schenectady-Troy market. But at night, he goes into his basement and becomes "Randy McCarten Productions," a voiceover and commercial service.

"I'm a typical radio geek," said McCarten. "I once read a book by Charles Givens called 'More Wealth Without Risk' that spoke of starting your own small business, and it just came together."

High-quality digital studio gear is inexpensive these days, at least compared to the aircraft carrier-sized analog desks of the past. The new components offer flexibility and great audio quality and, in many cases, reside within easily obtainable consumer computers. McCarten took out a loan for his studio using his car for collateral, and voilà.

His first client was KZCR(FM) in Fergus Falls, Minn.

"We developed audio montages each month for them and the idea was to get multiple stations to buy the service," McCarten said. "And we did a lot of full production on a monthly retainer for smaller-market stations. I also wrote copy for news-talk KTRS(AM), St. Louis including some off-the-wall material for their talk personalities. Now we are doing more straight voice-overs."

'You don't have to have a paying client to work on a piece of production and expand your skills,' McCarten said.

One of his favorite clients is a regional grocery chain in Michigan called Roger's Foodland.

"The radio group that handles their production really writes some great copy I can have some fun with," said McCarten.

He even produced for a client in the West Indies.

"It was a radio station that found us on the Internet," he said. "I received the copy via e-mail, recorded it and e-mailed them an MP3, and that day went to our local grocery store to pick up a check at Western Union. It all happened within about eight hours. Later I got out a map to see exactly where the West Indies were."

There are a lot of talented people who want to do this for a living. ... Find your own style and a radio or commercial market for it.

— Randy McCarten

A staff of three

A large staff is not necessary to run a successful small business these days.

"My wife was doing much of the record-keeping until our children came along," McCarten said. "Now it's just me and our two cats in the studio."

Running any small business is a challenge, and the rewards can be elusive at first.

"Some years are better than others," he said. "Like most businesses we streamlined expenses over the years. Improvements in technology such as the introduction of MP3s allows me to work pretty lean now."

McCarten's efforts have brought in money, and much of it has been reinvested into his company. But is the operation profitable?

"At this point I'd say I've broken even, but I now have a very solid, clean-sounding studio that is as good or better than any I've worked in. I went overboard with my last computer upgrade, so I should be set for some time."

Any advice for others entering the business, Randy?

"The key is getting a number of regular commercial clients and voice-over retainers each month," he said. "Having 'repeat as needed' commercials and radio clients is another, but that income can fluctuate with seasons and the economy."

The biggest obstacle out there for Randy McCarten Productions is "the other guys."

"There are a lot of talented people who want to do this for a living. The problem is that some of them have been doing this for a long time and are very good at it," he said. "It's important to find your own style and then find a radio or commercial market for it."

Marketing of his services is done through industry trade publications and *www.allaccess.com*, an industry Web site. McCarten also has his own Internet presence, *www.mtwprod.com*.

Word to the wise

Radio World asked McCarten if he made any mistakes from which others could learn.

"I purchased a brand-new 1/2-inch, eight-channel analog reel-to-reel machine right at the dawn of digital editing," he said. "That was my most costly mistake." (See sidebar for a description of his current setup.)

Another lesson was learned when a program director heard a voiced liner on McCarten's demo that was EQ'd with the "alternative whisper" sound that was big a few years ago.

"He had me record some phrases for him but he sent the tape back because the sound wasn't right," said McCarten. "I couldn't remember how I got the sound on the demo and couldn't duplicate it. Since then I have kept track of every EQ and effect setting on every project. I still have the reel he sent back as a reminder.

"If there is a magic box to give you a deep voice, I wish someone would tell me what it is," he said. "Boosting the low end ain't gonna do it for most of us."

But just as important as the quality of the voice is the quality of the work.

"Don't be afraid to just sit down and start experimenting in the studio. You don't have to have a paying client to work on a piece of production and expand your skills," McCarten said. "Also read the equipment manuals. There are always tricks you are missing out on. Then experiment some more."

Ken R. is a former production guy and a legend in his own house. He can be reached at ken@kenr.com.

Randy McCarten Productions Equipment List

Compaq Presario computer with Pentium 4, 200 GB storage, 512 MB RAM, CD burner and Digital Audio Labs CardDeluxe sound card

Mackie Designs CR1604 16-channel mixer

Audio-Technica AT4033a cardioid condenser mic

Symetrix Audio 528E Mic Processor

Alesis 3630 Compressor

Alesis QuadraVerb for outboard effects

Sony DTC-700 DAT

Jensen 2652 bookshelf speakers

Software:

Syntrillium Cool Edit Pro version 1.2

Sonic Foundry Sound Forge 5.0

Roxie EZ CD Creator 5 Basic

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PRODUCT GUIDE

Pro Tools 6.4 Integrates With ICON

Digidesign Pro Tools 6.4 software offers postproduction workflow products and new features in the ProTools|HD and Pro Tools LE systems for Windows XP and Mac OS X formats.

The software supports the company's ICON with D-Control tactile work surface, AVoption|V10 and Command|8. Additional features include Automatic Delay Compensation (HD), which compensates for delay issues caused by plug-in latency, bussing and routing, and permits the user to take advantage of mixer configurations previously available only to dedicated analog or digital consoles.

TrackPunch (HD) enhances current QuickPunch capabilities for music recording by enabling the user to arm tracks on the fly. Combined with TrackInput, TrackPunch allows workflows similar to traditional tape-based multitrack recorders. TrackInput (HD) permits per-track switching between input source and playback from disk.

With the RecordLock (HD) feature, loading audio with discontiguous (broken) time code is feasible without an assistant having to re-arm Pro Tools when loading different takes from film shoots.

For more information, call Digidesign in California at (800) 333-2137 or go to www.digidesign.com.

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OMB YAV4 FM broadcast antenna. 4 bay verticle for 6dbd omni-directional gain. Tuned to 93.3 MHz. Includes power divider, all hardware and (4) 16' coax jumpers with "N" connectors, manual. Just over a year old, working fine when taken down in March. Rated at 300w, $450 + shpg. Ron Kocher, WFBO-LP, 45 Pine Hill Ln, Palm Coast FL 32164. 386-437-4304 or RLKocher@msn.com.

Arrakis Systems automation systems, one DL3 and one DL4. Both in working order, complete systems. Call for pricing and details. Ed Smith, WZTQ, POB 602, Centre AL 35960. 256-927-4027.

CART MACHINES

Want to Sell

Spotmaster cart machine, 5 deck playback, $150; Spotmaster cart machine, R/P, $250. Donald De Rosa, WAMF, 315-593-1300 or email: WAMF1300@alltel.net.

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Inovonics 222 NRSC AM audio processor with instruction/maintance /operating manual, $350. Donald De Rosa, WAMF, 315-593-1300 or email: WAMF1300@alltel.net.

Inovonics David 715 stereo generator/processor, 10 yrs old, excellent condition, $1000. John Wilsbach, WMSS, 214 Race St, Middletown PA 17057. 717-948-9136.

MICROPHONES

Want to Sell

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Want to Buy

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 972-271-7625.

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Want to Sell

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Want to Sell

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Want to Sell

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RDS Phantom automation system, new in 2002, PTU mother board, ASI audio DSP card, 4113 card. 20 gb EIDE hard drive, loaded with AC music library updated to 3/1/04. **Also have another** loaded with current and classic country music library updated to 3/1/04. Software support from RDS until 8/04. Bill Hearst, Clarion County Bdctg. 1168 Greenville Pike, Clarion PA 16214. 814-226-4500.

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Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST, 972-271-7625.

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Seeking San Francisco radio recordings from the 1920's through the 1980's. Stations like KYA, KSFO, KPO, KWBR, KTAB, etc. Formats in r-r, 16" radio transcription disc, cassette, etc. I'll pay to have copies made for me. Write or call: Ron Tamm, 140 Linden Ln #127, Mill Valley CA 94941. 415-383-6216.

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ACTION-GRAM

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◆ READER'S FORUM ◆

IBOC: Sound Is Not Enough

Another excellent column from Skip Pizzi ("Lessons of the BritDAB Invasion," March 28).

I'm not surprised the Brits are making some headway in DAB acceptance through the provision of programming services otherwise unavailable on AM or FM.

Those of us old enough to have worked in radio in the early 1960s will recall that the rise of FM as a viable medium in America was driven by several factors unrelated to high fidelity or stereo.

First, the FCC's ruling in the mid-1960s prohibiting 100 percent simulcasting of AM and FM stations forced those with FM licenses to do something different on FM. That ruling spawned the widespread broadcasting of two formats that would become the engines of FM growth: beautiful music and album rock.

And FM stations of that period, by design or necessity, had markedly lower commercial loads than AM stations. While the AM stations — even the top 40s — ran the NAB Code maximum of 18 minutes of commercials an hour, most FMs ran 10 minutes or less, and the highly successful Schulke beautiful music stations ran no more than eight minutes an hour of carefully controlled commercial content.

So, even if IBOC actually sounds perceptibly better than FM (does it really?), it will not be enough to drive the widespread and rapid uptake of digital radio in the United States. And the disingenuous fallback-to-analog feature of IBOC makes non-simulcast analog and IBOC risky for the average broadcaster.

Pizzi has consistently pointed out the foibles of the IBOC solution to DAB in his writings in RW, for which I and many others unimpressed with the IBOC hype thank you.

Julian Breen
Pennington, N.J.

LPFM Support

Thank you for your recent editorial, "LP Eye for the FM Guy" (*Reader's Forum*, March 28). I couldn't have said it better myself.

As usual, Radio World came to the rescue with reason over rhetoric. Since the early rumors of LPFM came to light, your publication has been one of the few sources of fair and balanced information from both sides of the issue. It is nice to see your kind of journalistic integrity.

In these days of consolidation and public outcries about a loss of localism, I'd think the operators of these new stations would be a group that various broadcast organizations would want to include. Unfortunately, that doesn't seem to be the case. In many ways these upstart small stations mirror the real values of broadcasting in its early years.

Are all LPFMs good stations? Nope. But neither are all full-power stations. They have to be evaluated individually on their own merits. There are some very good full-power broadcasters, and there are some that are quite a bit less than wonderful. The same can be said for LPFM.

At our low-power FM station, we try hard to be an excellent local broadcaster. We sound as professional as anyone else, and have done a lot of positive things for our community. The only difference is we have limited range. Even so, we do things that others can't or won't do, and our local residents appreciate it.

I invite your readers to drop by our Web site, *www.kzqx.com*, and listen for yourself.

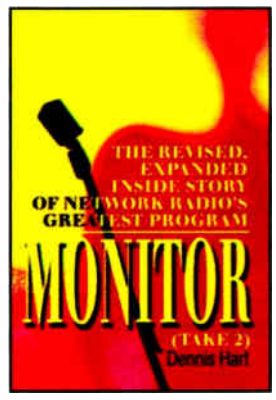
Thank you again for your support.

Chuck Conrad
KZQX-LPFM
Chalk Hill, Texas

Site for Sore Eyes

My deepest thanks to Peter King and Radio World for the magnificent article on NBC's "Monitor" ("Another Take of 'Monitor,'" March 10) and my book "Monitor (Take 2)."

As a direct result of your report, the Monitor Web site (*www.monitorbeacon.com*) received 1,000 visits in just seven days, and many letters to the guest book from people delighted to discover a place where they can relive great audio memories from a time when the term "radio programming" meant much more than traffic and weather.



Your articles provided a quantum leap for my efforts to keep alive the memory of a truly great radio program, "Monitor," which provided the best listening American radio ever produced for nearly a thousand weekends.

With your help, many folks are back where they belong — on the unforgettable Monitor Beacon.

Dennis Hart
Fresno, Calif.

Kahn 'Brilliant'

It is unfortunate for the AM side of our industry that the NAB is pushing for AM IBOC authorization at night, and that our industry trade association is only willing to consider the imperfect Ibiquity IBOC AM DAB system.

They appear unwilling to test or consider promising digital AM systems such as Radio Mondiale, now being evolved by a worldwide consortium of digital AM proponents, much like the evolution of Linux. It is apparently simpler than the system being pushed and promoted by NAB, and works at night.

They also ignore Cam-D, a compatible system from the brilliant inventor Leonard Kahn that works on existing radios and at night.

Kahn's simple AM stereo system was patented in the 1950s and is clearly superior to C-Quam, but it was muscled out of existence by the tactics of competitors GM and Motorola. Motorola, Magnavox and Harris all developed phase-dependent C-Quam-like systems to get around Mr. Kahn's AM stereo patents, but these three were inferior to Kahn in the field by day, and especially by night.

Engineers favored the Kahn system for spectral simplicity and practical efficacy. However, Motorola sued Sony for making radios that received Kahn stereo, so Sony threw up its hands and got out of AM stereo altogether. And the Kahn system was off the table. At least Sony left us with a few of the finest AM radios ever made, the amazing SRF Series. And C-Quam was so bad that the public and the marketplace gave up on it, or were never interested in the first place.

Once again, most AM engineers are skeptical of the technology being rammed down our throats by corporate interests, namely, the AM IBOC system now being pushed for nighttime authority by NAB. Engineers associated with 50 kW Class A AMs with no nearby signals on either side perhaps are the exception.

History seems destined to be repeated, its lessons of failure and foolishness ignored, with AM viability again sacrificed to the folly of the elusive chase for profits from the imposition of inferior technology.

Dennis Jackson
Owner/Founder
WMEX/WCLX/WQQQ/WRIP
Wilton, Conn.

Locals Only?

I have followed with great interest the debate among the satcasters and the NAB regarding the satcasters' plan to offer traffic and weather on their services. In each case, according to XM and Sirius, neither plans to "break away" and split this service on their terrestrial network.

The NAB is lobbying — as they should —on behalf of its dues-paying terrestrial broadcasters. Many terrestrial broadcasters rightfully are concemed that satcasters might infringe on what they view as their turf, the broadcasting of local traffic and weather. But are local stations actually providing this local service? And if so, is it provided only when convenient for the radio station, such as morning or evening drive?

If a recent experience of mine is any example, many of the broadcasters in this country may have cause for concern — a concem of their own making.

This winter a "surprise" storm dropped up to 8 inches of snow and ice over a large swath of the inland Middle Atlantic states. This storm was an "Alberta Clipper" type — a fast-moving but rather weak cold front that picks up moisture from the Great Lakes, then dumps it over the Allegheny Mountains. The National Weather Service forecast on Friday night wamed only of an inch or so of snow. TV weather guessers said the same.

By Saturday morning, several major interstate highways were covered with 8 inches of snow. SAT tests were cancelled, malls delayed opening and collisions dotted the highway landscape.

Guess what? Several Class B FM stations in the affected areas offered no updated weather information. Mind you, these stations are in Arbitron-rated markets — not small "ma and pa" operations in the wilderness. Music, voice tracks and (of course) commercials played on and on. Precious few local radio stations offered timely weather information motorists could count on when traveling.

Couldn't a station staffer be "on call" for such a situation? Certainly an automated station could be programmed to record updated information, even if it comes by cell or dial-up phone. One filling-station manager said he gets his weather information from "that Washington D.C. news station." I assume he was referring to WTOP. Even WTOP had little in-depth information on areas 50-100 miles away.

The expansion of unattended operation with satellite-delivered or automated programming might be good for a radio station's bottom line, but it has opened a real hole for a competitor to provide the essence of localism — local traffic and weather 24/7.

If broadcasters can't or won't provide such a service, then they and their lobbyists shouldn't oppose those who will.

What a shame.

Gregory Guise
Washington

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◆ READER'S FORUM ◆

Expanding Local Coverage

In response to RW's opinion "Clear Channel Tries for Local Voice" (March 10), I would like to point out — as a local radio news director in the Clear Channel Radio New Hampshire market — that the company recently expanded its news coverage.

Roger Wood interviews Democratic gubernatorial candidate John Lynch.

We increased our news staff, with an eye toward providing more newscasts and public affairs interviews to add to those we have consistently delivered over the years.

While there is no question that the workload on individual radio journalists has increased because of the number of stations for which he or she is responsible, enhanced technology has enabled us to keep pace with the demands of the job, and adequately serve our communities with meaningful news content. I believe that the FCC Localism Task Force will find a strong commitment in this market to news and information.

Roger Wood
Clear Channel Radio News Director
Portsmouth, N.H.

Hold the BPL

As a private individual (and licensed ham), I submitted comments to FCC opposing BPL — but not for interference reasons.

Power transmission companies use carrier current to communicate with each other and to operate their Supervisory Control and Data Acquisition systems. Because our job at the New Jersey Office of Emergency Management is to plan for the unthinkable, we must consider that if BPL were implemented, a hacker (or terrorist) could figure out how to get into the SCADA portion of the intelligence that already passes over power lines. BPL is just a bad idea. Period.

As for the condo antenna argument, I live in a townhouse complex and serve as secretary of its association. Because I have access to my attic, it would be quite simple to install almost any kind of antenna up there without anyone's knowledge. As it is, my complex and the apartments across the street show an increasing number of DirecTV dishes. So if those are already allowed, what's the big deal about amateur antennas? Sounds like a non-issue to me.

Bob Schroeder, N2HX
Communications & Warning Officer, NJOEM
West Trenton, N.J.

Competition — It's a Good Thing

When will the NAB and its President/CEO Eddie Fritts wake up and accept the fact that free enterprise and competition are good things? I laughed out loud when I read that Fritts "looks out his window every morning to make sure the XM satellite is not plummeting toward (his) roof" ("Indecency Hovers Over NAB2004," May 19).

Let's do a quick reality check. If memory serves me correctly, the NAB was in favor of de-regulation — the lifting of ownership caps and the 80-90 docket, allowing more FM stations on the band. As a result companies can now own hundreds of stations, multiple stations in a market. And many large radio groups acquired stations, fired on-air personalities and replaced them with voice-tracked programming from their stations in major markets — or switched to automated satellite-delivered formats and syndicated programming.

The NAB also opposed LPFM, citing concerns of interference. They wanted LPFM to be non-commercial, so stations would not face competition for advertising revenue from the "little guys." It seems to me that the NAB fights competition at every turn. If stations were providing more and better local programming, they would not fear the big, bad XM satellites.

Wake up NAB, it's the 21st century. Like it or not, technology marches forward.

Perhaps the NAB should invite XM and Sirius to become NAB members and work together. More likely though would be a push to allow broadcasters to acquire the satcasters — if you can't beat 'em, buy 'em. As for the NAB and the falling satellite scare, perhaps EAS committees should come up with a "falling satellite" event code.

I was a broadcaster in small markets in the Midwest for over 20 years, and I finally switched careers. As a result, I make more money, have better benefits and I don't have to work six days a week.

Tom Murray
Rochester, Ind.

Satellite Wars

Why have a couple million people, like myself, been running to the satellite broadcasters?

The musical content goes beyond what the big corporate guys have been feeding us for the last umpteen years. I'm tired of the worn-out 150 tunes of the classic rock and oldies stations. The local station here won't play anything under 1970. I'm hearing music formats on satellite, from smooth jazz to '60s to '80s, that are just dreams on the corporate radio bands.

The NAB is yelling foul because the SAT guys have a nice big coverage area that surpasses all of the "technical hopes" of the IBOC thing. I love my XM service, and the only reason I still listen to local radio is for the traffic reports and weather on WTOP — and that will soon be history, too. The United States should have made the same move as Canada and our European broadcasters did years ago. Too much greed out there. Too many takers.

Radio has been without wonderful personalities or an artistic touch since the late '70s. Don't kick up dust toward WGTB(FM) 90.1 (Ask Skip Pizzi.) People are still talking about that station and WHFS(FM)during those great days of radio.

Keep up the good work. I enjoy RW tremendously.

Fred Cresce
Washington

If BPL were implemented, a hacker (or terrorist) could figure out how to get into the SCADA portion of the intelligence that already passes over power lines. BPL is just a bad idea.

— Bob Schroeder

Time to Modernize FCC Allocations Procedures

by Gary M. Lawrence and Tom W. Davidson

Since the last comprehensive review of the FCC's radio allocation procedures in 1982, the landscape on the radio dial has changed enormously — and for the better. Thousands of new allotments have been awarded through the creation of Classes C1, C2, C3 and B, and the higher permitted power of 6 kW for Class A stations. The doors have been opened to a wider array of broadcasters and greater listening choices for consumers.

In the intervening 22 years, however, the number of FCC allocation proceedings and the associated administrative costs has grown exponentially. Despite increased demand for spectrum allocations, the FCC's processing procedures have remained largely unchanged. The dedicated professionals in the FCC's allocations branch and the Office of Engineering and Technology are forced to carry ever-increasing administrative workloads. As a result, the process has slowed, impeding the original public interest intent of the 1982 procedural changes.

For example, minority broadcasters, who own a disproportionate percentage of disadvantaged signals, often encounter excessive administrative complexity and expense when they seek to improve their signals. The same holds true for the dwindling breed of independent owners seeking to increase the competitiveness of their stations. Listener choice and station diversity suffer.

With hopes of fixing the problem, First Broadcasting recently petitioned the FCC for rule changes that would deliver significant benefits. The proposed rulemaking seeks modest reform, while protecting the fair allocation of signals.

Miracle cure

Our remedy includes six simple and specific procedural changes.

The first two proposals seek FCC consent to FM (proposal one) and AM (proposal two) community of license changes by minor modification, as opposed to rulemaking or a major change window. The third proposal seeks the establishment of simplified procedures for removing non-viable allotments from the FM table of allotments, freeing up more spectrum for everyone.

Fourth, we have asked the FCC to allow parties pending rulemakings to negotiate settlements during a one-time settlement window, thereby reducing the current allocations backlog. Fifth, we seek to minimize "gaming of the system," by requesting a streamlined process for downgrading a Class C station to C0 status. And lastly, we have asked the commission, in limited circumstances, to acknowledge that the relocation of a sole local service FM station to a community without local service is in the public interest.

Adoption of these equitable proposals would lift the artificial constraints under which many FCC staffers work today, and would represent a major step in the direction of spectrum efficiency.

Gary M. Lawrence is the president and vice chairman of First Broadcasting. Tom W. Davidson is head of Akin Gump Strauss Hauer & Feld's Communications and Information Technology practice, and is a partner with the firm.

How to Submit Letters

Radio World welcomes your point of view on any topic related to the U.S. radio broadcast industry.

Letters should be 100 to 300 words long; the shorter the letter, the better chance it will be published in full. We reserve the right to edit material for space. Longer commentaries are welcome but may not reach print as quickly.

Include your name, address and contact information, as well as your job title and company if appropriate.

Send letters via e-mail to *radioworld@imaspub.com*, with "Letter to the Editor" in the subject field; fax to (703) 820-3245; or mail to Reader's Forum, Radio World, P.O. Box 1214, Falls Church, VA 22041.

◆ READER'S FORUM ◆

Radio World receives many more letters than we are able to print at one time. In this issue we catch up a bit on correspondence from readers over the past several months.

Kudos

Your editorial regarding the translator filling (Reader's Forum, Jan. 14) was right on the mark. The paragraph that says "translators are for extending the range of a station, not for creating a national network" goes to the heart of the matter.

I take real exception with CSN. I feel they would apply for every frequency on the AM and FM dial if they could, and buy up every station already licensed. I hope the commission never changes the rules that state translators in the commercial portion of the band must be fed over-the-air. Great editorial. Kudos.

Rick Johnson
Antioch, Ill.

Want to commend Paul McLane on a long-overdue article about the state of radio programming.

"And the Trumpets Blow Retreat" (April 7) is what every other radio trade publication has ignored since radio took its turn towards shock and sex.

I featured your column on AudioGraphics.com. Good work.

Readers also may be interested in this article, penned quite a few years ago: *www.audiographics.com/articl23.htm*

Ken Dardis
Audio Graphics Inc.
Chagrin Fall, Ohio

Bravo to Paul McLane for "And the Trumpets Blow Retreat." The column captures my feeling about the current controversy over broadcast "indecency." In particular, McLane points to the lack of industry leadership when the issues should have been talked about in a self-regulatory sense years ago, before a hypocritical FCC began leveling big fines.

Now, the commission is trying to shift public attention away from its rush to even further lift broadcast ownership restrictions by mounting a loud campaign to protect the viewing and listening public from indecency. In his April 12 column in the Washington Post, Tom Shales writes: "As some of (FCC Chairman Michael) Powell's critics have pointed out, letting a few giant corporations own all the TV stations and cable systems in the country makes it more likely than ever that local community standards regarding what's fit and proper to broadcast will be ignored. Concentration of power leads to abrogation of social accountability. It makes TV literally all about money and nothing else."

The same could be said about radio.

Richard W. Osborne
Concord, N.H.

While I've enjoyed and admired many of your recent editorials, "And the Trumpets Blow Retreat" really hit the spot. Our firm represents a wide spectrum of broadcasters, but nearly everyone I speak to — large market or small— agrees (sometimes only in private) that, regardless of the First Amendment, things have gotten way out of hand.

Readers might be interested in my March 29 column in Legal Times, which strikes some similar themes.

Peter Gutmann
Womble Carlyle
Sandridge & Rice, PLLC
Washington

I very much appreciate Ken R.'s generous and kind review of my book ("'Speaking of 'Radio' Tells It Like It Was," April 7).

You brought my book to life, and expressed exactly what I hoped to convey to the reader.

Chuck Schaden
Morton Grove, Ill.

Correction

In the May 5 issue, a story about RDS incorrectly stated that Clear Channel stations are the only ones in the Dallas market scrolling song title and artist text information, visible on RDS radios. Mesquite Schools Radio, KEOM(FM), in Mesquite, Texas, has been using RDS to display text messages for three years.

Two DJs Help Radio Reach Bottom

We recently reported on Nick Berg's generosity and dedication to improved communication for the less fortunate. He was the tower climber whose beheading at the hands of Iraqi captors in May was recorded on videotape. Berg had been in Iraq reconstructing towers destroyed by wartime fighting because he was "very supportive of what was going on (there), and wanted to be part of the rebuilding process," a friend said.

He embodied the principles of broadcasting with his commitment to bettering radio technology in third-world countries and teaching their people how to erect towers themselves — using natural materials, no less.

Learning of such magnanimity makes the ridicule of his agonizing screams by two Portland, Ore., DJs even more of a sickening embarrassment.

Radio hit a new low when the Entercom Communications KNRK(FM) morning hosts known as Marconi and Tiny — the station has not released their actual names — played the audio portion of the video and cracked jokes while listening to his brutal death unfold. It is a travesty that anyone in our industry could tum on one of its own, or any victim, in this way.

While there is no definitive definition of indecency and feelings regarding the FCC crackdown ride the fence, such insensitivity to Berg's family and to unsuspecting morning drive listeners, such mockery of the horrible, is disgusting. Even Howard Stern, unofficial poster child for inappropriate humor, spoke poignantly of Berg's execution in the days following the KNRK incident, adding that just watching the tape was disturbing and he could not imagine anyone finding it funny.

Thankfully, the DJs and show's producer were fired. But this incident will only confirm the notions of those who despise the antics of morning zoos for the obnoxious face they have put on radio — particularly given, as ABC News Online reported, that the duo was known for crude jokes, yet station management had "deemed their 'edgy' humor necessary to reach young adult listeners."

It's unfortunate that the benevolent intentions of radio as a source of community information have been corrupted in this incident, and the foundation on which Nick Berg's principles of broadcasting were built has been cracked in an effort to target a coveted demographic. More troubling yet is that the underlying mindset reflected by Marconi and Tiny was allowed to flourish in the first place. Such an attitude about programming is not exceptional, despite recent attempts by our industry to do better.

— RW

The DIN of IBOC

The recent NAB endorsement of nighttime AM IBOC creates serious problems for all AM listeners beyond major population centers. Daytime IBOC has already demonstrated serious listener problems in major population centers.

Every IBOC field test has demonstrated significant IBOC signal in the first- and second-adjacent channels. The signal is a constant stream of digital impulse noise or "DIN." Serious analysis of DIN sideband power content shows energy several orders of magnitude greater than what was considered for the NRSC splatter standards.

The constant DIN of IBOC explains why night reception will be destroyed for most rural AM listeners. AM IBOC is only useful to the 2 or 3 millivolt contour, which leaves rural listeners in the dark for important weather and emergency information.

Perhaps it is the intent of the industry to damn the audience and establish FM parity for AM coverage. Following this logic, it also is possible to eliminate all AM nighttime directional operation.

Vern Killion
Director of Engineering
Nebraska Rural Radio Association
Lexington, Neb.

Linux Has Arrived

Your recent article on the use of Linux in digital audio ("Opening the Linux Window," May 19) left the impression that its use is something that may happen in the future. Our company has been manufacturing and selling Linux-based digital audio units now for some time.

We have around 100 of these units in the field in various configurations, working as stand-alone systems or in conjunction with other units for more complex installations.

We have found Linux to be the best direction our company has taken, as it is stable, unbothered by viruses and not only Internet-aware, but with Internet communications deeply embedded in the system to facilitate audio transfers and foresee problems. Most of our Linux units can be serviced directly over the Internet, making proactive support possible by sampling customers' systems every day to look for problems, identifying them and fixing them before causing any on-air disturbance.

Radio should not be afraid of Linux. It is here, reliable and — in my estimation — the future of broadcast automation. It's a quantum leap above Windows-based systems.

John F. Schad
President, CEO
Smarts Broadcast Systems
Emmetsburg, Iowa
On Air Digital Inc.
Dallas

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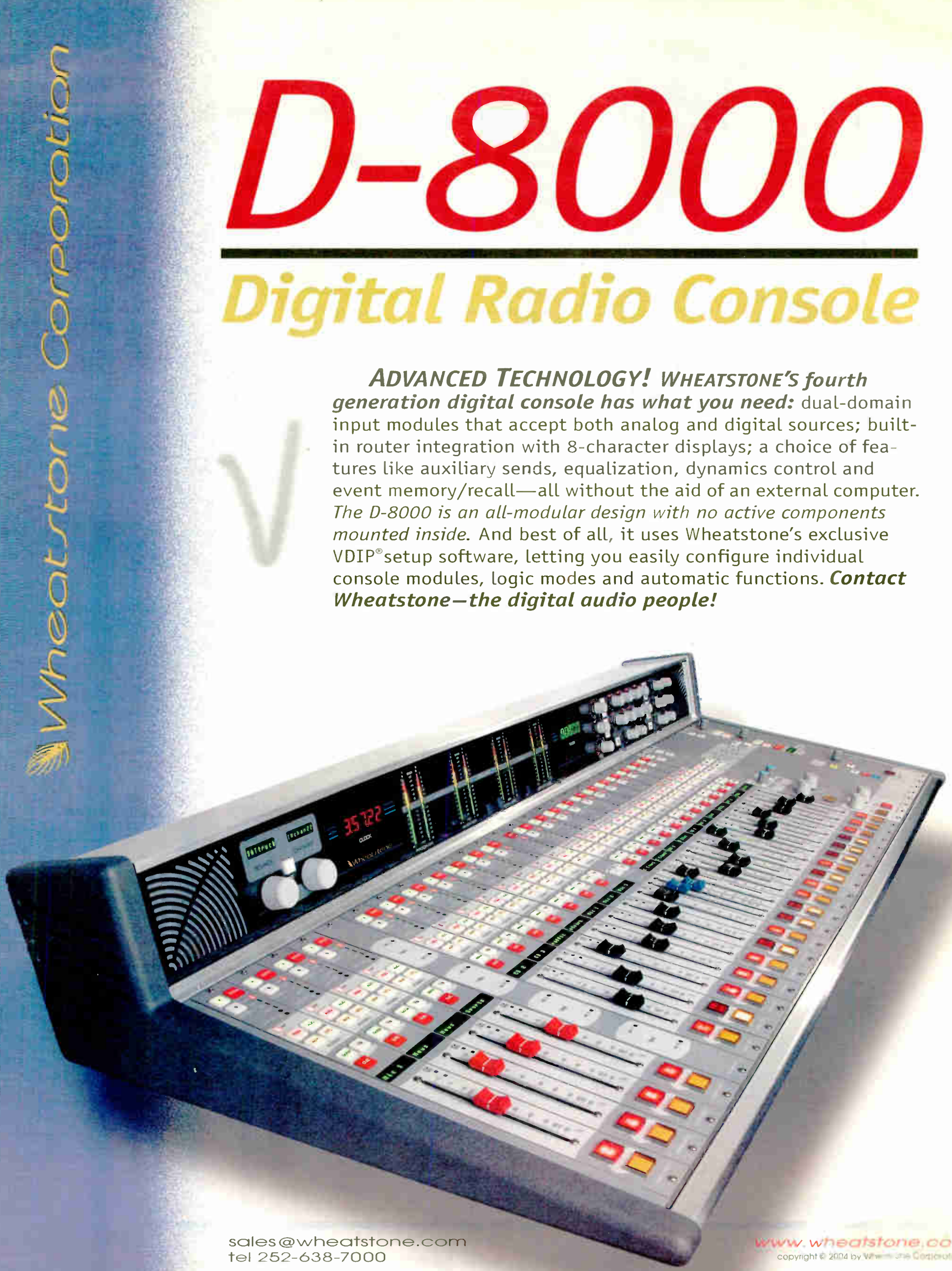

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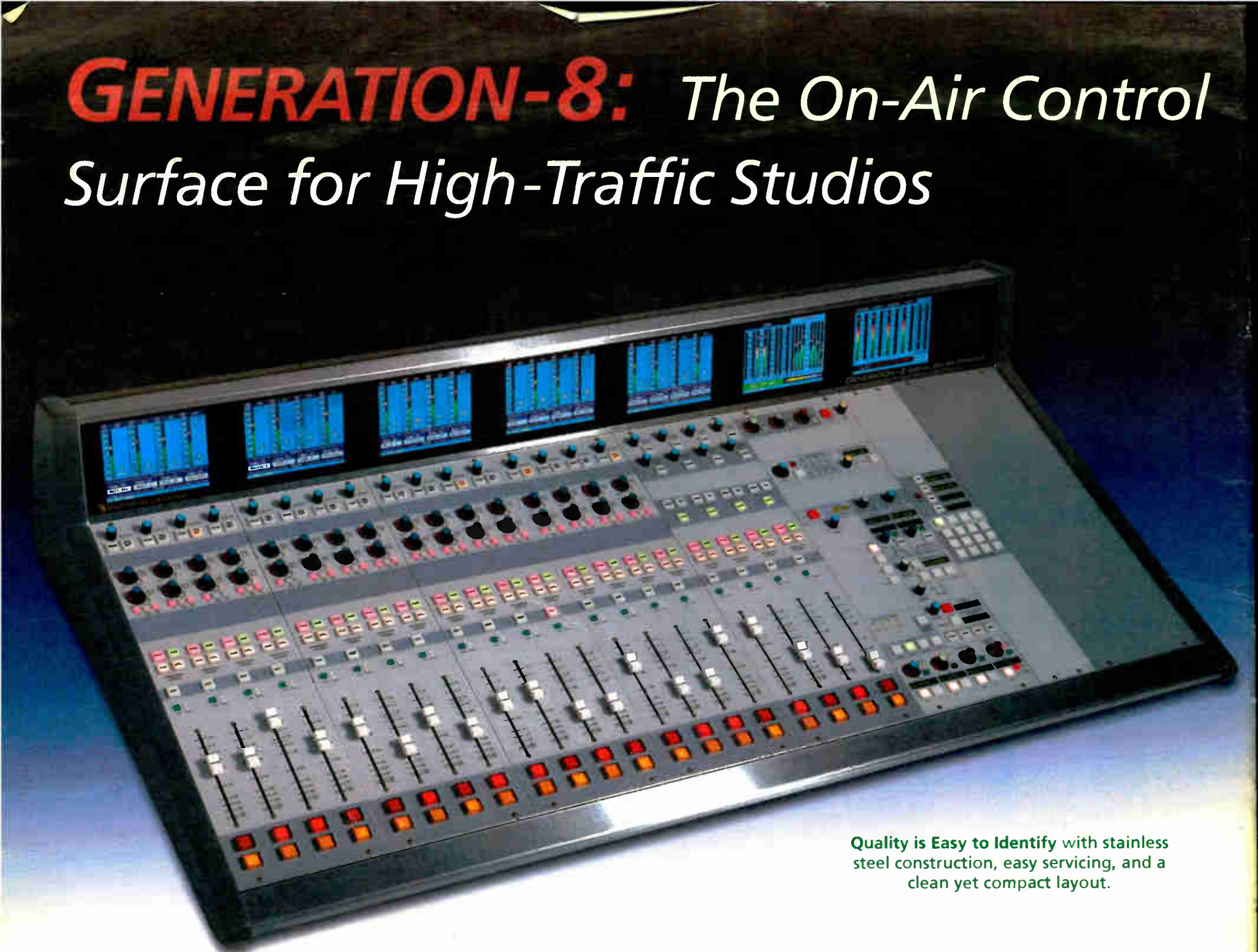

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