Are You Exempt?
Radio isn't going to be stuck paying the Internet piper if it can help it.

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Way Up High
Buyer's Guide features the latest antennas and transmission support products.

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Radio World®
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ENGINEERING

▼ IBOC STAs; rigid vs. semi-flexible line; and a year of sadness and achievement for SBE.

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2002 Radio World READERS' CHOICE Sweepstakes

▼ A Nebraska reader wins the Alesis Masterlink from SCMS and Radio World.

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NEWS ANALYSIS

Clear Channel Expands Direct Buying

by Leslie Stimson

Using its 1,200-station clout, Clear Channel has approached selected broadcast equipment manufacturers to expand the use of direct purchasing, in product categories traditionally sold through distributors and dealers.

The development is noteworthy in an industry that has seen two years of sluggish sales and that long has wondered how radio consolidation would affect traditional selling models.

Clear Channel, radio's largest owner both in revenue and stations owned, says it must adopt this change to get the most value for its shareholders.

Meanwhile, equipment dealers and distributors, who stand to lose potential business when major clients go direct to the factory, eye this development with trepidation, fear and, in some cases, anger.

Some product categories, like transmitters and automation systems, have been sold direct for years. But in general, equipment manufacturers and resellers have enjoyed a symbiotic relationship. If more radio groups seek to buy direct, what will be the role of

See BUY, page 5 ▶

Supplier CCA Files For Bankruptcy

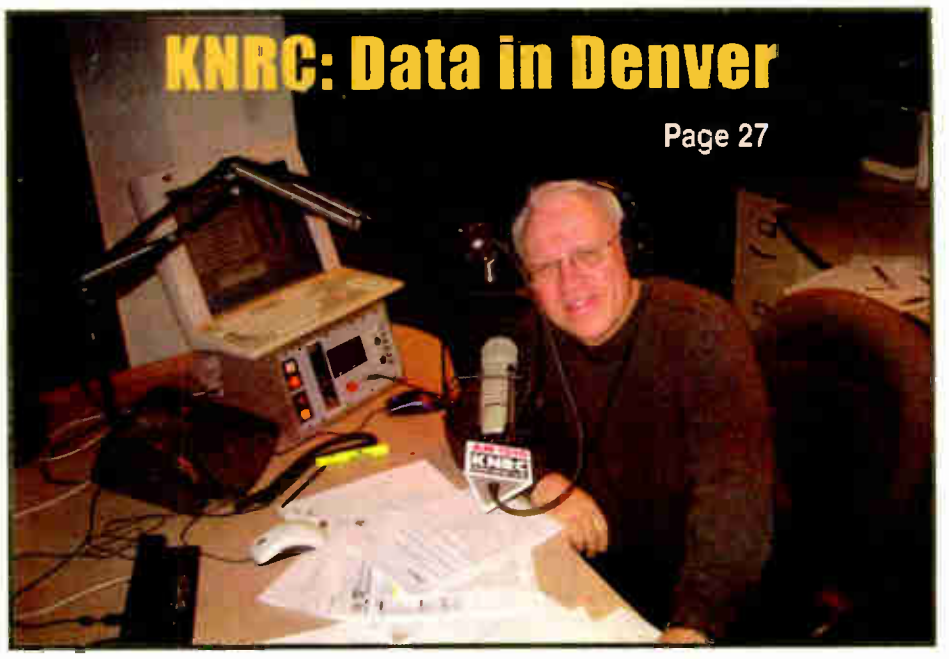
by Randy J. Stine

FAIRBURN, Ga. Commercial Communication Associates Inc. customers are turning to other suppliers in light of CCA's bankruptcy filing. The company filed under Chapter 7 of the U.S. Bankruptcy Code, which calls for immediate liquidation of its assets to satisfy creditors.

The radio transmitter manufacturer closed its operations in Fairburn, Ga., in early November, amid an allegation of possible fraudulent activity in its last few weeks of operations. A customer filed a complaint with Fairburn, Ga., police after making final payment for a new transmitter in October, just weeks before the company ceased operations, but not receiving it prior to the bankruptcy filing.

A court in Georgia was expected to

See CCA, page 3 ▶



◆ NEWSWATCH ◆

License Revocation For WMGA?

WASHINGTON The FCC has begun a proceeding to determine whether to revoke the license of Radio Moultrie Inc., for WMGA(AM) in Moultrie, Ga. A possible $300,000 fine is pending as well for several alleged violations regarding the station's antenna, EAS equipment and its main studio.

At issue is whether Moultrie transferred control of WMGA to Dixie Broadcasting Inc. without prior authorization from the commission and for not responding to several FCC letters about the case.

The order includes an opportunity for a hearing to determine whether in addition to or as an alternative to license revocation and/or cease and desist order, monetary penalties should be imposed.

The commission states the licensee of record for WMGA is RMI. Yet the agency states it has information suggesting that Dixie may have acquired the station's assets yet can find no record that RMI sought or obtained commission approval for a license transfer.

Dixie stated it planned to acquire the station and operate it until a sales price was agreed on. DBI and RMI entered into a time brokerage agreement so DBI could run the station, but DBI said they never agreed on a sales price. Dixie indicated it later entered into another time brokerage agreement with a third party, intending to sell the station.

RMI had 30 days to respond.

FCC Issues First RFR Fines

WASHINGTON After levying big fines against owners of cellular towers for exceeding RF radiation limits, the FCC now has its eye on radio. The agency proposed a $28,888 fine against A-O Broadcasting Inc., licensee of KTMN(FM) in Cloudcroft, N.M., for violating the radiofrequency radiation exposure limits applicable to transmitters on towers and for other rule violations.

The FCC said this was the first such case for broadcasters.

Field agents inspected KTMN's transmitter site after receiving a complaint alleging that KTMN was not operating at its authorized power and was not in compliance with the RFR exposure limits. KTMN's antenna, mounted on an observation tower used by the U.S. Forest Service to watch for wildfires, was lower than authorized in the station's license, stated the commission.

In its NAL, the FCC stated: "Measurements taken by the agents showed that operation of KTMN's transmitting antenna at only 40 percent of its authorized power created RFR fields which exceeded the RFR exposure limits for the general public by more than 300 percent on the observation tower and in areas outside the fence surrounding the tower that were accessible to the public. In addition, the agents found that A-O had not complied with special RFR operating conditions set forth in its license."

The commission also proposed that A-O be held liable for not installing Emergency Alert System equipment and also for not having a main studio. A-O had not replied to the agency by press time.

KWNZ Fined $10,000 for RF Emissions

WASHINGTON Close on the heels of the A-O fine, the FCC found Americom Las Vegas Limited Partnership, licensee of KWNZ(FM) in Carson City, Nev., liable for a $10,000 forfeiture for failure to comply with the RF radiation maximum permissible exposure limits.

During an inspection at the McClellan Peak antenna site near Carson City, personal RFR monitors worn by FCC field agents began to go off. In a subsequent inspection, the commission said the station's RF

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CCA

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decide on Dec. 9 how to begin disposing of CCA's assets in a meeting with CCA attorneys and creditors. Approximately 40 unsecured creditors were listed in the Chapter 7 filing on Nov. 13. Radio World is among the unsecured creditors.

Trouble signs

In its voluntary petition filed with the court, CCA estimated debts of between $100,001 to $500,000. It predicted there would be no funds available for unsecured creditors.

Chapter 7 bankruptcies sometimes are called a "straight" bankruptcy. The liquidation process can take four to six months before a federally appointed trustee sells a company's assets and distributes the money to creditors, according to several legal sources. A Chapter 11 filing, by contrast, allows for a company to remain in operation under the direction of a trustee while it seeks additional capital.

Commercial Communication Associates purchased the assets of CCA Electronics Inc. in early 2000 after the earlier entity had filed for Chapter 11 bankruptcy and faced bank foreclosure. Commercial Communication Associates then used CCA as an acronym for the new company.

Former President Scott Benton said he left the company in August 2001 after losing faith in its direction.

ny's Web site, "The fire due to electrical fault did a lot of damage to the office part of the facility."

The company was forced to relocate administrative and production personnel to a temporary facility for approximately five months.

Days after CCA's bankruptcy filing in November, police in Fairburn, Ga., received a complaint from an Arkansas broadcaster alleging CCA executives sold the station a transmitter while knowing it was preparing to file for bankruptcy.

Caldwell Broadcasting intended to use the CCA FM-G 12 kW transmitter for KSMD(FM), a startup station licensed to Pangburn, Ark., said Dave Clark, operations director for the station.

"Naturally, if we had known or had any idea this was about to happen, we would have gone in another direction," Clark said. "Right now, we're just exploring our options and staking a claim to what is ours."

Clark said the broadcaster "hopes to wind up with what we ordered" but was considering purchasing another transmitter to get the new station on the air.

Caldwell Broadcasting alleges it made payment to CCA in late October intending to take delivery of the new transmitter on Nov. 12. Clark said the company became nervous after dozens of calls to CCA's Fairburn offices near Atlanta went unanswered.

"We sent someone over there and discovered the place was locked up with no signs of anyone around. Then we knew it could be bad," Clark said.

transmitters would be able to find parts.

"I'm sure there will be a parts inventory available and that someone will absorb it. There is money to be made in parts and service ... maybe someone will do it," Benton said.

One radio group engineer familiar with CCA transmitters who asked not to be identified said CCA's transmitter designs "leaned toward the simplistic and were built with off-the-shelf parts," which should help when it comes time to find replacement capacitors and tubes.

Scrambling for support

"I think the problem will be when you need a power transformer or a tuning assembly. The support is now gone. Fixing (CCA) exciters could also be a big deal now," he said.

"They were also servicing and selling parts for old Sintronic and CSI transmitters. I'm not sure where will that come from now."

The engineer said that, over the years, CCA's line of AM, FM and shortwave transmitters earned a reputation as affordable and dependable.

The original CCA Electronics was founded in 1963 by a group of RCA transmitter engineers, after RCA decided to close its transmitter program. Ron Baker bought the company when it went bankrupt in 1982. Baker owned CCA Electronics until Commercial Communication Associates bought the assets in early 2000.

We sent someone over there and discovered the place was locked up with no signs of anyone around.

— Dave Clark

"I knew that the company was going under. I think they only sold about six transmitters after I left until the end. It's too bad because we had great hopes for the company when we came in to take over two years ago," Benton said.

Benton said U.K. businessman Alvar St. Aubyn headed the investment group that purchased CCA Electronics and promised to provide the capital needed to improve research and development.

While CCA transmitter sales in the United States were strong at first, Benton said international sales were virtually nonexistent during his tenure.

"I held up my end of the bargain by selling in the U.S. It was (St. Aubyn) who failed to bring in the business from overseas," Benton said.

Efforts to reach St. Aubyn were unsuccessful.

Benton said that when he left CCA, the company had approximately 15 employees and was showing signs of trouble.

"We had projected budgets based on what we thought would be coming in from overseas ... it just never materialized. (CCA) was having trouble keeping up with the bills," Benton said.

One setback was a fire that damaged the company's headquarters in Fairburn in July 2001. According to the compa-

Clark declined to say how much Caldwell Broadcasting paid for the transmitter. Benton said the model listed for about $28,000.

Investigation underway

Fairburn, Ga., Police Sergeant J.H. Metcalf said detectives have an "active criminal investigation" underway trying to determine the order of events leading up to the complaint filed by Caldwell Broadcasting.

"We are trying to determine whether there was criminal activity prior to the filing." Metcalf said further investigation was needed to determine if executives knew they were closing the doors and still accepted money for a product.

CCA's "multi-corporation ownership set" is making it difficult to determine who actually owns the company, Metcalf said.

Benton said Commercial Communication Associates' majority owner is Sistec S.A.R.L., based in Luanda, Angola, in Africa. Sistec imports and exports transmission equipment there and owns several other manufacturing companies, he said.

In court papers filed in November, Alvar St. Aubyn is listed as director of CCA.

Despite the company's demise, Benton speculated that broadcasters with CCA

◆ NEWSWATCH ◆

▶ Continued from page 2

emissions exceeded the allowable limits by 42 percent. Americom stated that because the site is remote and not frequently visited by the public, KWNZ should be held to a less-restrictive standard.

Adelstein Sworn In

WASHINGTON The commission now has its full complement of five commissioners.

Ten months after he was nominated by President Bush to serve as the fifth FCC commissioner, the U.S. Senate confirmed Jonathan Adelstein in November. The aide to Sen. Tom Daschle, D-S.D., will fill out the balance of Gloria Tristani's term to June 30 of next year. Tristani left the FCC to run for the U.S. Senate. She lost the seat to incumbent Pete Domenici, R-N.M..

Adelstein's nomination was one of several held up in partisan bickering.

Adelstein was sworn in and began work at the agency on Dec. 3.

NAB supported the nomination and is "delighted" with the confirmation.

With Adelstein on board, Michael Copps will no longer be the sole Democratic commissioner.

Write We Joyous All Together

With the holidays upon us, I'd like to pause and thank the many people whose written words have made Radio World possible in 2002.

My goal as editor has been to establish a marketplace of ideas, where people who work in radio management and engineering can write about and discuss virtually any issue pertinent to the U.S. radio broadcast industry.

But as proud as I am of our efforts, when I look at the list of people below who have written in these pages this year alone, I am humbled. And this list does not include the opinions and words of the hundreds of people we have quoted in our articles, nor the many dedicated readers who sent in *Workbench* tips or contributed to the success of Radio World in other ways.

If we could all get together under one holiday roof, what a party it would be.

★ ★ ★

So happy holidays to Cameron Adkins, Cris Alexander, John Arndt, Jerry Arnold, Susan Ashworth, Daniela Back, Michael Baldauf, Bruce Bartlett, Frank Beacham, Ralph Beaver, Rodney Belizaire, John Bisset, Bob Blanchard, Graham Bland, Stephen Blum, Joseph Brannan, Julian Breen, Aaron Brodbar, John Brookmyer, Cindy Sue Brooks, Tom Bosscher, Ed Bukont, Read Burgan and Mark Byford.

A Merry Christmas to James Careless, Gordon Carter, Robert Carpenter, David Carr, Tom Carten, Naina Narayana Chernoff, Scott Childers, Marguerite Clark, Scott Clifton, Damon Cline, Deana Coble, Barbara Cochran, Paul Cogan, Harry Cole, Marv Collins, Troy Conner, Chuck Conrad, Robert Conrad, Art Constantine, Tim Cutforth, Jim Dalke, Joe Davis, Bill Dawson, Bill DeFelice, John Dehnel, Laura Dely, Jeff Detweiler, Vince Ditingo, Tom Ditt and Lewis Downey.

Top o' the season to Mac Dula, Edward C. Dulaney, Mark Durenberger, Johnny Dymock, Glenn Finney, Buc Fitch, Paul Flint, Steve Fluker, Ty Ford, Bob Foster, Don Free, Dick Fry, Scott Fybush, Lawrence Galkoff and Mike Gannon.

★ ★ ★

A prosperous New Year to Michael Gay, Jim Giberti, Carl Gluck, Bob Gonsett, Bob Gowa, Lyssa Graham, Lee Granlund, the Greaseman, Mark Greenhouse, Terry Grieger, Paul Griffin, Jim Grimes, Alfred Grunwell, Blažo Guzina, Mike Hagans, Lawrence Hallett, Harold Hallikainen, Donna Halper, Terry Hanley, Bob Heckler, Michael Hedrick, Steve Hemphill, Robert Hensler and Martin Hensley.

Many thanks to Mario Hieb, David Hollyer, Thomas Hultquist, John Hurni, Dave Immer, Craig Johnston, Paul Kaminski, Steven Karty, Bob Kelley, Bob Keyes, Peter King, Glen Kippel, Kurt Kniffin, Tom Koza, Daniel Kumin, Mike Laipply, Andy Laird, Mel Lambert, Steve Lampen, Peter Langford, Mark Lapidus, Chris Lawton and Michael Lawton.

Season's greetings to Michael LeClair, Steve Leventhal, Neil Lewbel, Marc Lindahl, Carl Lindemann, Kenneth MacHarg, Barry Magrill, Bob Makson, Daniel G.P. Mansergh, Christian Marcelin, Lamar Marchese, Ben Martin, Dennis Martin, David Maxson, Roger Maycock, Tony Mayo, Alan McCall, Jon McClintock, Frank McCoy, Tom McGinley, Barry McLellan, Dee McVicker, Danny McWilliams, Maynard Meyer, Cliff Mikkelson, Bob Millard, Jack Mindy and Barry Mishkind.

★ ★ ★

Gifts galore to Bruno Tézenas du Montcel, Frank Montero, Charlie Morgan, Brett Moss, Dale Mowry, Steve Murphy, Ted Nahil, Marv Nonn, Frederick Noronha, Mark Olkowski, Rogelio Ocampo, Bob Orban, Lisa Osborn, Tom Osenkowsky, Gary Palamara, Michael Parks, Steve Parry, Mark Parthé-Hills, Mike Patton, John Pavlica, Troy Pennington, Mark Persons, Michele Kramer Peterson, Al Peterson, Sharon Rae Pettigrew, Norm Philips, Skip Pizzi, John Poray, Elizabeth Prevatt, John Price, Don Pritchard, Jack Quinn, Ken R., Dan Rau, Rich Rarey, Tom Ray, Aaron Read, Mike Reed, Robert Richer and Ed Ritchie.

Warm wintry wishes to Will Robedee, Daniel A. Robinson, Bruce Rogow, Carter Ross, Richard Rudman, Bill Ryan, Marty Sacks, Sallie Schneider Sauber, Greg Savoldi, Sylvie Scolan, R. Sparks Scott, Bob Seaberg, Jim Sensenbach, Ron Schacht, Mike Shane, Gary Sharpe, Paul Shinn, Steve Shultis, Warren Shulz, Pete Simon, Will Sims, Allen J. Singer, Daniel Slentz, Nathan Smith, Wally Smith, Mike Starling, Stan Statham, Chad Steelberg, Leslie Stimson, Randy Stine, Richard Strickland, John Storyk, Steven Strick, Dan Stromme, Scott Stull, Steve Sullivan and Linda Sultan.

Season's greetings to Jay Swafford, Tom Taggart, Scott Tanner, Rolf Taylor, Barry Thomas, Larry Tighe, Lawrence Titus, Mark Tomlonson, Joe Torsitano, Travis the V/O Guy, Bernd Trutenau, Dick Tyler, Barry Umansky, Derek Underhill, Frank Vela, Tom Vernon, Glynn Walden, Richard Walsh, William Walker, Chris Watts, Thomas P. Weber, Ed Weigle, Sandy Wells, Girard Westerberg, George Whitaker, Jerry C. Whitaker, Larry Wilkins, Curt Wilkinson, Warren Wilson, Jim Withers, Guy Wire, Roger Wolski, Jim Wood, Michael Woodworth and Fred Wylie.

And a special thanks to the many, many radio industry insiders who allowed us to bring you their stories this year, including Paul Schafer, Dick Orkin, Joe Clayton, Jean-Paul Colaco, Aaron Winski, Gary Kline, Art Shifrin, Hal Jackson, Joan Gerberding, Porky Chedwick, Steve Hemphill, Rob Taylor, Troy Pennington, Donn Werrbach, Dan Halyburton and Lew Dickey, to name just a few.

Here's to a safe and successful 2003.

From the Editor

Paul J. McLane

2002 Radio World READERS' CHOICE Sweepstakes

Our prize this issue comes courtesy of SCMS Inc., your source for broadcast equipment and super service for the past 26 years. The company offers competitive pricing on new gear from 600 manufacturers plus a big stock of rental and rebuilt gear.

The prize is the Alesis Masterlink High-Resolution Master Disk Recorder, valued at $1,699. Using its on-board hard disk, it lets you capture your mixes in 24 bit, 96 kHz audio; apply finishing tools such as high-resolution parametric EQ, compression, limiting and normalizing; and burn the recording to CD in either Red Book format or the new high-resolution CD24. You can organize song playlists with control of fade-ins, fade-outs, track gain, start points and track cropping.

The winner is Randy Bauer of KGMT(AM) and KUTT(FM) in Fairbury, Neb.

Buy

▶ Continued from page 1

dealers and distributors in the future?

Most observers with ties to the equipment industry agree that manufacturers face a difficult choice in the current environment. Several sources contacted by Radio World said any manufacturer approached with a direct-buy request is caught between saying no, thus perhaps letting business go to a competitor, and saying yes, but risking the alienation of existing dealers — relationships that may have been built up over many years.

Said one source who conducts business with both manufacturers and distributors, "It's about efficiency. Distributors are no longer the most efficient method for overall sales."

Larger orders from big groups are, by their nature, more efficient, these sources say, and big radio groups now can get what they need from manufacturers alone.

Dealers historically reply that they provide significant value, including services such as financial credit, third-party expertise, diversity of inventory, toll-free lines and installation. Further, they say, equipment decisions often are the result of a dealer's hard work in promoting a given product.

Preferred vendors

Clear Channel believes it is in a unique position to buy direct. Radio Vice President for Engineering Services Jeff Littlejohn said the group eventually plans to list six to 10 companies as "preferred vendors."

On the list so far are Harris Corp. for transmitters, Telos Systems/Omnia for audio processors, codecs and phone systems, and Andrew Corp. for coaxial cable, STL antennas and cable pressurization equipment.

Clear Channel did not disclose exactly what the "preferred" designation means, other than to say all of its purchases in that category would be through that vendor except in emergencies.

"We can guarantee those purchases," said Littlejohn. Selling direct, he said, enables these manufacturers to plan their material purchases and factory needs better. Littlejohn said direct buys save the manufacturer and Clear Channel money, although as a company shareholder, he said, he could not say specifically what the savings would be.

"We're uniquely set up because of our capital spending and tracking software to do this," he said.

Clear Channel plans its spending for new equipment more than a year in advance. Its planning software enables engineers to manage their purchases. The stored data includes product prices so employees don't need to spend time researching that information over and over. The company maps out, to the specific make and model number, every piece of equipment it will need for every project, Littlejohn said.

He said Clear Channel will still do business with distributors or so-called box houses, but the amount of money the company would spend would be less.

"For the most part, I'm going to be buying the same amount of product, but spending less money on it."

Andrew Broadcast/Satellite Accounts Manager James Heard said the manufacturer had been making products for other companies which in turn sold them to Clear Channel, so this was a better deal.

"I think Clear Channel chose to pick vendors of a certain size and history. ... If I ship to them and someone else bills them, it doesn't save them a lot (of money)."

He said the Clear Channel deal allows Andrew to lower its costs. For example, the deal specifies the months in which the radio group wants its product, he said, allowing Andrew to plan resource and staff needs.

"In this environment, it's good to have secure business. For me to guarantee some slots in our factory, it's definitely worth giving up some price to have them come direct."

Suppliers and owners ponder the direct-sales question.

Such an order, he said, also involves one-time administrative costs, vs. repeated costs incurred with several smaller orders.

Distributors argue that any manufacturer that sells direct must pass along or absorb added costs associated with product support.

Tim Schwieger, president of dealer Broadcast Supply Worldwide, said, "Somebody has to bear the costs of selling and servicing the end user." It's difficult to do both, he said, referring to "overhead that hides itself but eventually comes out."

BSW distributes Telos/Omnia and Andrew products. He said there is no confrontation between BSW and Clear Channel; all the major groups have tremendous buying clout and are getting good deals, he said.

Bob Cauthen, president of dealer SCMS, sees this trend as temporary. Years ago, he said, network radio stations tried it; but by the time they hired personnel to handle it and paid for the extra overhead, "they didn't save any money."

He said manufacturers generally aren't as flexible as dealers about deliveries and payment terms, and balk at handling returns or demos.

The entire issue is a sensitive one, involving as it does the relationships among makers, resellers and users.

Telos/Omnia, for example, took some heat from dealers. Company executives said several have discussed the Clear Channel agreement with them.

Telos Systems Managing Director Denny Sanders said the arrangement is specific to Clear Channel and includes provisions for purchase and product support.

"Clear Channel told us they wanted a direct relationship. They said it a lot. We listened. Who are we to force a valued customer to do something they don't want?

"The most important thing is this: The best outcome for our clients happens when they get what they want. Not what we want or what our dealers want — although it certainly is best when these are aligned."

In addition, Sanders said the factory already bears the burden of support.

"Customers almost always come to us for assistance on gear they own, not to their dealer." In the case of the Zephyr codec, he said, "Our support guys have units in front of them and connected to ISDN lines, so they can work with people who have Zephyrs at the other end by calling them up, if need be."

He said Telos/Omnia has a large customer support team in place and would not incur extra costs. But the company continues to value its dealer support network, he said.

"This is a partnership, and will remain so. We certainly demo product, visit radio stations, send out loaners, suggest solutions etc. Our dealers are involved with this kind of activity also."

Harris Broadcast is both a manufacturer and a distributor, and handles Telos and Andrew products.

Virginia Lee Williams, director of North American sales for radio, said distributors definitely have a continuing role given the amount of equipment in stations. She believes the number of manufacturers with the internal support necessary to manage such a large contract is limited.

"I don't see this as a sign (that) distributors are going away." She cautioned against "blowing (the issue) out of proportion."

Wheatstone President Gary Snow praised the direct buy concept in general.

"When they're doing a rebuild, they need consoles, wiring ... It's all interrelated. We specialize in all those pieces and integrating them, by providing the engineering support they'll need for that. Dealing directly with a client is best in situations like that."

Snow said Wheatstone products are sold direct, while the company's Audioarts line is sold through distributors.

He said direct buying might not always be the best solution for a station buying off a preferred-vendor list.

"We know of situations where groups have made buy agreements with big companies, only to find out other people may have gotten better prices regardless of the agreements."

At least some group engineers say they could not match Clear Channel's prep time for planning purchases and have found central buying for every purchase too restrictive.

One engineer in charge of regional purchases for a large group said a long lead time may actually close the door to consideration of new technology.

"I think we saved $15,000 one time when new technology came out that wasn't available when we planned the project."

He's also not sure smaller radio groups can attract manufacturers' attention as well.

"There's a service associated with an order — like making sure your order is correct. If I ask for 200 feet of transmission line and all of a sudden two reels of cable show up, the orchestration of getting that back to the vendor" becomes more complicated in a direct deal, he said; the station spends more time straightening out the order.

"When BSW calls up, they'll get more attention from the manufacturer because they've bought, say, 400 (products). They'll take ownership of the problem."

Saving money is important, he said, but so is getting a project done on time.

Sterling Davis, vice president of engineering for Cox Broadcasting, sees advantages to buying equipment as a group, and Cox tries to do this where it can. But, he said, planning far in advance can be impractical because of changes needed later. Cox tries to give its engineers more purchasing control at the local level.

Keith Tela, CE for Cox Radio in Birmingham, Ala., said, "We purchase a lot through Broadcasters General Store and get fair pricing." He praised BGS for lending him equipment to try.

Engineer Shortage Worries SBE

by Randy J. Stine

INDIANAPOLIS Making affordable, timely training available to broadcast engineers during the analog-to-digital transition period is a top priority for the Society of Broadcast Engineers.

With the number of local chapters up and overall membership holding steady, the SBE is looking for ways to prepare broadcast engineers for expanded information technology responsibilities and additional workloads due to consolidation.

SBE had 107 local chapters and about 5,300 members as of the end of October. The national organization recently held its annual meeting in Phoenix. Officials said about 400 people registered for the event.

SBE President Troy Pennington said he would like to see continued growth in member services and levels of certification under his leadership.

However, Pennington, the engineering supervisor at WIAT(TV) in Birmingham, Ala., said he keeps seeing the "same old faces" at the national SBE meetings, which makes him wonder where the next generation of engineers will come from.

"It's getting harder and harder to find people who will be here to replace most of us when we retire in five to 10 years. We do have a few people with some technical knowledge coming in from IT backgrounds. We have put efforts there but just haven't been able to attract the younger folks," Pennington said.

Because radio station engineers are responsible for so many more facilities than they were just five years ago, when one retires, a whole group of stations is affected, Pennington said.

SBE leaders addressed the looming engineer shortage in the past when it established the Youth Membership program in 1999. Pennington said 29 high school and college students are enrolled.

The society's immediate past president, Andy Butler, said broadcast owners are acutely aware of the pending engineer shortage. He said the NAB has shown interest in addressing the shortage — possibly even looking at ways to offer more training opportunities for engineers.

"(SBE) is currently struggling with ways to grow the profession. The real losers in the situation will eventually be the owners," Butler said.

The new Broadcast Network Technologist certification program remains popular, Pennington said. Nearly 700 engineers have completed the training since it began in 2000.

Computer networking, Pennington said, has become a part of the daily routine for most engineers. "That is why we are becoming heavily involved in it," Pennington said.

Another issue discussed at the show is the responsible use of broadcast auxiliary spectrum. Butler said the SBE is concerned about the FCC potentially relaxing rules on how broadcasters and mobile-phone carriers use their licensed spectrum. Some members are worried over the potential loss of the auxiliary spectrum and the interference problems that could arise.

"We want a reasonable and cost-effective use of the spectrum. (SBE) has long been regarded by the FCC as very knowledgeable when it comes to proper utilization of auxiliary spectrum. Right now the potential for horrendous interference exists," Butler said.

SBE General Counsel Chris Imlay said, "The FCC's Spectrum Policy Task Force report stands to fundamentally change methods of spectrum management that could jeopardize broadcasters' access to BAS spectrum, or to increase the cost of that access."

Imlay said the FCC might, for example, consider the use of band managers for BAS allocations, which would then sublease the spectrum to broadcasters.

Pennington said SBE's role in frequency coordination and regulatory issues has increased and that the heightened awareness surrounding Amber Alerts could present opportunities to improve the Emergency Alert System.

"I know through several Amber Alerts issued here in Alabama we have been able to strengthen some of the weakness of the EAS program," he said.

The SBE board of directors approved its first membership dues increase since 1991 at its annual meeting. Beginning in 2003 yearly dues will increase from $55 to $60.

Pennington said a new radio Chief Operator's Handbook is expected to be available by the end of this year.

SBE's national meeting next year will be held in Madison, Wis., from Oct. 14-16.

See related commentary, page 8.

Photo by Angel D. Bates, SBE

SBE President Troy Pennington, left, joined Joann Donnellan, media relations manager for the National Center for Missing and Exploited Children, after Donnellan delivered the keynote keynote presentation at SBE's National Meeting.

Zeroes, Ones and Pullman Coaches

The Big Picture

Photo: Gary Hayes, BBC

by Skip Pizzi

The Transition to Digital Media Technology Mimics an Earlier Process of Time Management

The concept of time zones is familiar to nearly everyone. We encounter it in a practical sense almost every time we travel or make a long-distance phone call. It is easy for us to assume that these useful covenants came with the land, and that they have always existed; but, of course, they did not. They were developed only out of necessity, and not before the period that made them so.

The natural metrics of time have always interested humans, and in the days when there wasn't much else happening during prime time to interest them, our predecessors spent a lot of time logging celestial phenomena. As a result, they became adept at understanding the cyclical processes that serve as enumerators of human experience along the time domain. Most of the cultures we classify as ancient had fairly sophisticated schemes for noting the passage of time, and for cataloguing the periodic patterns they observed in some sort of calendar.

What they did not concern themselves much with in those days were the relative, short-term variations in time between different locations on the planet. Because there were no fast methods of travel nor any instantaneous communication processes between distant locations, this wasn't an issue. Wherever you were was wherever you were, more or less; and all notations of time were adapted to that location.

As measurement of the temporal dimension became more rigorous, specific expression of time was referenced to the local maximum solar elevation, meaning that the time of day in which the sun was highest in the sky (i.e., at its northernmost location in the Northern hemisphere, or its southernmost location in the Southern hemisphere) was determined to be "local noon," and the rest of day was calculated with respect to this fairly obvious and repeatable observation.

This implied that the absolute time scale varied with longitude, and therefore the global reference to time was a continuously variable one. In other words, your noontime was a little bit earlier than that of next town to the west, and a little bit later than the next town's to the east.

Quantization

Eventually, this relativism of the geographic time domain became a problem. What is generally credited with starting the movement toward today's zonal approach to global time was an interest in scheduled travel, most notably driven by train companies. It became important to align relative and absolute times for a journey, and this was essentially an impossible exercise if every city maintained its own discrete local time reference. Discrepancies in the transmission and delivery times of telegraph messages were another motivating factor.

The movement toward a segmented time distribution was initiated in the 1880s, eventually becoming an international convention approximating an arrangement in which the globe is divided into 24, one-hour time zones. Regional and political variations have created an intricate patchwork around this concept, but the basic premise remains. Today the world's population works comfortably with a complex and tightly synchronized time distribution that reconciles local relative time with a global absolute clock referenced to a universal standard chronometer. It includes accommodation of seasonal variations with Daylight Savings Time, and an International Date Line that provides a seam delineating the start/finish line of the system.

Conceptually, this process has an interesting similarity to the transition between analog and digital media.

For example, in the analog domain, the transmission or storage of audio was accomplished by associating the instantaneous microphone output waveform with a given modulation level, in a continuously variable fashion. During reception or playback the system made its best effort at recovery of the original waveform from the demodulated signal.

In contrast, digital techniques set absolutely quantifiable steps to this process, and these representative values

See PIZZI, page 12 ▶

SBE NEWS

A Year of Sadness and Achievement

by Troy D. Pennington

Radio World provides this space to the society as a service to the industry.

As I conclude my first term as president of the Society of Broadcast Engineers, I find myself not only in a reflective mood, looking at the accomplishments of the passing year, but in an excited one as well, waiting with great anticipation for the challenges to come in the next term of office.

The 2001-02 term for SBE started with the tragic events of 9/11. Our bags were packed and many of us were heading to central New York for the Society's National Meeting, which was being held in conjunction with local SBE Chapter 22's regional convention. Here, the newly elected officers and board members were to be inducted into office.

Somber duty

I recall that morning vividly. Waking at 6 a.m., I planned a quiet morning preparing for my 10:30 flight out of Birmingham, Ala. Usually, my mornings include a radio or TV in the background while getting ready for work. For some reason, this morning I wanted quiet in preparation for my flight. I promised myself no radio or TV, even on the drive in to town.

I needed to stop by the office first, which was on the way to the airport. As soon as I arrived, I saw everyone gathered in the conference room watching the TV monitor. It also seemed that the news department was busier than usual. Then I saw tears on the faces of some employees staring in disbelief at the monitor. It was then that I saw the events unfolding at the World Trade Center towers.

We are all familiar with the numbness that came that morning. Was this just a bad dream? Soon reality set in, and like all Americans, we knew that we could not just stand in idle disbelief. We had to get things done. We had to go on with our lives.

And at that moment for SBE, dates suddenly had to be changed, and members planning to attend the meeting in New York needed to be contacted. For the business of SBE operations to continue, the incoming officers and newly elected board members were inducted via teleconference.

I am so proud of our members and others whose contributions have exceeded $250,000 for the families of the broadcast engineers who died on 9/11.

However, our top-of-mind thoughts were with the victims, and especially our colleagues lost in Tower One of the World Trade Center.

Just hours after the tragic attack, SBE and the Ennes Educational Foundation Trust set up a relief fund for the surviving families of the six broadcast engineers who perished on that day. I am so proud of our members and others whose contributions have exceeded $250,000 for these families. And to date, every cent of these funds has been distributed equally to the six families.

Once the shock of these events passed, SBE was able to reschedule its National Meeting in central New York. My thanks to last year's host, Chapter 22, for overcoming such difficulties to make the convention and SBE national events such a success the week after Thanksgiving.

Brainstorm

With the year underway, we got busy.

In January 2002, we held a strategic planning meeting in Indianapolis and brainstormed ways to make SBE better. Some great ideas emerged from that gathering, including ways to increase communications with local SBE chapters and members. We also looked at

See SBE, page 14 ▶

What flamethrowers use for fuel.

You're scanning the AM dial. Everything sounds harsh, bland, weak. Then you find it: an amazing sounding AM station. Loud, smooth, dynamic, exciting. You glance at your radio to make sure you didn't switch bands. This is AM?

Meet the first digital processor designed especially for AM stations who want to breathe fire. Omnia 4.5AM. We held nothing back – this is the world's best AM processor. Of course it has all the latest bells and whistles: advanced DSP chips, bright color display, Ethernet and modem connections, PCMCIA expansion slots, and powerful remote control software. But the real breakthrough is the sound.

Our algorithm designers spent countless hours studying the great AM stations, listening and learning. We found that the very best sounding stations were using highly tuned, customized analog processors. Then we set out to reproduce the best analog had to offer. But because we were working in an all digital environment, we had vastly improved precision and flexibility than could ever be achieved in analog. The result is, well, breathtaking.

Talk is clean and clear. Bumpers and ID's have more definition. Callers punch through with force. And music jumps off the dial. Everything sparkles. The stations who have tried the new Omnia won't give it back! Some have even told us their coverage has improved.

Omnia for AM. Fire it up and you'll know why Omnia is the hottest selling radio processor in the world today. Scorch the competition.

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Workbench

Radio World, December 18, 2002

Past columns are archived at *www.rwonline.com/reference-room*

Care and Feeding at the Site

by John Bisset

Maintaining older transmitters can be fun, if you know what you're looking for.

Stu Tell used to work in broadcast engineering and still lives the life of the engineer through the pages of Radio World. He says RW gives him the chance to think like a CE again.

5E (the fore-runner of the BTA-5) used both 2-watt and higher wattage wire-wound resistors. Once the tubes are biased with the correct resistor values, an ugly sounding rig can sound pretty sweet again. This is especially true if the modulators and finals have decent emissions.

The lesson here is not just to change the tubes, but check the biasing resistors, too.

As for tower light sampling, Stu found Class-1 Current Sensing Transformers for 60 Hz that are just $4.25 each in the latest Jameco Catalog, page 54. You can order replacement resistors for your transmitter from Jameco as well. You can register online for a new 192-page color catalog at *www.jameco.com*.

★★★

If you have pressurized AM, FM or STL transmission lines, you may have a dehydrator that purges those lines, drying out the air, to keep moisture from building up inside.

The moisture changes the line impedance and in severe cases can cause a flashover inside the line. The resulting

See WORKBENCH, page 16 ▶

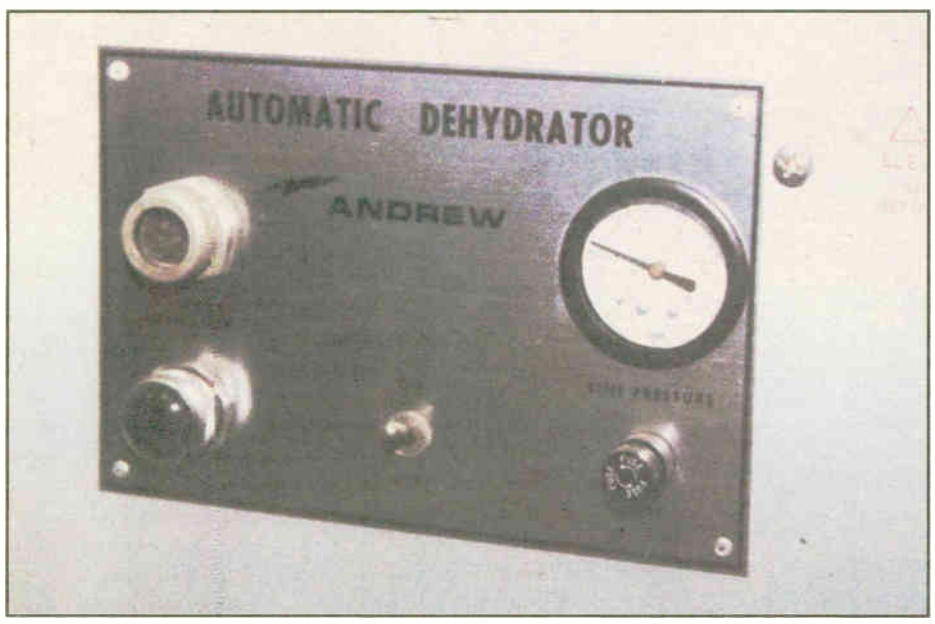

Fig. 1: The panel of this Andrew dehydrator has a sight glass, filled with desiccant crystals.

For new engineers maintaining old AM transmitters, Stu offers a tip that will make you look like a hero. Check the value of the 2-watt carbon resistors used throughout these old rigs. Stu writes that he'd be a wealthy man if he had just a penny for every one he found broken, open, charred or changed to some astronomically high value.

The larger transmitters, like the old RCA

Stu also made it a point to check the feedback ladders voltages back to the first stage. Using a scope, make sure they are equal in voltage. If the voltages for each modulator feedback ladder aren't the same, you know there's a problem.

The feedback ladder resistors also can change, so check those as well. The old tube rigs can be made to sound pretty good, they just need a little TLC.

Fig. 2: Secure your nitrogen tanks with a chain like this one.

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BY Radio Systems StudioHub

FEED LINE

Rigid vs. Semi-Flexible Line

by W.C. Alexander

This is one in a series of articles on the fundamentals of FM transmission systems. Earlier articles appear under the Feed Line tab at www.rwonline.com.

In the case of FM antenna systems, there generally are two choices for transmission line types: rigid and semi-flexible.

Air-dielectric rigid line is, as its name implies, a fixed shape that is not intended to bend. It typically comes in 20-foot flanged or unflanged sections. Sections that are intended to go on the tower usually are equipped with factory-installed EIA flanges. Sections that are used for inside RF plumbing, such as between the transmitter, RF switch or patch panel, combiner and gas barrier often are supplied without flanges.

Field flanges are available and attached by silver-soldering or with hose clamps. A variety of adaptors, including reducers, elbows and 45-degree sections, allow routing of rigid transmission line to virtually any location within a transmitter building.

Semi-flexible line, aptly named because of its somewhat limited bending capability, comes in air- or foam-dielectric types. In the case of air-dielectric line, the inner conductor is held in place with a Teflon spiral. With foam-dielectric semi-flexible line, available in sizes up to and including 2-1/4 inches, a foam dielectric material fills the space between the inner and outer conductors, holding a more-or-less constant spacing between the two. Semi-flexible line comes on a spool in a continuous run and generally is ordered to length. An EIA flange gas-barrier or gas-pass connector is ordered for either end to complete the transmission line run.

Keep out the wet

Either type of air-dielectric line requires a supply of nitrogen or dehydrated air to keep the line pressurized to a few pounds per square inch above ambient. The purpose of the dry air is to keep out moisture. Pressurization of the line implies that the line must be airtight. EIA flange connectors come equipped with rubber O-rings to provide an airtight flange-to-flange seal. Connectors fitted to semi-flexible air-dielectric line are equipped with special rubber seals that provide an airtight fit between the brass connector and the copper line.

A method of getting the pressurizing air or nitrogen into the transmission line must be provided. This typically is in the form of a gas-barrier, which can be integral in a semi-flexible line connector or stand-alone with an EIA flange on either end. A fitting is provided for connecting the pressurization tubing.

Moisture be kept out of air-dielectric transmission line. It will cause oxidation in the copper, which increases attenuation at higher frequencies. Attenuation on the order of 4 dB per 100 feet has been measured in 3-inch and 3-1/8-inch semi-flexible and rigid air dielectric lines that have not been pressurized. This represents a tremendous power loss, which translates directly to signal loss.

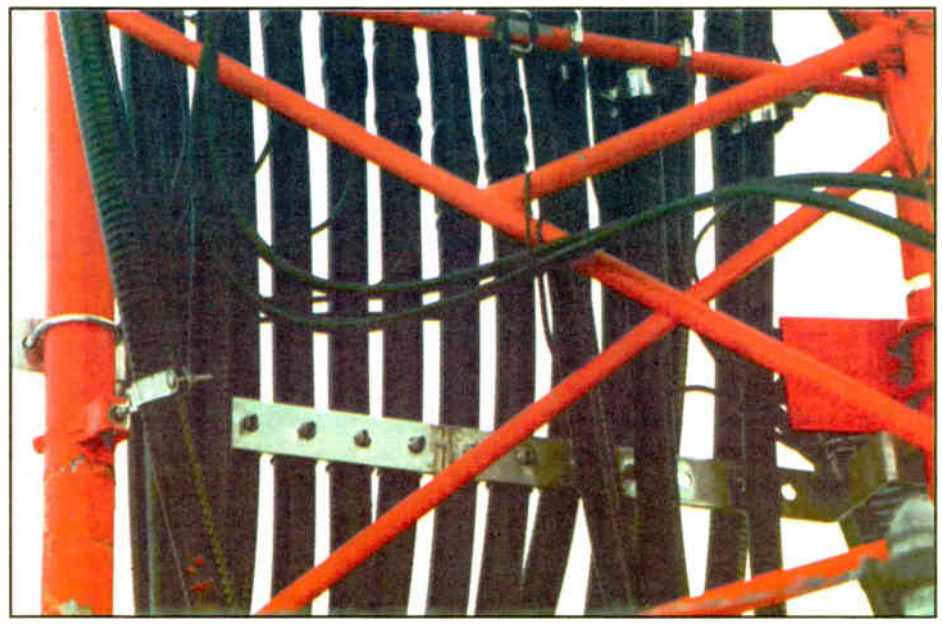
Be aware of the advantages and disadvantages of each type of transmission line. Rigid line has the advantage of lower losses. This usually amounts to a few hundredths of a dB per 100 feet over a comparable semi-flexible line. This can add up to a significant amount of power in the case of a long transmission line run.

Another advantage of rigid line is that it is more repairable than semi-flexible. It can be removed from the tower in 20-foot sections, the inner conductor can be removed and both inner and outer can be cleaned. In the case of semi-flexible air-dielectric line, quite often a large section of the line must be removed and a replacement piece spliced in. The cutting process allows copper and Teflon shavings to fall into the line below the cut, and these shavings can accumulate in one location and produce an arc, causing further damage. Quite often, the only recourse in the case of a damaged semi-flexible line is to replace it in its entirety.

Semi-flexible line has the advantage of lower cost, sometimes as little as half that of a comparable rigid line. It also is installed in a continuous run, not joined with expansion connectors or "bullets" every 20 feet. Expansion, contraction and vibration of a rigid line cause chafing where the expansion connectors join the inner conductors; this can produce a less-than-optimal connection. The I^2R loss at the connection causes heat, which further degrades the connection and eventually produces a burnout.

In the next installment of this series, we will discuss line sizes, power ratings, losses and the right transmission line for a particular installation.

Cris Alexander is director of engineering for Crawford Broadcasting.



Semi-rigid lines like these offer cost advantages over rigid.

Pizzi

Continued from page 7

are what is stored or transmitted, so the accurate recovery of the original waveform is essentially assured (assuming the increments of quantization are sufficiently precise). The one-hour increments of the time-zone system are deemed precise enough in most cases (although there are several half-hour and even one quarter-hour time zone in various parts of the world), while the Nyquist Theorem determines the requisite granularity of time steps (i.e., sampling rate) for digital media.

Consider also that the global timing system relies on coordination to a standard time base, which wasn't necessary in the old "local noon" system. So too are digital media systems dependent on synchronization, so that recovered samples are reconstructed with the proper time base.

In the analog audio days, the only occasions requiring synchronization were those where multiple devices had to operate in tandem (such as two tape decks). For digital systems, even a single device operating in isolation requires synchronization so that the digital-to-analog conversion at its output operates on the same time reference as the original analog-to-digital conversion of the signal input.

Today the world works comfortably with a complex and tightly synchronized time distribution that reconciles local relative time with a global absolute clock referenced to a universal standard chronometer.

Such slicing of time into parsable segments allows the technology of digital audio to exist, and also lets the trains run on time.

More about time, next time.

Skip Pizzi is contributing editor of Radio World.

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Immediacy is the nature of radio. Remotes, special broadcasts, breaking news… all must be delivered on time, on demand, with no excuses – and no delay.

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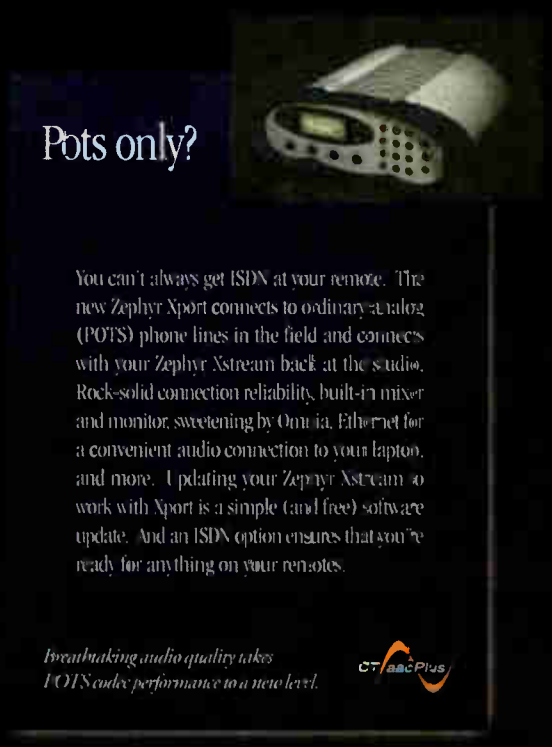


IBOC Q&A

Get an STA For IBOC Implementation

This is one in a series in which Ibiquity Digital Corp. answers questions about how to implement HD Radio, the trademarked name for its in-band, on-channel digital audio broadcasting technology.

Director of Broadcast Business Development Scott Stull answers here. Past answers are posted at www.rwonline.com *under the tab "IBOC DAB."*

Q: I just read the FCC Report and Order authorizing IBOC implementation, but was unsure of some issues. As a broadcaster, what are the guidelines I need to follow in order to make my station's implementation a success?

• Broadcasters are directed to use the same main channel program with both analog and digital transmissions.

• While AM nighttime testing is being completed, a station may be authorized under the existing license to broadcast in pre-sunrise and post-sunset time period.

• Ibiquity and its partners are working to conduct the testing and development that is necessary to receive authorization for a dual-antenna approach to IBOC broadcasting.

Broadcasters planning to convert before the end of the year are required to submit an STA to the commission. Ibiquity can provide you with an STA template that includes all of the necessary information (certification of meeting specifications, TPO, ERP, human exposure compliance, etc.). Requests can be made to: Federal Communications Commission, Digital Radio Notification, 445 12th Street SW, Room 2-B450, Washington, DC, 20554.

Broadcasters planning to convert before the end of the year must submit an STA to the commission.

A:

• The commission has authorized broadcasters to implement IBOC consistent with the specifications used by Ibiquity Digital in its exhaustive testing of both the AM and FM bands. These specifications may be found on the FCC Web site at: *www.fcc.gov/mb/*

• Manufacturers should be well aware of these specifications and be working closely with Ibiquity Digital to develop successful implementation processes for their HD Radio IBOC-based products.

Send your IBOC questions to radioworld@imaspub.com.

Radio World welcomes other points of view.

SBE

Continued from page 8

ways to increase the visibility of SBE in this industry.

By June, SBE had hit a new all-time high in membership, with 5,835 members on the rolls. SBE chapters, as a whole, achieved great strides as well; 73 percent qualified as honor chapters and received rebates totaling more than $33,000. That is the highest amount SBE has ever paid out.

SBE granted a charter to a new chapter in the Brownsville/McAllen area of Texas. Known as Rio Grande Valley Chapter 136, this brought the number of SBE chapters to 107.

In 2002, SBE also recognized the 25th anniversaries of our first national Sustaining Members. I thank each of those supporters — Continental Electronics; Harris Corp., Broadcast Communications Division; Moseley Associates Inc. and Tektronix Inc. — for their continued belief in this organization through the years.

Also, it is exciting to note that the SBE Résumé Service has been upgraded and is available on the SBE Web site. My thanks to Angel Bates at the national office for a great job.

Ennes and more

Under the leadership of Ennes Education Director Jerry Whitaker, CPBE, three successful Ennes Workshops were presented, with Nashville, Las Vegas and Boston serving as host locations. Also in Las Vegas, we took an active role in the spring NAB Engineering Conference, with at least seven of our SBE members serving on the NAB Engineering Conference Planning Committee. Recently, we renewed our agreement with NAB to co-present the conference in 2003. SBE's commitment to education also brought a Leader-Skills Seminar to Indianapolis this past summer, the sixth year in a row that SBE has offered this kind of training.

SBE Certification Director Linda Baun and Certification Committee Chair Chriss Scherer, CSRE, continue their dedicated service to this organization. Updated certification exams now include questions covering digital technology. The fifth edition of the "Television Operator's Certification Handbook" was published this year, and you should be watching for the release of a new certification handbook for radio operators.

Earlier this year SBE hired David Otey, CSTE, as the national frequency coordination director. One of his duties is to provide assistance to local SBE affiliated frequency coordinators.

Working with Otey is the SBE Frequency Coordination Committee, under the guidance of Ralph Beaver, CBT. This team is working on new software for use by local frequency coordinators. In addition, we are pleased to announce that SBE has renewed its agreement with the National Football League to provide frequency coordination for NFL games.

Alive, well and busy

In 2002, SBE continued to be a strong voice for broadcast engineers by filing on seven separate FCC rulemakings, covering such issues as the 2 GHz BAS band, digital modulation for STLs, the Spectrum Policy Task Force and the Emergency Alert System.

SBE members continue to provide leadership in EAS and have taken active roles in assisting their state broadcasters in establishing Amber-type plans across the country. The EAS SBE session at NAB in April drew an audience of more than 400 via live streaming on the Web (provided by my good friend Dave Biondi). Also, this past year our Board of Directors approved joining the Partnership for Public Warning.

As you can see, SBE is alive, well and busy, thanks in part to the excellent leadership of Executive Director John Poray, who celebrated 10 years with SBE this fall. SBE has proven itself as an important part of this industry. It is an organization of which I take great pride in being an active member. But there's always more to be done.

Looking ahead to 2003, I want to see SBE continue to represent its members with the FCC and other industry organizations. I want to put an emphasis on continuing education for broadcast engineers. Ideas already being shared on how the Society can expand its frequency coordination services and increase the prestige of its certification program.

And, as always, a high priority for me, personally, is finding better ways to serve and grow our members and local chapters. I'm ready for a new year. I hope you will be, too.

Troy D. Pennington, CSRE, CBNT, is president of the SBE.

MARKET PLACE

Dayton Industrial Makes Specialized Receivers

Dayton Industrial has expanded its line of specialized receivers and monitors.

The AF272 is a portable FM/SCA receiver and field strength meter. It comes with a power converter and padded nylon carrying case.

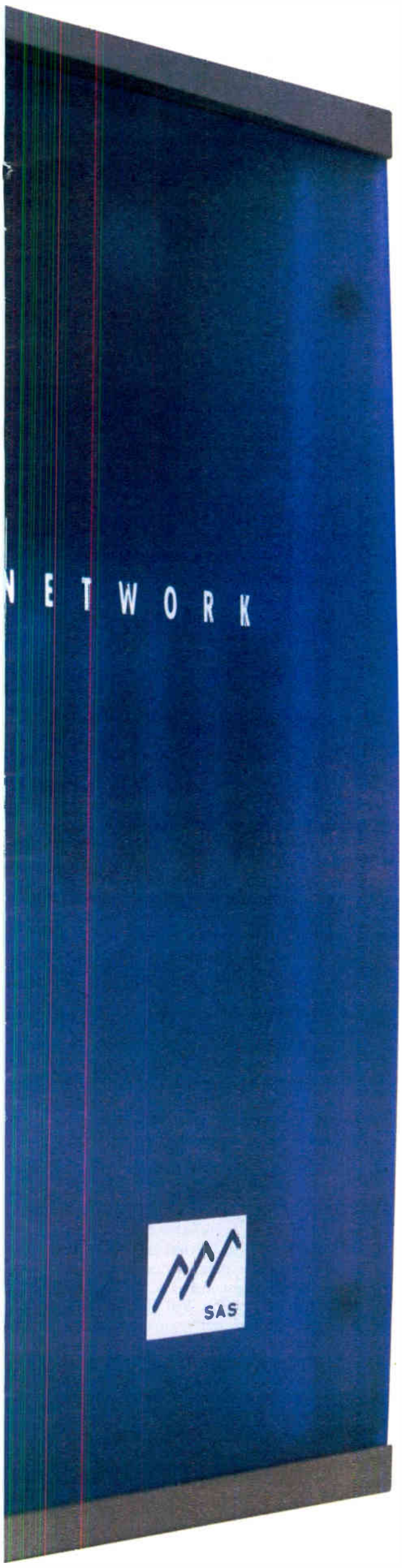
The AFC3 is a three-receiver system in a single rack mount, designed for professional and EAS monitoring. Available receiver modules include weather, AM, FM and public service bands.

Also available is the AF210, a precision FM broadcast receiver with stereo, SCA and RDS demodulators.

This model is suitable for FM relay/translator service, SCA monitoring, and data and paging services.

The company also offers AM or FM receiver/monitors, FM/SCA receivers and NOAA weather radios.

For information contact the company in Florida at (941) 351-4454 or visit daytonindustrial.com.



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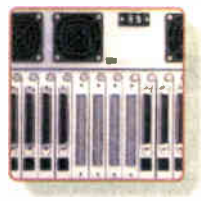

This modular, digital-core routing system processes more audio, routes more signals, and provides more user control than any other system in its class.

Routing, mixing, signal processing, IFB, mix-minus, and more, run simultaneously without conflict. All this functionality is readily accessible via PC, mixing boards, or dedicated control panels. And the performance? Like music to your ears.

For more details about the impressive capabilities of the 32KD, give us a call or visit our web site.

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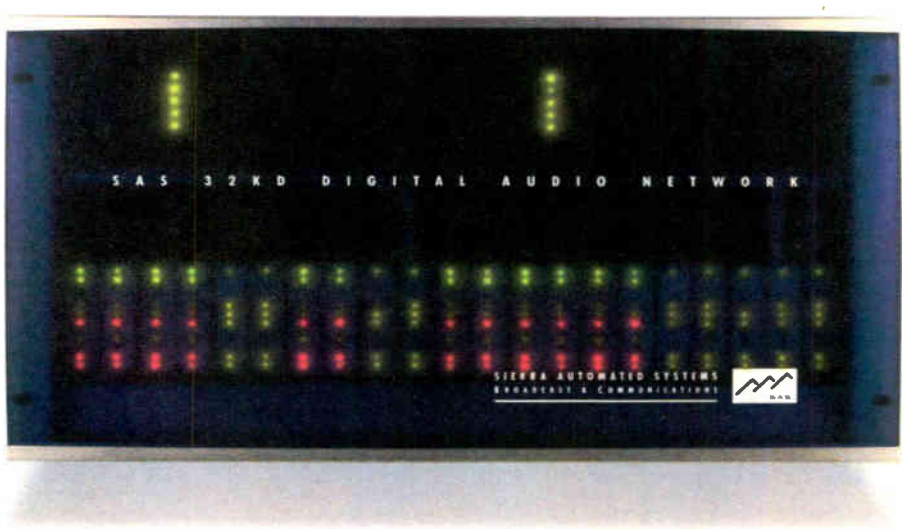

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Workbench

▶ Continued from page 10

burned Teflon and carbon make for a very bad day. In most cases, the line has to be replaced. If it's not properly maintained, i.e., pressurized, there's no insurance claim. The moral to the story: "Don't ignore that little box spitting and chugging away over in the corner."

Fig. 1 on page 10 shows the front panel of a typical dehydrator. Because this is an automatic dehydrator, desiccant replacement is not required. In the upper left is a sight glass, filled with desiccant crystals. The sight glass gives you an indication that the automatic dehydrator is working properly.

Automatic dehydrators employ two drying cylinders or towers. While one tower is drying the air passing through it, a small portion of dry air is supplied to the second tower, purging its desiccant of accumulated moisture.

Manual dehydrators have a crystallized desiccant that adsorbs the accumulated moisture. As the desiccant becomes saturated with moisture, it changes color. Fresh desiccant is deep blue; when saturated with moisture, the crystals change from blue to pink. The manual dehydrator requires periodic replacement of the desiccant, typically when it has a pinkish tinge.

The desiccant should be saved, as saturated desiccant can be reactivated. Reactivation requires heating the desiccant to 350 degrees Fahrenheit for four hours in an ordinary oven. Typically, the desiccant crystals are spread out over a foil-line cookie sheet and "cooked" for four hours. After cooling, the crystals can be returned to the desiccant container. Owners of manual dehydrators should keep at least one canister of "fresh" desiccant on hand, so the replacement of fresh desiccant is simplified.

Want more information on the care and feeding of your dehydrator? Contact Andrew Corp.'s Customer Support Center at (800) 255-1479 and request a copy of Bulletin 1557. Tell the representative that you heard about this publication from the pages of Radio World. The bulletin is free, and its 10 pages also include troubleshooting, maintenance and answers to some common dehydrator questions.

★ ★ ★

Engineers who simply pressurize their line with a bottle of nitrogen aren't off the hook either. In addition to checking the pressure and tank volume to guard against the tank going empty, make sure the tank is secured.

A simple chain, shown in Fig. 2 on page 10, will keep the tank from falling.

★ ★ ★

Mike McCarthy of McCarthy Radio Engineering sent in the poem shown here from an IBEW periodical. The authors are Mickey Toole and Jeff Pfouts of IBEW Local 1547 in Anchorage, Alaska.

He thought it was dead, but alas it was hot.
It's still live, and he is not.
He knew in his head good practice well founded.
The circuit's not dead, until it is grounded.
But this time he hurried, didn't take time to test it.
He was tired, and cold, and needed a respite.
A respite he got, for it will be a long one.
One dead and one hot, and he grabbed the wrong one.
There's been many like him, many have died.
The cause of their deaths was ASSUM-A-CIDE.

Mike adds that as we approach those long, cold nights working on the transmitter, make doubly sure that safety switches, shorting bars, disconnects and lock-out/tag-outs are in place and functional. Tell people where you are and for how long. If possible bring a person with you when working on or near high-voltage equipment.

At the fall Transmitter Workshop at the Seattle Radio Show, a point of discussion was having a buddy accompany you to the transmitter site. Several engineers said their wife or girlfriend stood in. Contract engineers arranged for the station to pay for two engineers during overnight work.

It was also suggested to have your PD or GM accompany you to the site. Not only will it give them some perspective of the work you do, but you'll earn a little more respect when they see the inside of a transmitter or phasor. This isn't black magic, but it sure looks that way at 2 in the morning.

★ ★ ★

Friends of the broadcast industry Dale Tucker and Dean Tiernan are always good for some great radio stories. Just to show that as broadcast engineers, we don't have all the fun, visit this Web site they told me about: *www.enertech.net/pictures/powerlines.html.*

The site, provided by an energy company, Enertech, includes pictures of how Mickey Mouse would design electrical transmission poles, if he had his way. There's also a shot showing why a squirrel makes a very poor conductor, as well as a crumpled transmission tower. Enjoy!

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is a district sales manager for Harris Corp. Reach him at (703) 323-8011.

Submissions for this column are encouraged, and qualify for SBE recertification credit. Fax your submission to (703) 323-8044, or send e-mail to jbisset@harris.com.

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GM Journal

Radio World — Resource for Business, Programming & Sales — December 18, 2002

Webcasters Seek Copyright Immunity
See Page 22

Ratings With Results Presses On

by Steve Sullivan

Holly LaFontaine says she's a sick woman running an honest business. Many of her would-be clients feel differently, even after a police raid and seizure of office equipment earlier this year produced nothing except a paperwork penalty for not having a city license.

As reported earlier this year, LaFontaine, of Bridgeport, W.Va., runs a company called Ratings With Results. It's a home-based operation targeting mostly small-market stations. The company offers AQH, cume and daypart breakdowns based on diary responses. LaFontaine would generate business by sending sample reports to stations with a pitch to provide further monthly market reports, recently costing $100 per report.

It was a niche idea, a service aimed at stations in unmeasured markets or stations priced out of other services. But several stations that ordered and paid for reports never received them. Other station managers who did receive reports questioned their accuracy.

"It was a piece of junk," said Dave Vickers, general manager for KROS(AM) in Clinton, Iowa. "We're pretty confident that we're the most listened-to station in town, but we wanted some sort of research that would help reinforce what we thought.

"We sent in our money, but it took several contacts and inquiries before we got the report. Then we finally received a book that, in our opinion, was a piece of junk. The stations listed, most of them don't even get into our market. Stations that we know people listen to weren't even listed. For every station, the highest numbers listed were in the teenage category."

Steve Tuzeneu, station manager of WVNE(AM) in Worcester, Mass., had a similar experience.

"We received an unsolicited report from Ratings With Results. The information in the report did not appear credible. Everybody measures by Arbitron and it wasn't even close. The station leaders in this market were not where they are in Arbitron. There are usually four or five stations that show up in the top.

"In addition, we have some competition in the marketplace. They're a 1 kW station and we're 25,000 watts, and they showed up ahead of us in the ratings. That was one of the red flags I had."

Tuzeneu said he tried to e-mail LaFontaine to ask about the data she sent, but the e-mails bounced back.

Others also report difficulty trying to contact LaFontaine to discuss the reports. "We tried to talk to Holly," Vickers said. "We tried via phone and e-mail. Eventually, I wrote a letter to the West Virginia attorney general's office and told him of our displeasure with a business in his state."

It turned out KROS wasn't the only station to contact the attorney general. Eight complaints were filed against Ratings With Results in the state's Office of Consumer Protection and Antitrust Division.

Police raid

In response to the complaints, the Bridgeport police served a search warrant on LaFontaine on May 10 of this year. Detective Michael Lemley led the investigation.

"We had complaints that she was doing her business, soliciting money from people and not following through with delivery of the ratings booklets," he said.

Five computers and numerous boxes of information were seized in the raid.

"After we served the search warrant and got information, we were in fact able to show that she was in fact putting out some of the materials," said Lemley. "Whether or not they were good, we didn't get into."

The case was heard in a magistrate's court later in the month. Lemley said the case was dismissed after the only thing the judge was able to determine was that LaFontaine was operating her business without a valid city license.

Diana Harrison in the attorney general's office said four of the complaints have been mediated successfully and two remained under investigation. No action was taken on one complaint, and another was filed simply as an alert.

LaFontaine calls the entire episode "crazy" and said the publicity generated by it has damaged her business and her reputation.

When Radio World tried to contact her for an earlier story, she did not respond to

See RATINGS WITH RESULTS, page 20 ▶

GUEST COMMENTARY

Sessions, Awards Highlight CBI

by Will Robedee

The author is general manager of KTRU(FM) at Rice University in Houston and vice chair of CBI.

Collegiate Broadcasters Inc. held its annual convention in Orlando, Fla., recently. The event featured 30 diverse sessions with speakers from NPR, the FCC, respected legal counsel and the NFL gameday coordinator, to name a few.

The highlight of this year's convention was the first annual CBI student production awards ceremony, which included 26 categories for radio and television. In addition to the student winners and runners-up (a list is available at *www.collegebroadcasters.org*), also honored were the winners of the Scripps Howard "student staffer of the year" award. Five recipients were chosen for a $5,000

See CBI, page 20 ▶

From Left: Greg Newton of Ohio University and ACRN (All Campus Radio Network); Will Robedee, CBI Vice Chair, KTRU(FM) Rice University; Nicholas De Ninno of National Lampoon Networks and Joel Willer from KXUL(FM) — University of Louisiana at Monroe.

Ratings With Results

▶ Continued from page 19

several requests for an interview. But now she's talking.

"After that story came out, people wouldn't even talk to me. We've had nothing but trouble."

LaFontaine, 43, recounts a lengthy list of problems that have impeded her ability to deliver ratings books. She tells of a mentally disturbed son who has attacked her with a knife; a husband who lost his job; and multiple trips to the hospital for life-saving surgical procedures.

LaFontaine detailed four surgeries she's had since the beginning of this year. That, she said, is why she fell behind in delivering reports.

She said she is married to a former military man who has moved the family from San Diego to Seattle to West Virginia. She has three sons. The eldest, whom she describes as mentally disturbed, was born while LaFontaine was a teen. She says her 23-year-old second son is deaf. He helps her compile the market research for the radio stations. A third son, a teenager, lives at home but does not help with the business.

LaFontaine says she worked for two radio research firms in the past, Ram Research in San Diego and Arbitron, in the company's Virginia Beach, Va., office. She says she got the idea for her company because she didn't like the way Arbitron did business, feeling the company's researchers were not reporting information accurately.

Arbitron has consistently declined to comment on LaFontaine's business.

Maladies

LaFontaine started Ratings With Results on Oct. 5, 1998, after the family moved to Bridgeport. Shortly after, she says, her health problems began with internal bleeding and blackouts.

Since then, she says she has suffered a long list of maladies including two heart attacks, uterine cancer, kidney cancer, diverticulitis, a hiatal hernia and a hysterectomy. She says she is on 43 medications. Throughout, she said, she's amassed $2.5 million in doctor bills.

LaFontaine detailed four surgeries she says she's had since the beginning of this year, the most recent in late September. When she wasn't in the hospital, she says she was mostly incapacitated and unable to work. That, she said, is why she fell behind in delivering reports to her customers.

She blames the combination of medical problems and the police seizure of her computers for not contacting customers to let them know what was going on.

"The reason we didn't call people is that my machine cuts off. We use phone cards for everything. And we didn't get a lot of the messages. Sometimes when the phone call would come in, (the answering machine) would plug up and the whole message would get erased. Even when we got the message, we didn't have the information because the police had it for almost two months."

But although medical and technical problems kept her from returning calls and e-mails from customers who were awaiting paid-for reports, she continued to solicit business from other radio stations.

"What had happened is that we just finished a book. I was going to give people the old book, but I figured why give them the old book when we have the new book coming out? So we did send out flyers to get business on the new book."

Asked why she hadn't hired someone to complete the reports for her, LaFontaine said, "I don't charge a lot for these books. A hundred dollars is not a lot of money. My husband is out of work. When you're out of work and you've got $2.5 million worth of doctor bills, it's hard to put money in somebody else's pocket."

Unhappy employee

Barbara Komorowski of Mount Clare, W.Va., worked for LaFontaine between October and December 1998. At the mention of LaFontaine's name, Komorowski's response was an exasperated, "Oh, my God."

She said her job was to write radio station contact information on index cards. "I still have an attaché case full of index cards. There were thousands and thousands of them. I sat up some nights until 4 o'clock in the morning doing these things because she said they had to get done."

Komorowski and another woman, Lisa Hawkins of Stonewood, W.Va., were supposed to be paid $10 per hour for their work for LaFontaine. Komorowski said that after two months of work, neither she nor Hawkins had been paid.

In 1999, Komorowski and Hawkins sued LaFontaine for the back pay. According to Harrison County magistrate court documents, the suits were settled in their favor and each woman was awarded $1,600.

"Looking back at it now, I think it was all a joke. There were thousands of these (index) cards. We were supposed to get trained on the computer, but that never happened. Her son Michael was the one supposedly calling people and supposedly getting their evaluation of the radio station and songs, but I don't believe he was doing that."

Did Komorowski ever see any diaries come into LaFontaine's home during her stay? "Never."

LaFontaine was not available for comment on Komorowski's remarks.

Earlier, however, LaFontaine strongly asserted that she is running a reputable business.

"I've sent out 7,398 books. I'm not going to cheat anybody out of a book. I don't make up anything on these books. I gave the people my home address. You wouldn't give people your home address if you were going to take their money from them."

Radio World asked LaFontaine several times for documentation of research phone calls and diaries. LaFontaine promised on each occasion to send the material, but it had not arrived weeks later. "Our fax machine is down," she said after a recent request.

At least one broadcaster spoke almost wistfully about the experience of dealing with Ratings With Results.

"I guess I might have given them the benefit of the doubt had the information she submitted been reasonably close to what goes on in this market," said WVNE's Tuzeneu. "It might have been something people could use, because there's some companies like us that don't subscribe to Arbitron because it's very expensive. It's too bad she couldn't come through."

Steve Sullivan is executive news editor for multimedia at the Baltimore Sun and a co-founder of the Advanced Interactive Media Group LLC. Reach him at (410) 332-6503 or via e-mail to steve.sullivan@baltsun.com.

Strong Autumn Pulls Radio Revenue Up 5% for Year

Industry revenue was up 13 percent in October compared to a year earlier, and 5 percent for the year to date. September also was strong, up 17 percent from a year ago.

The figures are relative; radio's performance this fall was compared to the dark days of September and October of 2001, when not many businesses were in a festive advertising mood.

Still, RAB President/Chief Executive Officer Gary Fries predicted "sustained growth throughout this quarter and next." The national ad sector continued to lead the way in October with a 23 percent gain; local sales, which are still the bulk of the industry's revenue, were up 10 percent.

October was the eighth consecutive month of increases for the medium.

CBI

▶ Continued from page 19

scholarship, travel accommodations to the event and the nominating station received a matching grant of $5,000.

CBI also honored Allen Myers of the FCC for more than three decades of service to college radio. The awards program was followed by a reception, sponsored by National Lampoon Networks.

Changes

The awards ceremony marked a partial changing of the guard at CBI. Two board positions were put on the election ballot. Election winners include Gary Hawke, general manager of KJHK(FM) at the University of Kansas, and Dan Knight, adviser to KVR(TV), the student television station at the University of Texas at Austin, and lecturer in the department of Radio-Television-Film.

Dan has been elected to serve a second term on the board and will return as the organization's secretary/treasurer. Gary Hawke replaces the board position previously held by Michael Black, general manager of WEOS(FM) at Hobart & William Smith Colleges in Geneva, N.Y.

Black said of the election of Hawke, "Gary is a wonderful person and has all the right qualities for the position. He has worked in the college and commercial environment, both with great success. His ability to focus on the medium and his work on convergence will be a great asset to the organization."

Black opted not to run for a second term. In addition to serving as an elected member of the board, Black was also one of the founding members and served as chair on the interim board.

"It was time for me to step aside and help bring new blood into the organization," said Black.

CBI rotates half of its board members every year, with the exception of the student board member, with a rotation schedule of each year. CBI expects to announce the appointment of the new student board member before the end of the year.

Returning for a second year of appointments are myself as vice chair and CBI chair Warren Kozireski — general manager of WBSU(FM) at SUNY Brockport and vice chair.

Next on the calendar for CBI is the College Media Advisers (CMA) convention in the Big Apple. More than 1,200 college print, broadcast and online journalists and student media advisers are expected to attend the Spring National College Media Convention March 20-22, 2003 in New York City. Sponsored by College Media Advisers, it is the largest spring meeting for college journalists in the world.

It was time for me to step aside and help bring new blood into the organization.

— Michael Black

CBI will present 15 broadcast sessions to support CMA's annual event. Meanwhile, CBI is busy planning its next annual convention, which will be in Dallas, Nov. 6-9, 2003. CBI is looking for speakers, sponsors and exhibitors for this event, where the second annual awards ceremony will be held.

For more information about CBI, contact Warren Kozireski at (585) 395-5626.

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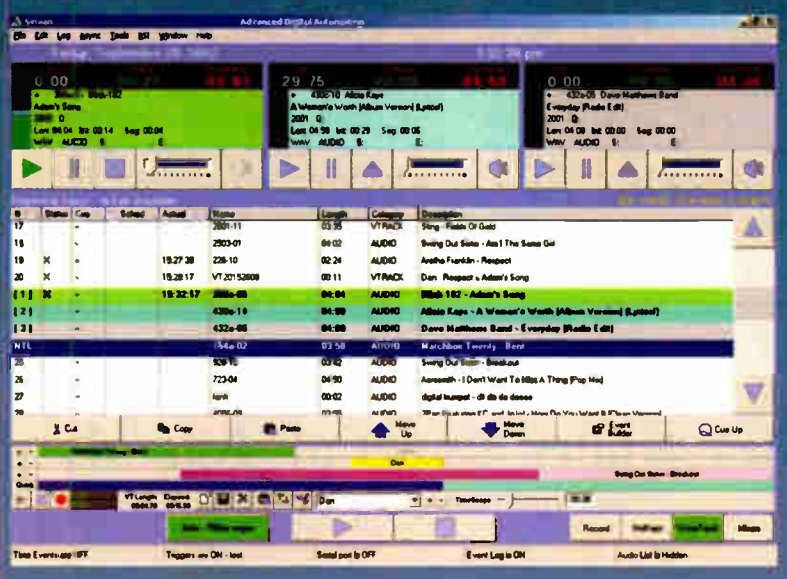

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Webcasters Seek Copyright Immunity

by Dee McVicker

Internet radio broadcasters aren't going to be stuck paying the piper if they can help it. Facing disappointments in court and Congress, they continue to seek legal immunity from the copyright fees required by the Recording Industry Association of American for music simulcast on the Internet.

"We're holding very strong in our contention that broadcasters are exempt, that we were never intended to be part of the DMCA," said Dan Halyburton, senior vice president and general manager for Susquehanna Radio Corp., Dallas.

Broadcasters lost a lawsuit in federal district court in 2001 challenging the Copyright Office determination that broadcasters who simulcast their over-the-air programming were subject to the sound recording copyright royalties specified in the 1998 Digital Millennium Copyright Act.

But Halyburton and other broadcasters haven't given up hope that an appeal or an act of Congress will change the legal interpretation of the DMCA and ultimately exempt them from paying the performance copyright fees established by the Library of Congress in June.

Susquehanna, Clear Channel and four other major broadcast groups, along with the NAB, are appealing the decision made by a U.S. District Court in August 2001, which upheld the Copyright Office's interpretation that broadcasters re-transmitting their music programming on the Internet are subject to copyright royalty fees.

Bonneville International, Cox Radio, Emmis and Entercom are the other four appellants named in the lawsuit. They argue that Internet simulcasts of over-the-air programming are not subject to performance rights for the same reason music broadcast over the air isn't. At the heart of their argument is the assertion that Congress recognizes the mutually beneficial relationship of radio and the record industry, and made plain this exemption encompassing both streaming and transmission of digital programming in the DMCA.

"Obviously, it is our intent to abide by whatever the rulings are," said John Martin, vice president and general manager of Clear Channel Radio Interactive, Chicago, now streaming 220 terrestrial stations commercially over the Internet. "But it is also our intention to make sure that we can come up with the most reasonable economical program so we can continue to offer this service to listeners."

The U.S. Court of Appeals for the Third Circuit, Philadelphia, was scheduled to hear the appeal in early December. A judgment is expected sometime in early 2003 and, if favorable, could exempt all broadcasters from paying the copyright fee of seven-hundredths of one cent per song per listener.

Even if the appeals court doesn't rule in broadcasters' favor, the NAB is confident broadcasters will prevail with legislative action.

"If we lose, I think it's safe to say that we will be approaching Congress to make our case. Either way, this has generated so much controversy that Congress is likely to weigh in next year anyway," said NAB spokesman Dennis Wharton.

Acts of Congress

Broadcasters have sought legal remedy through Congress before.

The Internet Radio Fairness Act, which would have waived copyright fees for Webcasters grossing less than $6 million annually, never gained congressional support and died before it made it to the floor for a vote. Sept. 11 and other priorities kept this legislation from even getting a hearing in Congress. Another act amending Title 17, U.S. code, regarding statutory licensing of Webcasting, started out as a bill to suspend the deadline for royalty payments by six months. But modifications to the language turned it into a bill favoring small Webcasters.

"They turned it into sausage and they added a lot of what were in effect private negotiations between RIAA and a handful of small Webcasters," said Halyburton.

The Small Webcasters Settlement Act of 2002 passed Congress on Nov. 15, paving the way for small Webcasters and the recording industry to negotiate a royalty structure based on revenue rather than the current flat, per-performance fee recommended by the Copyright Arbitration Royalty Panel, or CARP. The act also provides a grace period for noncommercial Webcasters, which now have until June 20, 2003 to pay performance copyright fees.

Yet to be determined is the revenue cutoff point for qualifying commercial Webcasters, although if an earlier version of the bill is any indication, few, if any, commercial broadcast organizations would qualify as small Webcasters. Broadcaster organizations are likely to show revenues above the threshold of what the recording industry considers to be a small Webcaster.

"I don't think there's a single (commercial) broadcaster that's covered by that bill," said Bill Goldsmith, a Web consultant for KPIG(FM) of Freedom, Calif., who also runs Web-only radioparadise.com.

Although the new act could cut radioparadise's retroactive royalty fees by as much as 95 percent, it's not likely to affect Goldsmith's other Web concern. Like other stations, KPIG is held accountable for license fees established by the Library of Congress. As a result, the station recently gave up commercial Webcasting, and the 250,000 online listener base that went with it, and is now offering subscription-only Webcasts in order to get a handle on the music license fees.

Some 1,000 other Webcasters, by NAB accounts, have ceased streaming altogether since Internet radio operators held a "day of silence" in the summer of 2002. Other estimates of the carnage run even higher.

"I don't see us going back to it," said Tim Tift, operations manager for Greater Media's WMGQ(FM), New Brunswick, N.J., one of the stations to stop streaming this year because of the cost of copyrights.

"There have been Webcasters and broadcasters who have just shut this down. And that is the greatest concern, that the American population will be deprived, potentially, of these services if the costs are prohibitive," said Martin, adding that Clear Channel Interactive has been able to remain profitable even after paying copyright fees largely because of its large base of local advertisers.

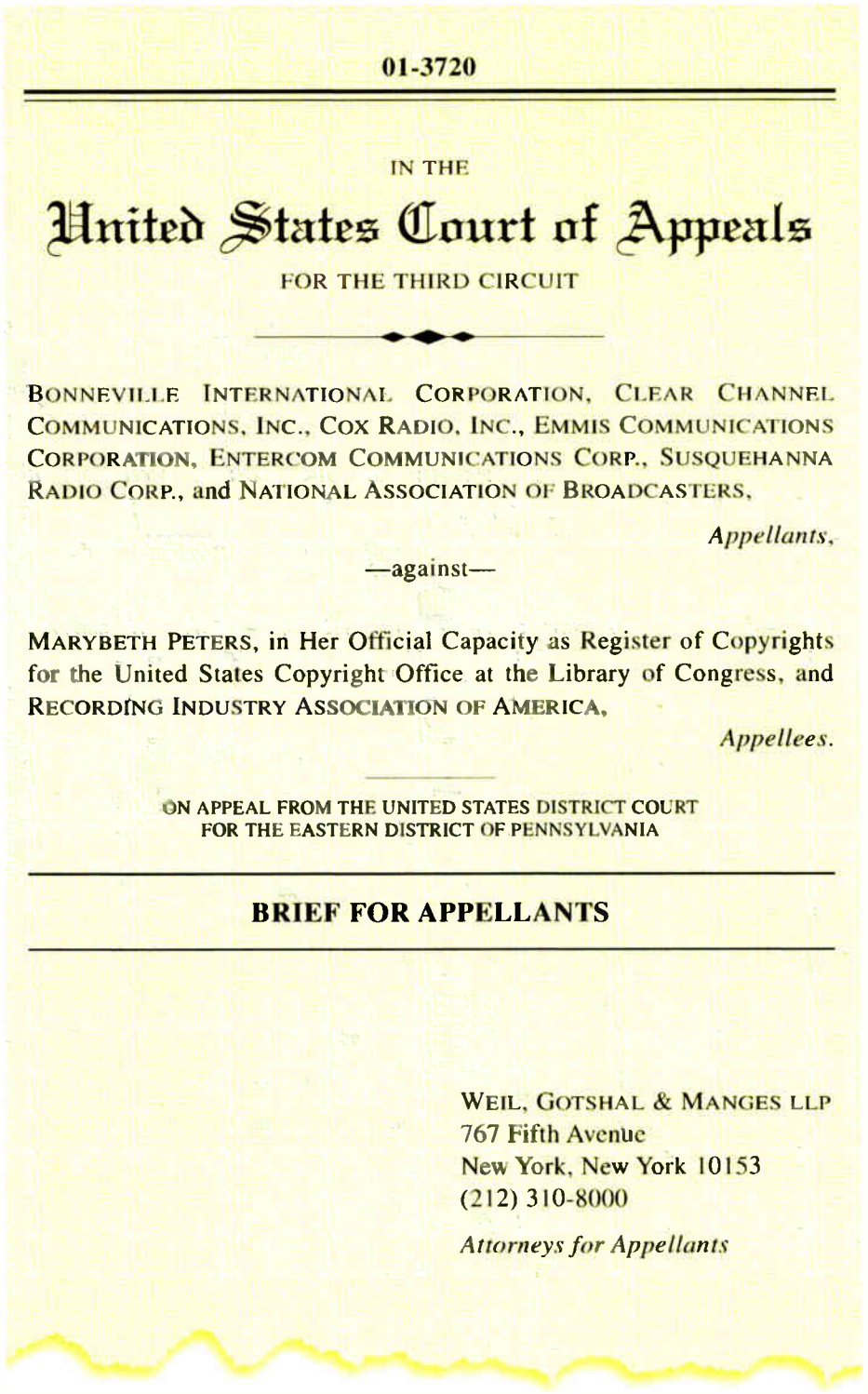
The flat per-song, per-listener fee is one problem, but so too is the restrictive interpretation of the DMCA.

"In order to be eligible for the compulsory license, you had to follow certain rules — things like you can't pre-announce song title and artist, you can't play the same artist back-to-back. There was a bunch of those types of rules thrown in, and they were counterproductive to how we run our radio stations," said Amy Van Hook, director of marketing services for Entercom Communications, Portland, Ore., which suspended streaming indefinitely as of May.

Webcasting is proving to be a losing proposition for Entercom, Greater Media and Susquehanna, all of which claim to have paid or are in the process of paying copyright fees retroactive from 1998. "(Webcasting) was definitely a marketing expense for us," said Van Hook.

These broadcasters say they're looking to new legal action to turn the situation around — if not the pending lawsuit, then through an act of Congress.

Dee McVicker can be reached at (480) 545-7363 or via e-mail to deemcv@qwest.net.



01-3720

IN THE

United States Court of Appeals

FOR THE THIRD CIRCUIT

BONNEVILLE INTERNATIONAL CORPORATION, CLEAR CHANNEL COMMUNICATIONS, INC., COX RADIO, INC., EMMIS COMMUNICATIONS CORPORATION, ENTERCOM COMMUNICATIONS CORP., SUSQUEHANNA RADIO CORP., and NATIONAL ASSOCIATION OF BROADCASTERS,

Appellants,

—against—

MARYBETH PETERS, in Her Official Capacity as Register of Copyrights for the United States Copyright Office at the Library of Congress, and RECORDING INDUSTRY ASSOCIATION OF AMERICA,

Appellees.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

BRIEF FOR APPELLANTS

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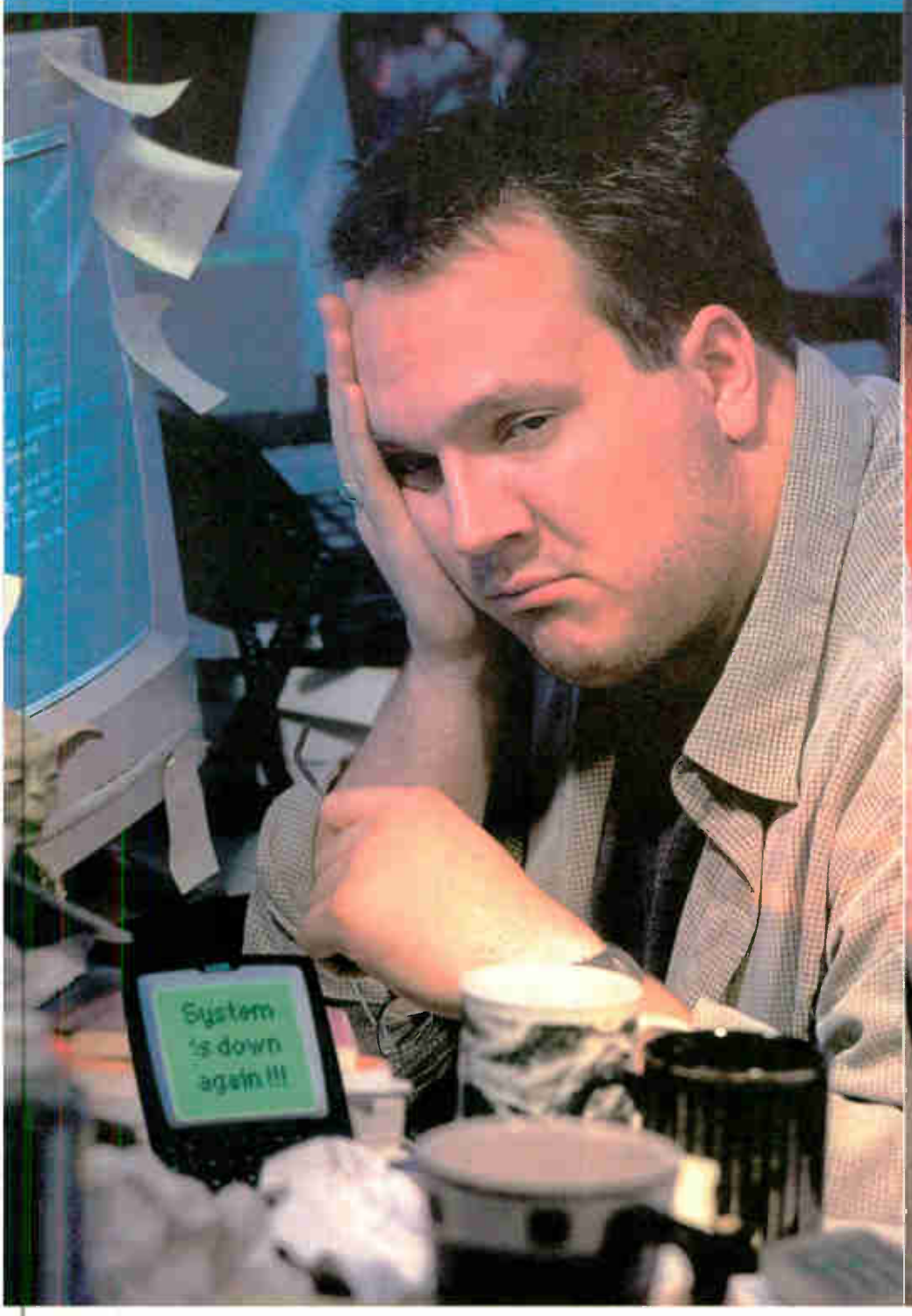

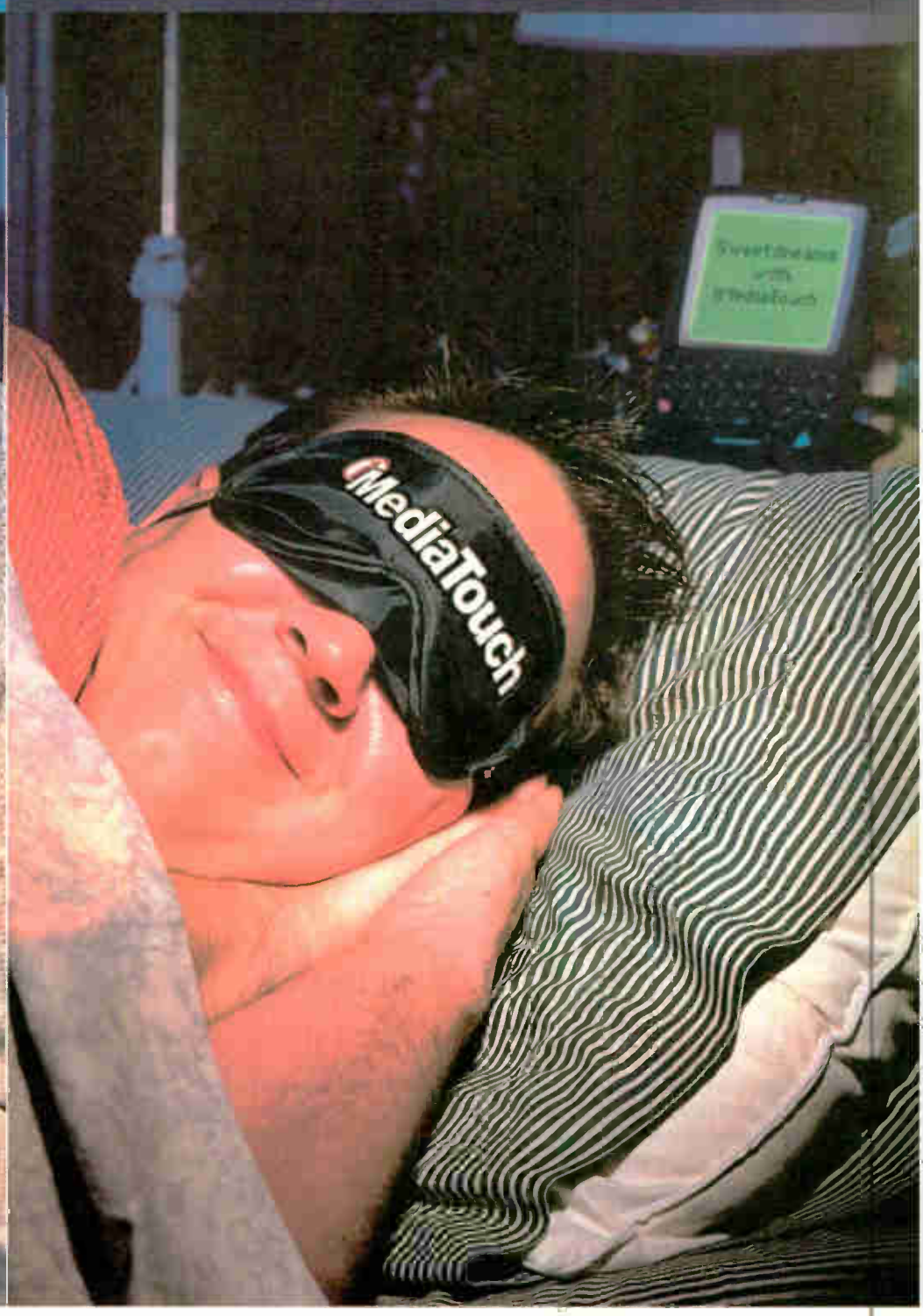

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TC-1 List $150 $139.00

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4-Track Recorder

The new Korg 4 track PXR4 records directly to SmartMedia cards, and via its USB port, the PXR4 can also transfer data to and from your computer in stereo MPEG format. Features: 8 virtual tracks per track; editing capabilities, time compression/expansion; 77 different effects; front panel contains five faders, one per track, plus one master fader; 1/4" jack with a hi/low impedance switch plus a stereo line/mic input; 1/8" stereo out jack, stereo headphone output and a USB output.

PXR4 List $500.00 $399.00

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The Behringer HA4600 offers four stereo amps, each with a stereo aux input, mono/stereo and left/right mute switches, balance and volume controls, plus numerous master features. Additionally, it has excellent output power, an ultra musical 2 band EQ and an accurate 8 digit LED output level meter per channel.

HA4600 List $129.99 $99.99

Stereo Audio Switcher

The Broadcast Tools 6X1 passively switches or routes any one of 6 stereo inputs to a single stereo out. Features: front panel selection switches with LED indicators; front panel safety lockout; programmable power up selection; local and remote control and status via contact closures and RS232 serial ports.

6X1 List $439.00 $389.00

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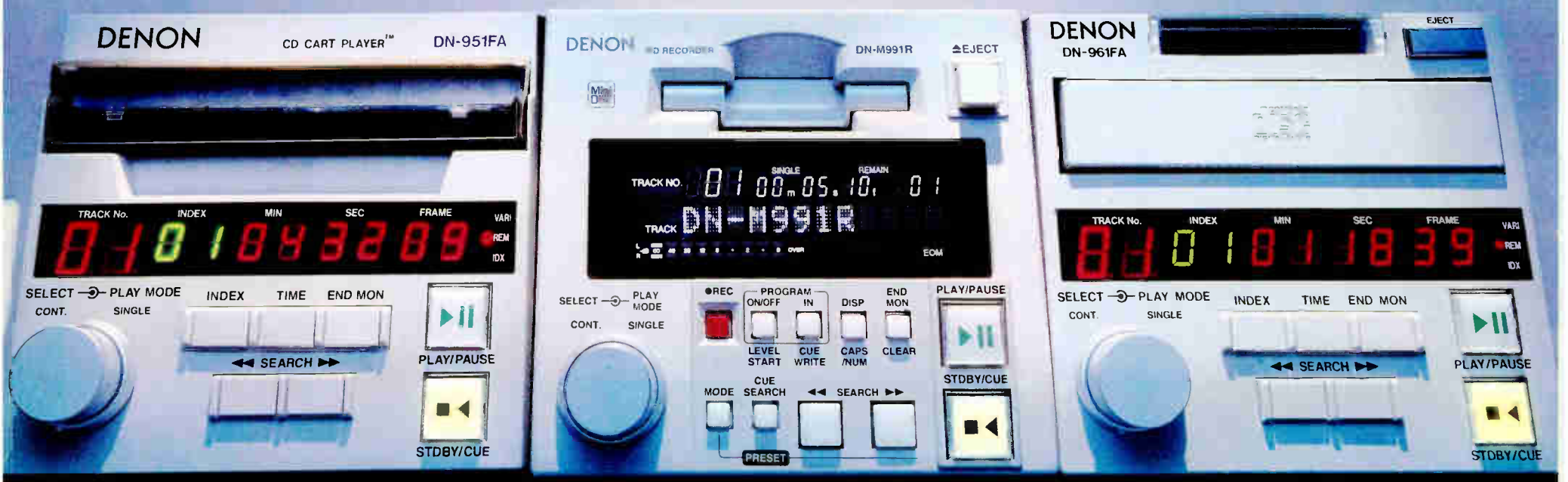

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Studio Sessions

So You Have To Work Christmas?
See Page 30

KNRC: Data Network at Its Core

by Scott Fybush

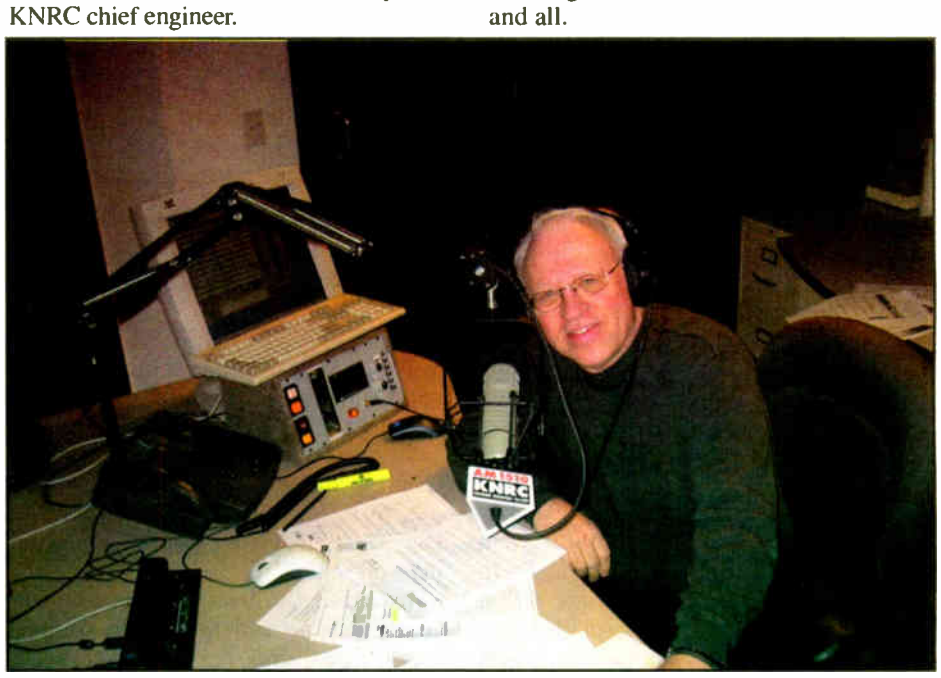
When Denver billionaire Philip Anschutz and a group of investors bought KDKO(AM) in Littleton, Colo., last spring, they walked into the situation so many radio people fantasize about: the chance to start a new station essentially from scratch.

"We basically bought a license," said Ray Skubitsky, president of the Newspaper Radio Corp. "The station needed tremendous technical upgrades."

So much upgrading, in fact, that when Skubitsky's group took control of the license, they shut down KDKO and its urban format and took the 1510 kHz frequency silent while they built a new studio and transmission system for the 10 kW station.

Under its new calls of KNRC(AM), 1510 returned to the air on June 24 boasting a new format of talk and news, a new studio location in the heart of downtown Denver and a technical plant that's among the most advanced in the country.

"Part of the concept the group had was to do radio in a different way than it's ever been done before," said Paul Montoya, the KNRC chief engineer.



Alan Prell, Talk Show Host, in the KNRC Talk Studio

That "different way" included an emphasis on information technology, aided by members of the KNRC team whose backgrounds were purely in IT instead of radio, including Information Technology Director Mike Pluta.

"We purchased a digital delivery system from D.A.V.I.D. Systems," Pluta said, making KNRC the first U.S. broadcaster to use the German-designed system, which is widely used in Europe but little-known in America.

For KNRC, which originates 11 hours of local talk each day, much of it involving in-studio guests who are also prominent Denver newsmakers, D.A.V.I.D. does more than just making sure the right pieces of audio play on the air at the right times.

"One of the components (of D.A.V.I.D.) is a database manager," Pluta said. "This allows us to assemble a library of audio components, along with a rich set of metadata that can be associated with the audio."

Or, in terms that might be more understandable to broadcasters more familiar with carts and reels than with metadata, "We have every hour of original programming that we've done archived in this database," Pluta said.

D.A.V.I.D. does more than archiving the audio. The same server that provides the audio to the KNRC air chain feeds audio to visitors arriving at station Web site *www.knrcradio.com*.

In addition to live streaming audio, the site includes a section called Audio Vault (no relation to the Broadcast Electronics product), where visitors can search through and listen to hours of archived talk programming, served up from D.A.V.I.D.

"It really enriches one's listening experience," Skubitsky said. "Normally if you hear something it's gone forever, but with this, it's not."

The archived programming that D.A.V.I.D. serves up to Web visitors is more than just an hour-long recording of the original broadcast, dated elements and all.

Making it work

Making the archive system work requires new responsibilities for the KNRC show producers, of course; they are now responsible for making sure the database contains the "metadata" that lists each the guests on each show and the topics discussed, so that users of the system — both internally and externally — can easily find relevant material among the hundreds of gigabytes of MP2 audio data stored on the D.A.V.I.D. system's RAID arrays.

The idea to pioneer the D.A.V.I.D. system came to KNRC from Harris Corp., the chief supplier for the station's rebuild and the U.S. distributor for D.A.V.I.D. products.

"Harris had on-site management to make sure the system was functional according to our needs," Skubitsky said. The installation also included members of the D.A.V.I.D. U.S. staff, who are using the experiences of KNRC to show them how to make the European system work for American broadcasters.

"There are some significant differences

See KNRC, page 28 ▶

PRODUCT EVALUATION

VXpocket 440 Audio Interface in a Laptop

by Stephen Murphy

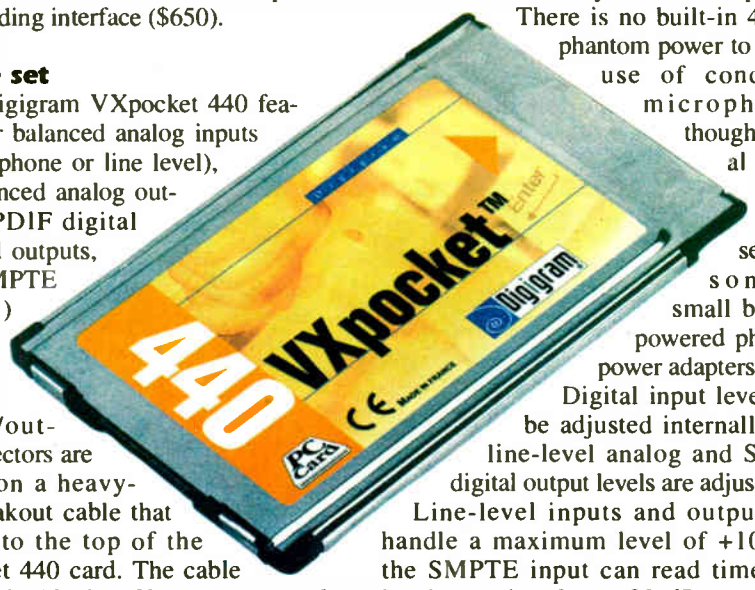
Four years ago, Digigram made laptop and desk-bound computer users stand up and take notice with the introduction of the first professional-grade audio recording interface on a standard Type II PC card.

Designed to enable audio production on a laptop computer, the diminutive two-channel VXpocket offered portable performance on par with its full-sized PCI card counterparts.

Digigram engineers have outdone themselves with the recent release of the more powerful four-channel VXpocket 440 recording interface ($650).

Feature set

The Digigram VXpocket 440 features four balanced analog inputs (at microphone or line level), four balanced analog outputs, S/PDIF digital input and outputs, and a SMPTE (LTC) time-code input.



Input/output connectors are located on a heavy-duty breakout cable that clips in to the top of the VXpocket 440 card. The cable is outfitted with eight XLR connectors for the analog I/Os, three phono (RCA) connectors for S/PDIF digital I/O and SMPTE input, plus a stereo 1/8-inch jack for headphone output.

The VXpocket 440, like the updated version of the stereo VXpocket (VXpocket v2) card, offers 24-bit performance with Windows-compatible applications. Direct Sound and Wave drivers are provided for Windows XP, 2000, 98/95 and NT4. In addition to working with applications under MAC OS9 and MAC OSX, cross-platform ASIO drivers are provided.

As with the original VXpocket, the VXpocket 440 can record and play at the standard sampling rates found between 8 kHz and 48 kHz.

Although the card is capable of bidirectional four-channel operation, the actual number of channels is determined by the performance of the host laptop computer and by the sample rate/bit-depth selected. Only bidirectional two-channel operation or four channel record are supported at 24 bits at 48 kHz.

The analog inputs can be switched internally from line level (0 dB) to microphone level (+30 dB or +48 dB) for direct use with dynamic microphones. There is no built-in 48-volt phantom power to enable use of condenser microphones, though several manufacturers sell reasonably small battery-powered phantom power adapters.

Digital input levels can be adjusted internally. The line-level analog and S/PDIF digital output levels are adjustable.

Line-level inputs and outputs can handle a maximum level of +10 dBu; the SMPTE input can read time code levels ranging from -20 dBu to +3 dB and features a capture speed tolerance of ±15 percent.

Simple install

After downloading the latest drivers from the Digigram site, installation of the card into a Pentium IV 1.2 GHz Dell Latitude C810 (with 256 MB of RAM and a 45 GB internal hard drive running Windows 2000) was reasonably simple.

The software I evaluated the VXpocket 440 with included the Cubase audio and

See DIGIGRAM, page 32 ▶

KNRC

▶ Continued from page 27

between the way things are done here in the U.S. and in Europe," Montoya said. "We had to work closely with them on unattended operation," a concept that is unknown to the big European state broadcasters who had been big clients of D.A.V.I.D.

"With a lot of systems out there, switching between attended and unattended operation is noticeable on the air. Here it is seamless," Montoya said.

Other new features added to D.A.V.I.D. at the request of KNRC included better support for news collection and presentation.

"Each newsperson has their own laptop so that they are able to do their own production out in the field and send it back almost studio-quality," Skubitsky said. In some cases, reporters have dispensed with tape and MiniDisc completely, using the laptop for everything from audio acquisition to editing to transmission back to the station, where the audio is immediately available to everyone on the station's data network.

Facility functions

That network is at the heart of the new KNRC facility, handling functions from on-air audio to the station phone system (built around IP-based telephony) to the studio-transmitter link, which replaces an old 950 MHz analog Marti system that could not reach the KNRC suburban transmitter site from its new downtown studio.

"We had to make the choice of getting a second frequency and licensing a double-hop STL or continue using ISDN lines," Montoya said. While KNRC went on the air using ISDN to get its audio to the transmitter, the station ended up trying a new technology, the Motorola Canopy broadband wireless system, which uses 5.4 GHz frequencies for short-haul wireless IP and 5.7 GHz for longer-distance connections.

The Canopy system KNRC is using includes a short hop from the studios to a downtown skyscraper, then a 14-mile path to the transmitter site. Once it was up and running, KNRC was able to extend its in-house local-area network to the transmitter site, with a 5 Mb connection that passes not only audio to the transmitter but telemetry and even security-camera video back to the studio.

Of course, there is plenty within the 3,500-square-foot facility above a downtown Old Spaghetti Factory restaurant that is more recognizable to traditional radio folks; its talk studio and master control are equipped with Pacific consoles, while the transmitter facility boasts a Harris DX10 transmitter and an Omnia.am processor.

Of course, all that technology only matters if someone is listening. And getting attention for talk programming is a challenge in a market dominated by Clear Channel's KOA(AM) and KHOW(AM), with Salem's KNUS(AM) also vying for conservative talk listeners and Colorado Public Radio's KCFR(AM) offering a full day of NPR news and talk.

The answer, says Skubitsky, is localism. "Because of the local ownership here, this station can respond to the local community."

KNRC Master Control

In the newsroom, each of the three workstations is equipped with a D.A.V.I.D. DigaStudio Pro system for audio acquisition and editing, with a three-channel, eight-input mixing system at each position for gathering audio and a Digigram PCX card to handle audio within the workstation.

In addition to locally generated audio, KNRC gets network news audio from AP, local news and traffic from Metro Networks and weather forecasts from The Weather Channel.

Compaq servers are used for the station's internal networking. The KNRC production studio uses Cool Edit Pro 2.0, while the traffic department uses a CBSI system that interfaces with the D.A.V.I.D. automation.

The KNRC programming day begins with an hour of "America in the Morning," then goes local at 6 with veteran ABC News correspondent and KOA host Greg Dobbs. Premiere's Bill O'Reilly follows Dobbs at 10, then the station returns to local talk at noon with Alan Prell, a veteran of WBAL out of Baltimore, followed by local talker Enid Goldstein (formerly of KGO in San Francisco) at 3.

Evenings and overnights on KNRC feature syndicated talkers Larry King, Lionel, Laura Ingraham and Jim Bohannon.

"We ran a fairly extensive advertising campaign using billboards, cable TV and movie theaters," Skubitsky says of the station launch. "Our goal is to find a way between the agenda programming you hear on Clear Channel's stations and position ourselves between that and NPR."

It is still too early to tell how KNRC will fare in the ratings (the most recent numbers for Denver, market 22, cover the summer book when the station had just launched and KNRC failed to register), but Skubitsky says there are already some interesting trends developing where KNRC's Internet stream is concerned.

"We are finding significant numbers of listeners out there using our Internet signal," he said. In particular, Prell's afternoon talk show is drawing an Internet audience and callers from Baltimore, where his former WBAL listeners have apparently discovered his new home.

Money matters

Having the backing of Anschutz, the founder of Qwest and the owner of the Los Angeles Kings, doesn't hurt, either. One of the wealthiest men in America, Anschutz is a partner in KNRC with Skubitsky, CEO Tim Brown, CFO Dave Roger and Chief Technology Officer Mark Kolar.

Skubitsky will not say how much the new KNRC facility cost, but it is safe to say rebuilding KNRC cost more than the $2.7 million the company paid for the old KBKO license.

In addition to the financial resources, KNRC boasts plenty of radio veterans in addition to the ones behind the microphone, including Program Director Alan Eisenson, who ran WEVD(AM) out of New York until that station was sold to Disney last year.

"The staff that Ray has put together here is really a staff of seasoned pros," Pluta said. "There is such an enthusiasm for radio and the people who are here are rooting for radio."

Final note: In November it was announced that KNRC will be moving from 1510 to 1150 in the spring. Radio Unica sold KCUV (1150) to the Newspaper Radio Group for approximately $3 million. The Newspaper Radio Group likely will sell off the 1510 frequency.

*Scott Fybush is a frequent contributor to Radio World. Based in Rochester, N.Y., he publishes NorthEast Radio Watch (*www.fybush.com*) and is the editor of the* 100000watts.com *radio directory site.*

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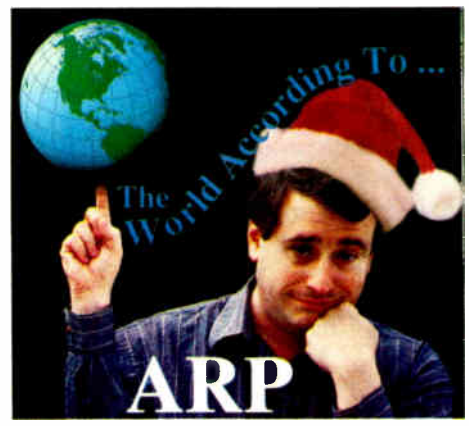
A Kind Word to Holiday Airstaff

by Alan R. Peterson



Memo to managers and engineers: This column is intended for those hardworking folks assigned to airshifts on Christmas Day. Please clip and leave in the main studio for all to see. Thanks and Merry Christmas.

— Al Peterson

So, you poor blighter, you got stuck having to work Christmas. I don't know if this is your first time or 20th time, but welcome.

This is supposed to be the happiest time of year for all, but I know exactly how you feel: cheated, lonely, perhaps a little angry and a little sad. Same as the folks at home who were counting on you to be around and will remind you every chance they can how your job let them down, *especially* if all you have to do is sit there and watch the main computer keep all the stations on the air.

It is especially hard if you are a new broadcaster and this, most likely, is the first holiday you will miss with your family.

Been there. Hated it. But stay with me a few moments — I might make you feel a little bit better about things.

When I was in college radio back during the Bronze Age, I got the bad news: I had to stay on campus to run the newsroom Thanksgiving Day. My plans were upset, my parents were horrified, my grandparents were insulted and my girlfriend wanted me dead. How dare I wreck all their holiday plans?

So I did my four hours and made it home for the celebration, but I never shook the memory. Nor did they.

My first year in the pros, I was 360 miles from home on Thanksgiving. After a late six-hour airshift, my dinner was taken alone in a dim yellow booth at a Howard Johnson's restaurant somewhere on Route 104 West in Noplace, U.S.A. I was all of 22 years old and felt lonelier even than Adam.

The telephone voices of my family telling me how much they missed me were not angry that time but sad, and even a little reassuring; knowing I was pursuing a passion and getting paid (very badly) in the pursuit.

I was alone, but *I was working.*

In subsequent years, I have had to pull holiday shifts. Even when I made it to program director a couple of times, I ended up doing shifts on Christmas and New Year's Eve.

I missed a lot of fun, but *I was working.*

It stung me every time I had to tell those around me, "I have to go in for five hours on Christmas." But I loved what I did for a living, and few others around my table could honestly say the same.

You are providing the soundtrack to your listeners' happiest times. Every song going over the air brings back a cascade of memories.

In 1989, tired of feeling sorry for myself, I volunteered to be a cook and server for a mission house after my shift ended, serving Thanksgiving dinner to folks a lot worse off than I could ever expect to be. It was the most stirring and memorable holiday that I ever had to pull an airshift.

Buck up, Bucko

It is little consolation to be hearing this from me, but my friend, you are *working.*

Look at the number of your friends and co-workers who ended up out of a job once the Attack of the Killer Voicetrackers commenced. Look at other friends who have jobs they despise who quietly envy your passion for your work.

Okay, you have to work the holidays, enduring the scorn of family members who wanted you home, demanding someday you grow up, find a real job and stop "playing radio" already.

The point is, you are still in the game. You are gainfully employed in a career you are passionate about while others not as dedicated, talented or lucky have fallen by the wayside.

I am sorry they tapped you to work Thanksgiving, Christmas or both, but *you are working*, providing your family with the rewards the season has to offer and getting better at what you do, paving the way for greater rewards down the road. Hopefully someday they will see beyond the tinsel and understand.

Maybe you are one of the luckies that gets to open the mic every 20 minutes between Christmas songs to read some maudlin liner. Hardly worth the effort, right?

Perhaps not to you; but to your audience, you are providing the soundtrack to their happiest times. Every song going over the air brings back a cascade of memories for them: the lean years, the successes and maybe even the time that they, too, had to work Christmas. You are the anchor, the linchpin, holding together that flood of memories. Today they smile nostalgically at them, as you will too someday.

It's a stretch, but take some comfort in the fact that your performance is being appreciated, even if you are not running all your boffo bits and nutty humor. Your listeners had a choice of dozens of stations, yet on the holidays, they still came back to *you.*

You won't be hearing this from your intimate circle of family members or even your workplace superiors, but you will hear it from me: *Thank you* for working on the most difficult days of the year. Try not to let it get to you.

Remember, you are joined by emergency medical people, fire and police professionals, television crews, newspaper employees, restaurant staff and the poor convenience store clerk who probably feels lower than you do.

It is easy coming from me, as I do not have to work the holidays this year. Someday, you won't have to either, but in the meantime, know that it hasn't been such a long time ago for me that I have forgotten what it feels like.

Be pleased and proud you are doing what you love for a living, even if you have to do it on days you would rather not. Lots of out-of-work jocks would trade places with you in a heartbeat.

So crack that mic or drag that mouse. Either way, have a great show. Watch out for those booby-trap spots that say "Thru 12/24," and Merry Christmas to you and your family.

I hope, at least, the boss gave you New Year's off.

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Digigram

▶ Continued from page 27

MIDI sequencer from Steinberg and Sound Forge from Sonic Foundry.

The Digigram Wave Mixer application is used to set input and output levels, record source, analog input type, phones level and digital format (AES or S/PDIF). The control application can also switch the card into a "Data" mode, which disables all digital level processing to ensure digital data integrity when outputting non-PCM audio data such as Dolby AC3.

For ASIO operation, a separate control interface is launched from your recording application, allowing control over the card plus the advanced ASIO recording and monitoring settings.

I took the notebook recording system on several remote recording expeditions including press conferences and multi-person interviews. I even took the system with me on my beach vacation to continue working on a personal production.

While typical radio and newsgathering recording traditionally uses two-channel recorders (MD, cassette, DAT, etc.), the extra input channels afforded by the VXpocket 440 came in handy on several occasions during my testing.

Digigram provides an innovative anchor system that significantly reduces strain on the card by attaching the body of the cable to an empty port.

At press conferences, for example, the extra channels can be used for coverage microphones in addition to the direct pressbox feed. Having the ambient microphones on separate tracks provides both an auditory safety net and the ability to feed in audience questions not usually available through the press box.

For multiperson interviews, separate channels for each interviewee allows for later mix control and easier editing of difficult transitions.

Flexible, portable

Physically, Digigram made the VXpocket 440 card to be as flexible and as portable as possible. As such, a separate hardware breakout box was ruled out in favor of the provided multiconnector breakout cable.

While this approach makes the laptop recording system self-contained and self-powered, care needs to be exercised regarding the use and anchoring of the breakout cable. It is easy to see that a breakout cable consisting of eight metal XLR connectors and several smaller connectors hanging off of the top of a PC card is a potential recipe for trouble.

To this end, Digigram provides an innovative anchor system that significantly reduces strain on the card by attaching the body of the cable to an empty port (parallel, serial, external monitor, etc.) via two large thumbscrews.

Of course, if someone trips over your cables, your computer is still at risk, but that is hardly the fault of Digigram. It is a good practice with semi-expensive and fragile portable recording equipment to take appropriate precautions, such as using gaffer's tape, tying long cables to table legs, etc.

Overall, I experienced no troubles and was pleased with the sonic performance and the newfound mobile recording freedom I discovered with the VXpocket 440.

The Digigram VXpocket 440 brings professional multichannel audio performance to the mobile computing market. The convenience and expedience of recording and editing in the same box while on the road is worth the price of the card, especially for busy newsroom operations. It doesn't hurt that the price recently dropped almost 25 percent, to $650.

Stephen Murphy, former editor of Pro Audio Review magazine, is a free-lance engineer/producer with 20 years experience in audio, radio and video production. Reach him at editor @smurphco.com.

Product Capsule:
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USER REPORT

Seattle's KKOL Goes Maritime Mobile

by Jim Dalke
Consulting Engineer

SEATTLE On Jan. 1, 2002, KKOL(AM), 1300 kHz, began broadcasting from temporary facilities installed aboard the 175-foot cargo ship, the Coastal Ranger, in Seattle's Elliott Bay.

The 1,000-watt transmitter facility is the only licensed broadcast station operating in the United States aboard a ship. A **Valcom** 74-foot fiberglass whip antenna installed on the deck of this steel-hulled ship moored in seawater is providing temporary coverage for the Seattle area while the station's new 50 kW transmitter facility is completed.

In the spring of 2001, Salem Broadcasting, owners of KKOL, agreed to abandon the historic landmark transmitter facility on Seattle's Harbor Island so the Port of Seattle could expand its cargo container handling facilities. Salem is replacing the old facility with a new 50 kW, four-tower facility on a new site south of downtown Seattle.

The Coastal Ranger docks on Harbor Island in Elliot Bay.

I was asked to implement a temporary transmitter facility to prevent the station from going dark while the new facility was being constructed. The temporary facility would operate under FCC rules for Special Temporary Authorization. My goal was to preserve as much of the original licensed coverage area as possible while complying with STA rules.

Two traditional temporary solutions were explored: a long wire attached to a tall structure, such as a smoke stack or existing tower structure, or sharing an existing broadcast antenna. Several tall structures were evaluated but were not suitable. An existing broadcast antenna was located a mile from the old facility, but was already shared by two stations, and one of the frequencies was too close to 1300 for triplexing. FCC rules and local zoning regulations prohibited erecting a conventional antenna, even a short, temporary one.

Several years ago, I met Paul MacPherson of Valcom Antennas at Valcom's booth at NAB in Las Vegas, and was introduced to his center-loaded fiberglass whip, which has been used for years for maritime installations and had been scaled for broadcast use. With this antenna in mind, I concluded the Valcom antenna could be mounted on a steel-hulled boat and moored in the salt water of Puget Sound for a temporary transmitter facility.

I located a 175-foot cargo ship, the Coastal Ranger. The ship was one of several that would deliver supplies to Alaskan fishing companies in Dutch Harbor in the Aleutian Islands and then would return to Seattle with a cargo of frozen fish. The boat was retired from active service and was moored near Fisherman's Terminal in Seattle's Ballard area.

A 74-foot Valcom antenna was ordered and tuned for 1300 kHz operation and shipped to the Ballard location along with a new Broadcast Electronics 2.5 kW transmitter.

A Valcom steel hinge plate was welded onto the aft deck over an area with substantial reinforcement below the deck. The antenna was attached to the base plate and then raised vertically using a truck-mounted boom crane.

A steel 20-foot cargo shipping container was secured to the aft deck near the antenna. The double doors at the end of the container were replaced with a wood wall with a door and a ventilating fan installed. The BE transmitter was installed in the container along with a rack with monitoring and remote-control equipment. The ATU was installed inside the container with a feed for the antenna connection.

The ship was moved from Ballard to its new home near the old transmitter site on Harbor Island in Elliott Bay. The new "maritime" facility was turned on Jan. 1, 2002, and has been operating continuously since.

Because the antenna platform on the boat remains at the same level relative to the waters surface, little or no variation in base current or field strength has been observed, even at the extremes of 16-foot tidal swings. The boat is moored in a relatively sheltered area, so wind and wave action has had no detrimental effect on the signal.

The facility performance is outstanding. The signal from the STA site has been consistent and reliable and covers a significant percentage of the original licensed coverage area. Several sets of field measurements have confirmed good coverage and excellent efficiency.

This effective solution to a difficult problem would not have been possible without the innovative Valcom fiberglass whip antenna. The Valcom antenna is well designed, easy to erect and maintenance-free. Field measurements indicate this loaded 74-foot whip is performing similar to a traditional quarter-wave vertical antenna.

For more information, including pricing, contact the company in Virginia at (540) 563-2000 or visit www.valcom.com.

USER REPORT

Gulf Coast Stations Cover With Dielectric Panel

by Larry Wilkins
Assistant Director of Engineering
Cumulus Broadcasting

BALDWIN COUNTY, Ala. Mobile, Ala., and Pensacola, Fla., are some 60 miles apart, but radio and television stations see them as one market. As a result, over the years, a number of stations in both markets have placed their antennas halfway between the towns, at a location that has become known as Wilcox Road.

One such tower there is the WPMI(TV) tower, which supports a four-station FM panel serving one Clear Channel and three Cumulus stations. This panel was installed some 17 years ago and has developed several problems with feed lines and bays.

We decided to replace the antenna and also to upgrade the combiner with a digital-ready unit. **Dielectric** designed and installed the new nine-level antenna and combiner system. Central Tower, a division of Dielectric, handled the installation work.

Tower overview

The photograph shows some of the bays awaiting assembly and installation. The feed system consists of one 6-inch line that feeds the various power splitters and hybrids. With nine levels, there are a total of 27 panels. Correct placement and cabling are extremely important.

One of the most important items in installing a panel antenna is the correct layout and grounding of the feed lines. The 7/8-inch feed lines used in this installation are unjacked and attached to tower members every 20 inches. Also, each time one line crosses another they are bonded together. With four Class C stations on the antenna, there is a lot of

See DIELECTRIC, page 39 ▶


Bays await assembly and installation at the Wilcox Road site in Alabama.

USER REPORT

Cox Orlando Relies on Harris

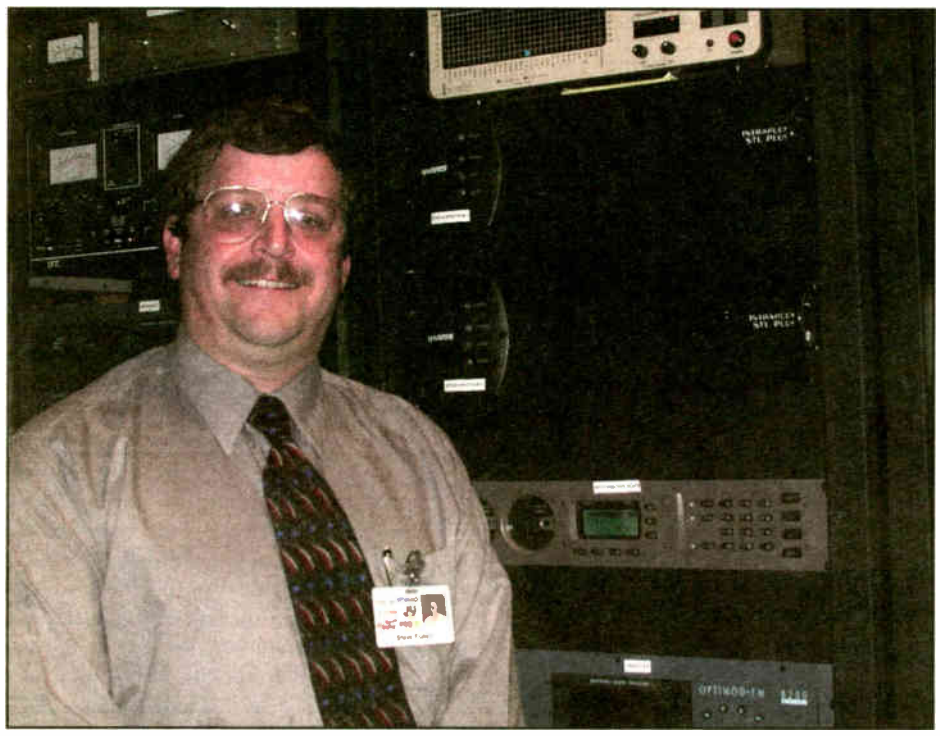
by Steve Fluker
Director of Engineering
Cox Radio Group

ORLANDO, Fla. Studio and tower consolidations are commonplace in today's radio markets. While these major projects can be fun for the engineering team, they bring about new challenges as well. One is how to get the audio from the studio to the tower site.

Standard STL frequencies are becoming crowded, which is problematic when you combine multiple radio stations over the same RF path. Multiple channel digital STLs are an option; however, some of them require digital data reduction to fit all four channels on one carrier — even then they don't address the needs of the return link from the tower back to the studio.

Choice of frequency

I decided to research the options available when designing the consolidation of Cox Radio's six Orlando radio stations. While walking the exhibit floor at the NAB convention, I came across the combination of the **Harris** Intraplex STL Plus and the Aurora spread-spectrum radio link. I had always thought of Intraplex as being an interface for T-1 lines, which are very good but come with a high monthly cost, not to mention the fear of a phone line being cut, which takes your stations off the air.



Steve Fluker, director of engineering with Cox Radio Group, stands beside the Harris Intraplex STL Plus.

The spread-spectrum link was an intriguing idea and was available in two frequencies: the 2.4 G channel, which gives the equivalent bandwidth of one T-1 line, and the 5.8 G link, which doubles that capability.

For my application, I had two FM radio stations linking to the same tower site about four miles away from the studio location. I wanted to do more than just send the audio to the tower site, so I chose the 5.8 G system for its extra bandwidth.

The first objective was to get clean, uncompressed digital audio to the tower site. To keep our 100 percent digital audio chain, I chose the AES digital 15 kHz stereo cards, one for each station (20 kHz cards are also now available for HD Radio applications).

Because this tower was located centrally in the market, I decided to make it the receive location for our remote broadcast RPU channels and our traffic airplane radio transmissions. The quality of the audio on these channels is already limited, so I chose audio cards with apt-X data compression for the Intraplex system. This gave me a total of 10 15 kHz return audio channels to the studio — but I wasn't finished yet.

The remaining bandwidth was divided among several other available options. First, I incorporated a LAN network card so that I could put a computer at the tower site on our studio network. My files are now available at the tower site along with e-mail and Internet access. RS-232 data cards handle bidirectional data for the multiple transmitter remote controls, eliminating the need for a TSL system.

I also added the telephone port cards allowing me to put a studio telephone extension at the tower site. Calls to the office can now be answered at the tower site. A second telephone port allows me to connect a fax machine to telephone lines at the studio location, which lets us take advantage of the cheaper long distance rates that we get on our business lines.

Because the spread-spectrum systems don't require licenses, I was concerned about interference. Harris provides special transmit and receive dishes for the link that are extremely directional. Even moving them slightly will cause a major change in the signal strength. This is important in being able to reject nearby interference.

While my link is only four miles, Harris/Intraplex claims the system will be reliable at distances up to 30 miles. We have had our system on the air for well over a year now, and even during times of extreme atmospheric disturbances — heavy rains wind and lightning — we have yet to experience any down time or RF fade.

The system has performed well for us. There was a price sticker shock at first, but after taking a breath, and adding up the cost of all the components that it replaces, I found the price to actually be less than the alternative of two separate STL/TSL links.

For more information, including pricing, contact the company in Massachusetts at (978) 486-9000 or visit www.intraplex.com.

Features at a Glance

- Configuration based on your individual needs
- AES digital or analog cards available
- Can be configured for linear digital, MPEG Layer II or apt-X data compression for up to six stereo 15 kHz channels on one T-1 line
- Available option cards include LAN Network Port; OPX Off-Premise Telephone Extension port; RS-232 data ports
- Bandwidth using Harris Aurora Spread-Spectrum: 2.4 G link = one T-1 line; 5.8 G link = two T-1 lines

Cox Radio, Orlando System at a Glance

Studio Site		Tower Site
	Station 1	
AES Uncompressed Audio In	→	AES Uncompressed Audio Out
	Station 2	
AES Uncompressed Audio In	→	Analog Audio Output Card
	Aux Audio	
(10) apt-X Audio Channels	←	RPU and Airplane (10 Channels)
	Data	
(2) Bi-Directional Data Channels	↔	(2) Transmitter Remote Ctrl Data
	Communication	
PBX System Analog Phone Port	→	Telephone Extension from studio
PBX System Analog Phone Port	→	Fax Machine (Low LD Rates)
Computer LAN Network Port	→	Computer on Studio Network

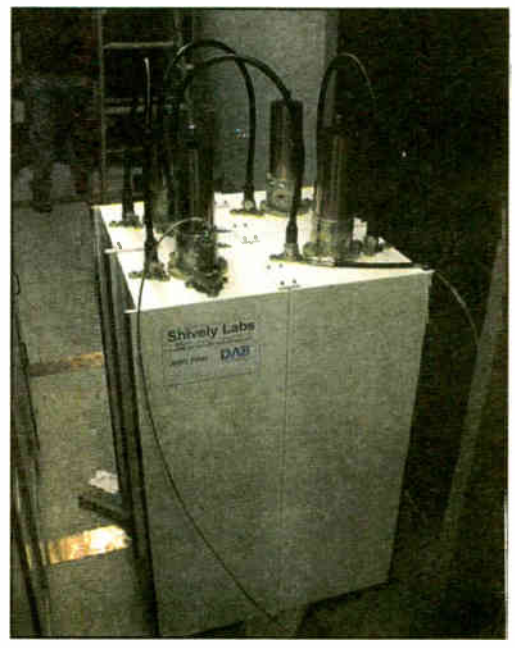
USER REPORT

HD Radio On-Air With Shively Labs

by John Price
Assistant to Vice President of Engineering
Entercom

SEATTLE With HD Radio in our future, Entercom's Corporate Engineering Department has had numerous discussions surrounding options of HD Radio implementation at our various FM stations. During a discussion concerning our multi-station master antenna system at West Tiger Mountain in Seattle, Clay Freinwald, Entercom Seattle's facilities engineer, asked a "what-if" question.

What if we ran polarized digital and analog signals through an existing balanced combiner? It should then be possible to feed the analog FM signal to the master antenna and the digital signal to a separate HD Radio antenna.



Shively Lab's IBOC Filter

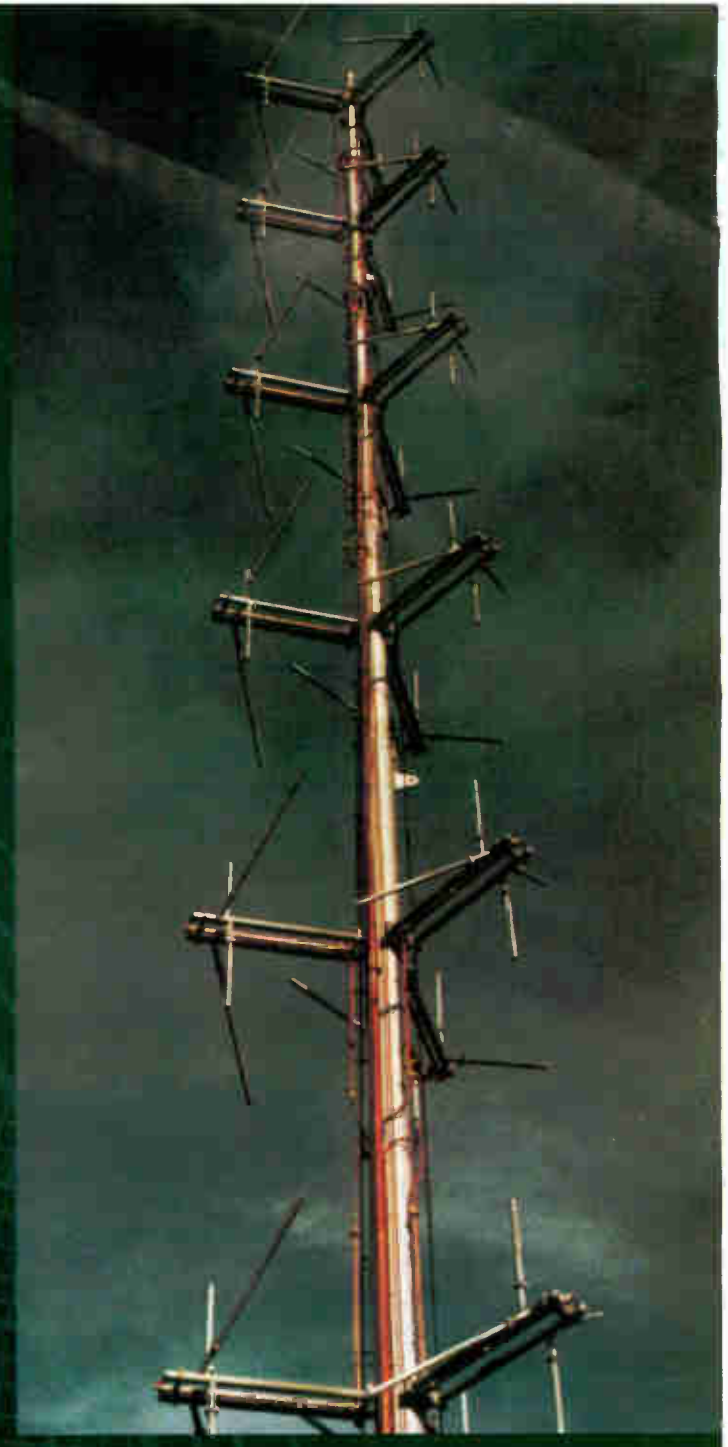
Ambitions

The idea sounded promising. But where could we test the theory? And what would we do for a HD Radio antenna?

Entercom's VP of Engineering Marty Hadfield had part of the answer: why not split the feed of the master antenna system by feeding the FM analog signal into half of the antenna and the digital signal into the other half of the antenna? I offered the rest of the answer: why don't we test the theory at Entercom Seattle's Cougar Mountain Auxiliary FM site, where we have a **Shively** 6014-6/2, six-bay, dual-fed master antenna?

If the theory worked, stations at our multi-station/combined antenna sites wouldn't have to inject the digital signals into the FM analog carrier and therefore could do away with injector loss and the resulting cost of higher-powered transmitters to handle

See SHIVELY, page 37 ▶



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USER REPORT

Richland Towers Chooses ERI

by Curt Wilkinson
Vice President of Development
Richland Towers

NASHVILLE, Tenn. Electronics Research Inc. and Richland Towers are working together to bring broadcasters into the digital age.

ERI, an engineering company that has manufactured commercial and telecommunications broadcast products since 1943, has been working with Richland Towers to build a 1,158-foot tower. Approximately 130 feet will be added to the tower with the addition of antennas. The completed tower with antenna is expected to stand 1,289 feet AGL (2,049 feet AMSL).

Richland Towers, a provider and operator of broadcast towers and equipment buildings, recently retained ERI to construct the 12-foot-face, 75-foot candelabra tower capable of supporting up to 20 TV and FM broadcast operators.

When you hear the name ERI you might first think of antennas, specifically FM antennas. Quite possibly you might also think of FM combiners. But now you will hear the name associated with large tower structures.

Our choice of ERI stemmed from several factors. Of primary significance was the confidence that we had in ERI's structural engineering abilities.

The 75-foot candelabra allows for the installation of up to nine separate antenna arrays with maximum centers of radiation approaching 1,850 feet above average terrain.

In particular, Richland holds regard for Ernie Jones, the company's lead structural engineer. ERI also demonstrated a keen ability to manage a project and insulate us from the daily headaches of such a complex undertaking. ERI has taken the quality control necessary for their antenna business and applied it to the manufacturing of large tower structures.

Richland and ERI jointly were able to fabricate a tower that allows for maximum flexibility and loading. The 75-foot candelabra allows for the installation of up to nine separate antenna arrays with maximum centers of radiation approaching 1,850 feet above average terrain. The structure incorporates a dual cab elevator to facilitate installation of many components as well as the maintenance of RF systems.

Currently, Richland's Knoxville, Tenn., broadcast tower, supplied by ERI, is rising above the Smoky Mountains and will be completed by January.

For more information, including pricing, contact the company in Indiana at (812) 925-6000 or visit www.ERIinc.com.

Shively

▶ Continued from page 34

the injector load. We could keep our existing FM analog transmitters and purchase smaller digital transmitters to transmit just the output power needed for HD Radio.

Otherwise, we were looking at the possibility of buying new FM transmitters with 11 percent power headroom and new digital transmitters with 10 times the digital output to account for the combiner loss from the IBOC injector.

What if we ran polarized digital and analog signals through an existing balanced combiner?

There are some real savings here. For a station with 10 kW of transmitter output power, we could get a 100 W digital transmitter instead of a 1 kW digital transmitter for the HD Radio path — amounting to $100,000 in savings. We would also save a tremendous amount of money on the associated cooling and utility costs when the time came to implement HD Radio. Of course, we would need to get more bays to replace the three bays on our six-bay master antenna that our analog FM gave up to HD Radio for the proposed test. However, the primary focus of the test was to prove Freinwald's combiner injection theory.

On July 31, 2002, the FCC granted Special Temporary Authority for Entercom Seattle stations KISW(FM) and KQBZ(FM) to test Freinwald's idea. The STA authorized the removal of the power splitter on the Shively master antenna at the Cougar Mountain facility.

The antenna consists of an upper and lower half and is fed by phase-matched transmission lines from the power splitter during normal operation. With the power splitter removed, we could feed the upper half of the antenna conventional analog FM and feed the lower half of the antenna Ibiquity HD Radio digital.

Engineers from Broadcast Electronics, Shively Labs and Ibiquity Digital, as well as our own Entercom Seattle engineers, gathered at the Cougar Mountain site in August to run "proof of concept" tests on KQBZ (FM). We installed the latest version of the iBiquity DAB encoder and processing equipment in a HD Radio chain comprising a Shively Labs Model 2540 combiner with Broadcast Electronics FSi-10 HD Radio signal generator and FXi-60 digital FM exciter coupled into a linear BE FM transmitter.

Broadcast Electronics biased the transmitter for Class AB operation and added pre-correction circuitry to minimize intermodulation distortion and meet HD Radio spectral specifications. The digital exciter could be used in standard FM analog mode or for HD Radio only. We used it as an HD Radio-only exciter. It proved to be an ideal exciter for the test because it has just about everything we need for the HD Radio side, including audio processor, limiter and stereo generator.

It also has a unique direct-to-channel design that does away with the analog up-conversion process to create carrier frequency, so there are none of the usual digital exciter worries about noise, spurious emissions and filtering artifacts.

To run the digital signals separately through the balanced combiner at the same time as FM analog, but in the reverse direction, we fed the digital signal through a EMR circulator/isolator and into the KQBZ(FM) combiner's normally-terminated port of the input hybrid. The circulator/isolator was supplied by Shively to maintain a 50 ohm load on the port and keep out of the digital transmitter any RF circulating currents that might be coming back through the combiner module. The digital signal exited the KQBZ(FM) combiner through the analog wideband input, where a transmission line fed the lower half of the Shively antenna, replacing the standard wideband dummy load.

The KQBZ(FM) Collins 813G-2 auxiliary transmitter running at 10 kW output power remained in use for the analog FM. The Broadcast Electronics linear transmitter ran about 100 W output, or 1 percent of KQBZ (FM)'s transmitter output power of 10 kW.

Outcomes

During the course of two evenings, we tested signal strengths within a 50-mile radius of the antenna site and, except for a few predictable areas where we couldn't pick up the digital signal, we maintained adequate reception throughout.

The analog FM wasn't affected by HD Radio and there was no discernible interference within the area we tested. Later in September, during the NAB Radio Show in Seattle, we ran similar demonstrations on KISW(FM), another Entercom station with auxiliary facilities at Cougar Mountain.

After the show, we began to consider another idea that could save us the cost of adding those extra bays. Talks continue between Entercom and Shively to develop further enhancements in feeding the master antenna with analog and HD Radio signals. I expect that further tests are on the horizon.

For more information, including pricing, contact the company in Maine at (888) 744-8359 or visit www.shively.com.

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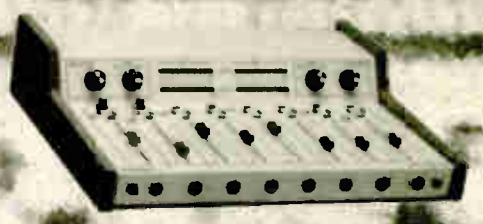

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USER REPORT

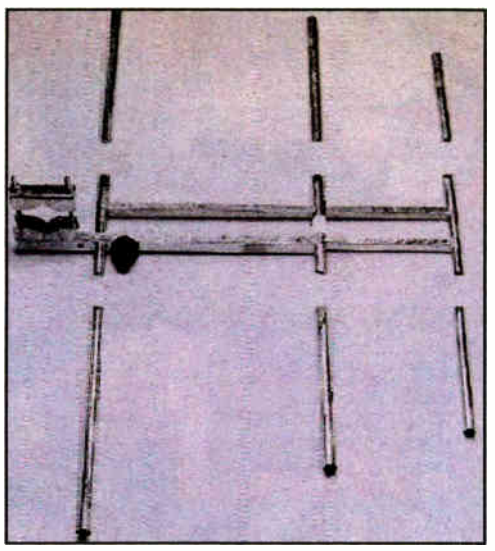
Antennas Made Easy by Nicom

by Martin Hensley
Contract Engineer and Director
Hoosier Broadcasting Corp.

INDIANAPOLIS Non-commercial educational stations face a number of challenges when constructing or altering their facilities. This is especially true when the non-commercial station is located near a Channel 6 TV facility.

Operating with a vertical RF transmission component is required to allow for higher-power operation. By operating with a directional antenna (DA), stations are allowed more room in geographical movement. This is where Nicom can help stations working towards an upgrade or constructing a new facility.

Nicom offers a rugged antenna called a BKY3/P. This is a rugged three-element "yagi" FM antenna that can be vertically or horizontally oriented. The antenna is defined as a medium-power antenna (capable of 2,000 watts maximum per antenna bay) and can be fitted with either 7/8-inch EIA connector or an N-type connector. The antenna is designed for use alone or in conjunction with a power divider and multiple BKY3/P antennnas. Your engineering consultant can design a DA pattern based on the BKY3/P. Nicom can direct you to companies that provide these services if you do not have a consultant.



Nicom's BKY3/P Antenna

Nicom offers a full line of low-, medium- and high-power dividers. The power dividers are well built and Nicom offers tower mounting brackets as well as pre-cut critical length coaxial cable with connectors pre-assembled for arrays.

The Nicom BKY3/P antenna is referred to in its literature as a portable antenna. "Portable" is a good word for describing the shipping method (regular UPS), but the BKY3/P, when assembled, is as solid as any antenna I have seen in many years of radio consulting work. The BKY3/P comes in a small-footprint package.

After taking the elements and other components out of the package, assembly is easy. Each element is marked with brightly colored marks in various colors for assembly. This method is much like that of putting together an artificial Christmas tree. There is no room for error — even the length for each element is pre-set by use of the colorful markings. Elements attach with a compression fitting adjusted with a Phillips-type screw and nut with washer on the other end, which leaves no room for movement.

Once assembled, the Nicom BKY3/P has a tough metal bracket that holds the antenna to a tower leg or mounting bracket with a compression assembly. The BKY3/P hardware, including mounting bracket hardware, was carefully checked prior to shipment, so I had all the hardware when I opened the package.

The BKY3/P antenna weighs only 20 pounds when assembled. The antenna is capable of handling winds of 130 mph. It is manufactured of stainless steel.

I have a BKY3/P system that has been tower-mounted for several months. Unlike other similar antennas, I have sustained many incidents of high wind with no antenna movement and no loss or breakage of elements. Other yagi antennas mounted on the same tower have sustained damage during a summer episode of tornadic activity.

I have been pleased with the customer service and response to many technical questions I have asked related to the BKY3/P. Nicom offers a line of quality FM antennas, which you should consider if you are looking for a rugged antenna designed to perform well for years to come.

For more information, including pricing, contact the company in California at (619) 447-6298 or visit www.nicomusa.com.

The BKY3/P is as solid as any antenna I have seen in many years of radio consulting work.

Dielectric

▶ Continued from page 33

RF floating around, and any item that is not bonded correctly can set up an arc and eventually cause a burnout.

The removal of the old antenna and installation of the new one took several weeks. During this time, the four stations operated at auxiliary sites. Central Tower also took this time to open up all 1,600 feet of transmission line and replace "watch bands" and O-rings, as well as any bullets that had excessive wear.

Dielectric was in communication with the local engineers throughout the project. A field engineer came in after the installation was completed and made measurements on the entire system. The overall efficiency of the combiner is around 95 percent with over 80 dB isolation from port to port. A written report was furnished showing all measurements and calculations for correct TPO of the transmitters.

The new system has been on the air for about month and the coverage has never been better. With a HAAT of 1,525 feet, the coverage is more than 100 miles in all directions.

For more information, including pricing, contact the company in Maine at (800) 341-9678 or visit www.dielectric.com.

TECH UPDATE

Dialight Adds Voltage Options to Beacon

Dialight Corp. is offering its L864 LED-based flashing red beacon for marking radio and television towers in a 240 VAC version in addition to its 120 VAC unit.

The company also has expanded its line of L-810 LED L-tower side lights, formerly available in 120 and 240 VAC versions, to include 12, 24 and 48 VDC lights.

The red beacons meet the requirements of the FAA, Transport Canada and ICAO. The tower side lights are FAA-compliant and ETL-certified. They conform with applicable ICAO and MIL-C-7989 specifications. Both types of lights feature Dialight's high-flux LEDs. The company claims these last years longer than incandescent lights, use 90 percent less energy and extend replacement intervals to reduce maintenance costs.

For more information, including pricing, contact the company in New Jersey at (732) 751-5875 or visit www.dialight.com.

TECH UPDATE

Kintronic Introduces Reduced-Height Antenna

Kintronic Labs has introduced the Kinstar low-profile antenna for AM broadcast applications with a reduced antenna height.

The radiation pattern and efficiency provide operation equivalent to that of a standard quarter-wave monopole, but at approximately 20-25 percent of the height. According to the company, the reduced height provides ready acceptance by zoning authorities, thus eliminating a drawback to standard guyed or self-supported towers.

The Kinstar antenna was conceived and developed by STAR-H Corp., which has granted Kintronic a worldwide, exclusive license for the AM broadcast market.

The low-profile antenna consists of four electrically short, vertical closely spaced elements, each of which is terminated in a horizontal top-load element. Each vertical element is fed via a phase-matched section of 50-ohm transmission line. The other ends of these transmission lines are combined to yield a theoretical input impedance of 50 + j0.

Dr. Jim Breakall, professor of Electrical Engineering at Penn State University, generated computer models of this antenna and feed approach and compared the efficiency over a perfect ground plane to that of a quarter-wave tower at the same frequency and found that the efficiency of the low-profile design was 93 percent compared to that of the tower.

Kintronic and STAR-H are conducting tests of a quarter-wave mast vs. the low-profile antenna operating at 1680 kHz with a transmitter power of 250 watts under an FCC experimental license. The results are being evaluated by duTreil, Lundin and Rackley Consulting Engineers. Indications from the raw data, the company said, are that the low profile is performing to expectations and it appears the antenna will meet minimum required radiating efficiency. A report will be submitted to the FCC by the end of the year.

For more information, including pricing, contact the company in Tennessee at (423) 878-3141 or visit www.kintronic.com.

Products & Services SHOWCASE

TECH UPDATES

LBA Releases Multiplexer for Multiple-Station Towers

For AM stations wanting to combine multiple stations on one tower, there is an alternative to traditional AM diplexers and triplexers, the CombiPole Multiplexer by **LBA Technology**.

This approach combines a folded unipole with frequency reject filters to move part of the multiplexing process into the tower. As a result, the filter/ATU networks for each frequency operate at lower stress and are independent of each other. The isolation required of the networks is lower, which LBA says reduces costs.

An output can be grounded for maintenance without affecting the on-air operation of the other filter/ATU units. Each frequency is accommodated in a stand-alone module to allow flexibility in physical configuration and access. Inherently broadband because of the folded unipole technology, additional broadbanding networks can be incorporated for compliance with AM digital requirements.

Because the tower is fed with a modified Tunipole folded unipole, the base is grounded for lightning protection. This also permits the addition of multiple FM, cell, PCS and public safety antennas without regard for the AM frequencies being combined. No lighting system isolation is needed. These are frequent problems with series-fed multiplexed towers, LBA says, because of the high voltages encountered in conventional multiplexed antenna feeds.

For more information, including pricing, contact the company in North Carolina at (800) 522-4464 or visit www.lbagroup.com.

Will-Burt Quickens Pace With the Hurry Up Mast

Will-Burt's portable 25-foot Hurry Up telescoping antenna mast can be extended to its full height in a minute or less. Intended for the deployment of lightweight antennas and instruments, the mast consists of six graduated aluminum tubes that nest inside one another.

The Hurry Up is free-standing, so guy lines are not needed. The rigid, locking azimuth is used for direction adjustment. The synthetic bearings are low-friction and, according to the company, provide smooth operation and a long life.

The anodize finish is meant to resist corrosion. Lock and release collars extend the mast manually by pushing up sections and fixing them in position. A "Drive-on" mounting plate is reinforced with a vertical holding tube.

The payload capacity for the Hurry Up mast is 20 pounds with an extended height of 25 feet. The aluminum mast weighs approximately 28 pounds.

The Hurry Up is intended for lifting antennas, remote radio broadcasting, electronic newsgathering and meteorological instruments.

For more information, including pricing, contact the company in Ohio at (330) 682-7015 or visit www.willburt.com.

Kathrein-Scala Streamlines Antenna for Lower Price

Kathrein-Scala has retooled one of its antennas, the Paraflector. As a result of the mechanical changes, the company says it was able to reduce the price on the product. Electrical performance specifications, as well as mechanical dimensions, remain the same.

The Paraflector is produced by close tolerance manufacturing techniques for bending aluminum and for crimping. The product has a more rigid structure because bolts and screws used to hold the reflector screen elements in place were eliminated. Joints now are formed with crimped, rather than bolted, inserts providing an increase in strength to 6,000 lbs.

Kathrein Scala sees the Paraflector as a more robust, uniform and dependable product. The list price of the Paraflector has been reduced by $130, to $730.

For more information, including pricing, contact the company in Oregon at (541) 779-6500 or visit www.kathrein-scala.com.

You Read It Here

Eight Years Ago

"While recommending Eureka-147 for terrestrial and satellite digital broadcasting, an International Telecommunication Union (ITU) working party did not block introduction of alternative in-band systems under development in the U.S. by declaring Eureka the definitive DAB world standard.

"There is, however, another hurdle when this action faces further approval before a study group meeting in June.

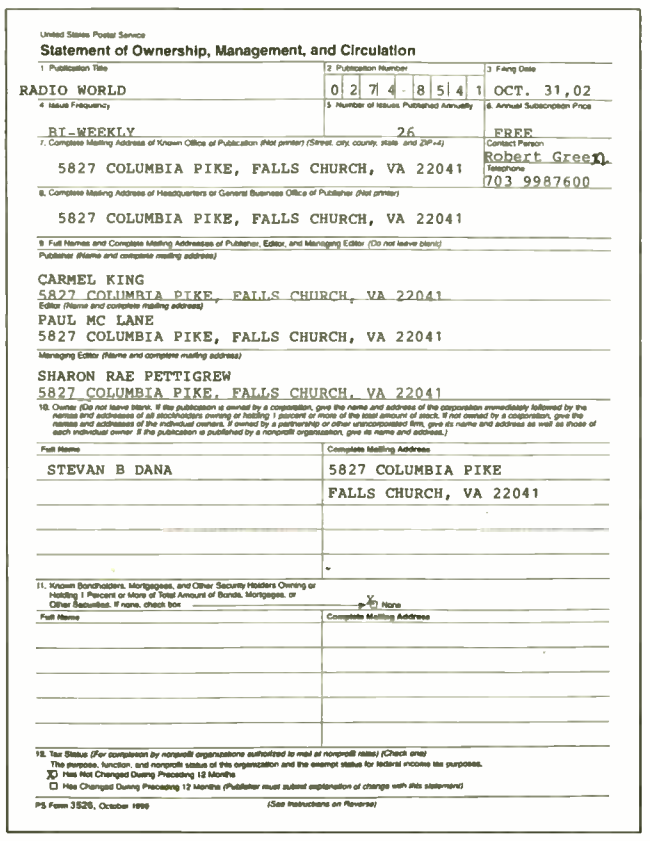
"But USA Digital Radio in-band, on-channel proponents consider this a victory. 'We feel that we have another year before they start pushing for a standard,' said Jeff Andrew, USA Digital Radio project manager, in Geneva for the meetings. 'We figure it buys us some time. They made a recommendation but didn't set a standard.'

"At AT&T, where an in-band, adjacent-channel system is under development, Nikil Jayant said the action was good news.

"While in-band proponents defined the word 'recommends' in the action as not meaning a definitive standard for Eureka-147, supporters of the European-developed system were not revealing any disappointment.

"'It gives a green light for Eureka-147,' said Wayne Stacy, technical adviser to the Canadian Association of Broadcasters on digital broadcasting."

— "Eureka-147 Wins Nod; In-Band Not Out Yet" by Alan Carter Dec. 28, 1994



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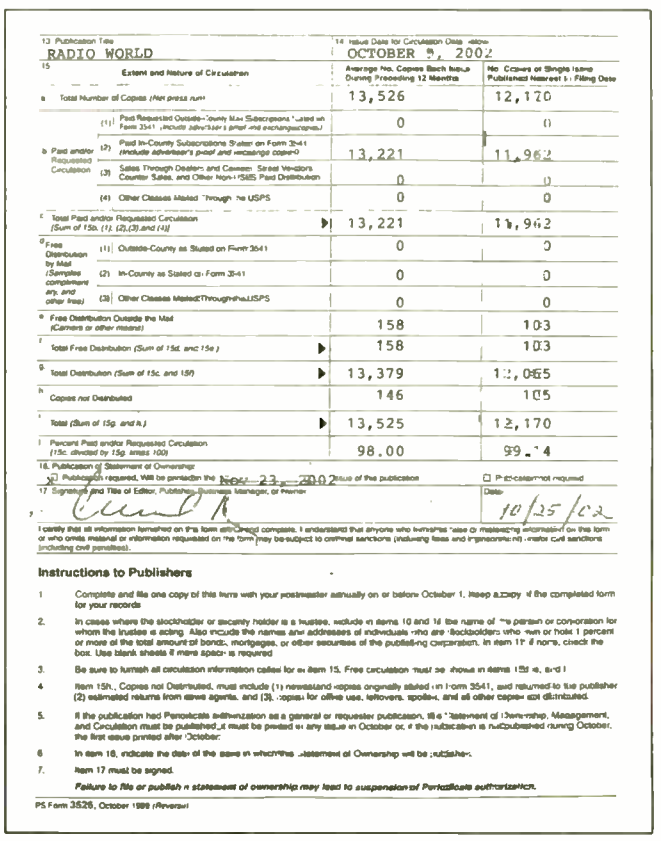

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PS Form 3526, October 1999 (Reverse)

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ACOUSTICS

Want to Sell

Want to Buy

Mixer, power amplifiers, 100 watts, integrated. Ed Davison, 772-287-8832, we9d@arrl.net.

ANTENNAS/ TOWERS/CABLES

Want to Sell

AM GROUND SYSTEMS: Reliable, On-time Installation, Quality Workmanship, Ground System Evaluation & Repair. www.amgroundsystems.com 1-877-766-2999.

Rohn CC 340' tower. Includes beacon, guy wire, lighting & other hardware, 24" face. Any reasonable offer. Carlton Veirs, Wireless Group, POB 198, Brownsville TN 38012. 731-772-3700.

Cablewave 90 degree elbow for 6-1/8" line, new in box, never used, $100. John Mulhern, KSCB, 800-373-3891.

Flash Tech 310-4E flash head, antenna beacon, new in original box, $1400/BO +shpg. Douglas Neatrour, Radio Omega, 379 N 9th St, Lebanon PA 17046. 717-270-6651.

Flash Tech FH-307 flash head, antenna beacon, new, original box, $700/BO +shpg. Douglas Neatrour, Radio Omega, 379 N 9th St, Lebanon PA 17046. 717-270-6651.

Flash Tech FH-308 flash head, antenna beacon, new in original box, $600/BO +shpg. Douglas Neatrour, Radio Omega, 379 N 9th St, Lebanon PA 17046. 717-270-6651.

Kathrein-Scala 10 bay log periodic receive/low power xmit antennas. Broadband 88 to 108 MHz. New in boxes, never used. One count H pol CL-FMRXH, $250; (2) count V pol CL-FMRXV, $250 ea or $400/both. John Mulhern, KSCB, 800-373-3891.

AUDIO PRODUCTION

Want to Sell

DYNAMAX cart machines with Scotchcarts, one CTR-12, two CTR-14, Tascam R-R, four 42B, 3 with rollaround racks. All low hours, excellent condition. Wayne, 323-645-2317.

AUTOMATION EQUIPMENT

Want to Sell

Enco DAD Pro 3.0D (DOS-Based). Currently used on all multi-network satellite station. 3 Audio Cards, 3 work stations & server, 2 keyboards w/mouse & manual. Drew Scott, WICY, 86 Porter Rd, Malone NY 12953. 518-483-1100.

CART MACHINES

Want to Sell

Audicord E-Series 3 playback only, stereo, in a 19" rack mount cabinet, good condition, $300. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

Flash Tech FH-306 flash head, antenna beacon, new, in original box with bulb, $1600/BO +shpg. Douglas Neatrour, Radio Omega, 379 N 9th St, Lebanon PA 17046. 717-270-6651.

Broadcast Electronics 3203 cart machine with record amp, stereo & three tones, good condition, $300. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

Broadcast Electronics 5300B playback only, runs, works, fair condition, $100. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

Broadcast Electronics 5400 3 deck stereo cart R/P with 500 series record amp, good condition, $350. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

COMPLETE FACILITIES

CONSOLES

Want to Sell

Arrakis 2000SL, 12 channels, 1 dead, rest OK, looks worn but works OK, includes power supply & book, $500. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

Autogram IC-10, 10 channel, stereo, good condition, $950. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

Broadcast Tools SM-6 (2) stereo, 6 pair in, 1 pair out with power supplies & books, $75 each. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

Harris Executive 10 channel, stereo, good condition, $600. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

Harris Medalist-10 (2), one for parts, one in fair condition, worked when removed from service. Also a Broadcast 5 board with all power supplies & books, BO. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

Want to Buy

Gates Yard console service manual, would buy another Yard too. jpecina@b3hammonds.com.

LIMITERS/ AUDIO PROCESSING

Want to Sell

BE 602, made in 1985 but brand new, never used, in box, agc/limiter, good for spare or LPFM, $1000 & $45 shpg in USA. Clarence Jones, WSHG, 106 Carolina Ave, St George SC 29477-2311. 843-563-7097.

CRL SMP800, SPP800, SG800 stereo FM processors, $1500. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

Want to Buy

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST, 972-271-7625.

MICROPHONES

Want to Sell

Radio Design Labs STM 2 stick on mic pre-amp w/power supply, new, 2 available, buyer pays shipping, $50 each. Bob Rivkin, KPLM, 442 S Calle Encilia #8, Palm Springs CA 92262. 760-320-4550.

RCA BK-1A new microphone with 25' cable, in sealed factory carton, never used, $950. Bill Barry, WAMB, 1617 Lebanon Rd, Nashville TN 37210. 615-889-1960.

Want to Buy

RCA 77-DX, 44-BX, KU-3A's, WE-639's, On-Air & recording lights wanted, top dollar paid! 615-352-3456, FAX: 615-352-1922. E-mail: billbryantmgmt@yahoo.com..

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 972-271-7625.

MISCELLANEOUS

Want to Sell

Some photofax #1 through #1654, complete, like new, $100/BO. Ed Davison, 772-287-8832, we9d@arrl.net.

Alesis Monitor Two oundspeakers, one pair, excel cond, $200; EV sentry 100A loudspeakers, with Radio Shack ceiling/wall tilting cantilever mounting arms, one pair, $175; HH Scott S208 loudspeakers, with wall hanging brackets, one pair, $120. John Mulhern, KSCB, 800-373-3891.

Have (4) 24 pair 1/4" patch panels in fair condition, $25 each. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

Mueller T25-35 like new, with manual, $100. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

States OHM-Spun 35409-S non-inductive resistor "toaster", 70 ohm, 1 kW, BO; Assorted capacitors & inductor coils from dismantled 1kW AM array, includes several 7 uH and 13 uH 200-1 series coils from E.F. Johnson, call for complete list; Kintronic FMC-7.5 isocoupler, freq 101.5 to 107.9 MHz, can be retuned to other freq ranges, handles 7.5 kW FM, $900; Delta TCA5-EXR base current transformer/ammeter set for AM, 5 amps full scale, remote disconnect relay, new in box, never used, $300. John Mulhern, KSCB, 800-373-3891.

Want to Buy

Broadcasting Yearbook, 1 yr old, 2002 when 03 comes out. Ed Davison, 772-287-8832, we9d@arrl.net.

Old audio/Audio Engineering magazines prior to 1949. Mike Stosich, Esoteric Sound, 4813 Wallbank Ave, Downers Grove IL 60515. 630-960-9137.

MONITORS

Want to Sell

Used Mod Monitors, McMartin & Belar. Many to choose from, tuned & calibrated on your frequency, full guaranteed. Goodrich Ent. 402-493-1886.

Belar AMM AM mod monitor, with Belar RFA-2 RF amplifier on 1270 kHz, $400/set. John Mulhern, KSCB, 800-373-3891.

RECORDERS

Want to Sell

Otari ARS 1000 DM stereo repro reel units, 2 count, good working cond, $75 ea; Otari MX5050 2HD record/repro deck, fair cond, needs extended warmup, $75; Tascam 32 reco0rd/repro deck, fair conde, needs new reel brakes, manual, $75; Ampex ATR-700 record/repro deck, poor to fair cond, but some excellent parts on board, motor/transport seems to be in gd shape, manual, $25. John Mulhern, KSCB, 800-373-3891.

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RECORDERS WTS (cont.)

Otari MX5050-BII r-r in good condition with manuals, BO. Andrew Skotdal, KRKO, 425-304-1381 or andrew.skotdal@krko.com.

Pioneer RT-701, 7" tape deck converted to 2 track stereo, well used, works OK, $100. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

REMOTE & MICROWAVE

Want to Sell

CDQ-Prima 120 +NT1 interface, very good condition, ISDN quality for your studio or network, $2300. Andrew Skotdal, KRKO, 425-304-1381 or andrew.skotdal@krko.com.

Comrex Nexus ISDN in very good condition, $1150. Andrew Skotdal, KRKO, 425-304-1381 or andrew.skotdal@krko.com.

Comrex Nexus ISDN, very good condition, $1250. Andrew Skotdal, KRKO, 425-304-1381 or andrew.skotdal@krko.com.

Marti RPT-15, BR-10, UHF transmitter & receiver, good condition, $1100. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

Moseley MRC 1600 with STL/Telco modems, $350. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

Symetrics T-101 in good condition, $100. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

REPAIR SERVICES

SATELLITE EQUIPMENT

Want to Sell

Electric Works AS 28 satellite audio switcher, Serial #1288, $75/BO. Used at radio station with AXS System, buyer pays shipping. Bob Rivkin, KPLM, 442 S Calle Encilia #8, Palm Springs CA 92262. 760-320-4550.

CalAmp 40 degree LNA, new in package, never used, $50; CalAmp 30 degree LNA, $40; CalAmp C-to-L band indoor downconverter, PLL, 25kHz stability, $160; CalAmp lossless two way C band dividers, 2 count, $80 ea; Quintech SRF-1750ABT high-isolation L band relay switch, $60. John Mulhern, KSCB, 800-373-3891.

Comstream ABR-200 receiver, program to your freq, can test audio/relays on G4, AMC8, or (Ku band) AMC1 before shipping, $900; Zephyrus 700 freq agile SCPC tuner, wideband 15 kHz, receives MRN, American Forces Radio, more, 2U rack mount or countertop, $250; Wegener 1806 freq agile audio receiver, subcarrier over video, with 15-relay board, 2RU, $250. John Mulhern, KSCB, 800-373-3891.

Starguide III satellite receiver. Has second audio channel card, includes book, $1850. Bruce Campbell, Dove Media, 598 Westwood Dr #201, Abilene TX 79603. 915-677-3900.

VCII+/VCRS consumer grade descrambler board for C band satellite, legal, never modifier, $75; Houston Tracker VIII reciver, remote, manual, $25; 24" actuator arm, $50; $120 takes all three. John Mulhern, KSCB, 800-373-3891.

STATIONS

Want to Sell

AM, Idaho. Small market. Fulltime. Joint venture. $10,000 minimum. 50,000 upgrade! (478) 741-1710. wrecktech@yahoo.com.

CONSULTANTS

DISTRIBUTOR DIRECTORY

The following distributors serving the broadcast industry would be glad to help you with any of your requirements.

TAPES/CARTS/ REELS/CD's

Want to Sell

Revox PR 99 (3), two are 7.5 & 15 ips, the other is 3.75 & 7.5 ips. Some meters don't work, all 3 record & playback OK, $250 ea/BO. Carl Zimmerschied, Bick Broadcasting Corp, POB 1056, Sedalia MO 65201. 660-826-1050.

TRANSMITTERS

Want to Sell

BE FM-30-B 30KW FM. Continental Communications, 314-664-4497. Email: contcomm@fastl.net.

Collins 21-E 5KW AM, good condition, being retired. Clean, Solid State rectifiers, $5000. jpecina@b3hammonds.com

Continental 814-R1 2.5 KW FM. Continental Communications, 314-664-4497. Email: contcomm@fastl.net.

Harris-Gates FM-5G 5KW FM & **Harris-Gates BC-5-H** 5KW AM. Continental Communications, 314-664-4497. Email: contcomm@fastl.net.

McMartin BF-5K, 5kW FM. Factory rebuilt in perfect, like new condition, includes new tubes, tested & tuned on your frequency. Guaranteed, fully adjustable from 0 to 5.5 kW. Goodrich Enterprises Inc, 402-493-1886.

RCA BTF-20-E1 20KW FM. Continental Communications, 314-664-4497. Email: contcomm@fastl.net.

CSI 20 (2), 20 watt AM transmitters with modulator, one on 620 the other on 1000, have schematics & factory manual, $350 each & $45 shpg in USA. Clarence Jones, WSHG, 106 Carolina Ave, St George SC 29477-2311. 843-563-7097.

Delta ASE-1 AM stereo exciter, used 4 months, like new condition, $950. Bill Barry, WAMB, 1617 Lebanon Rd, Nashville TN 37210. 615-889-1960.

Free to good home – if you pick them up in Detroit: (1) BE FM-30 original transmitter, less functional IPA, but with tube. Should be fully functional with replacement IPA; (2) RCA BTR-20E-1, working when removed from service approximately 5 years ago. Call Mike Kernen, Greater Media Detroit, 248-414-5673.

Harris MW-1A 1kW AM transmitter, marked down to $3495 or BO. Transmitter was working fine when station went dark. Will Standley, 321-427-3512.

Broadcast Electronics FX-30, 30 watt FM exciter, $2500. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

Harris BC-5HB 5 kW AM, good condition on 1410 kHz, $4500. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

RCA BTF-20E, 20 kW FM, good condition with exciter, lots of spares, $8000. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

Tepco J317M 10-watt translator w/modulator board for local audio insert, freq agile input, 102.3 output. Sold with matching demo unit, missing parts, but has working 103.5 input board, modulator board, 99.1 output board, $500 takes all. John Mulhern, KSCB, 800-373-3891.

Tepco J3250 250 watt FM RF power amplifier. Excellent condition, maintained by factory technicians, $1250/BO. Ray Knudson, KNXR, 1229 Park Ave, LaCrosse WI 54601. 608-782-2254.

Tepco J340M 10 to 40 watt FM translator with local modulator included. Excellent condition, maintained by factory technicians, $2250/BO. Ray Knudson, KNXR, 1229 Park Ave, LaCrosse WI 54601. 608-782-2254.

TUBES

Want to Sell

EIMAC, AMPEREX, ED-COM, 3CX2500F3, 3CX3000A7, 4CX250B, 4CX300A, 4CX1000A, 4CX1500B, 4CX5000A, 4-400C, 811, 833C, ETC. WESTGATE 800-213-4563.

Want to Buy

872, 575A, 866A, need 12 of each rectifier tubes, used good OK. jpecina@b3hammonds.com.

EMPLOYMENT

POSITIONS WANTED

C.E. position wanted: Experienced with computers, transmitters, automations, DCS, UDS, digital studios. Robert King, 978-479-4855.

Friendly, industrious, FCC commercial-1st class w-Radar/amateur-extra radio licensed, CE, asst CE, seeking FT, PT, contract work, AM/Fm, cable, TV, within 75 mile radius of metro NYC area. 718-969-5224 or write: Mitchell Rakoff, 81-12 Roosevelt Ave #702, Jackson Heights NY 11372-6746 or email: MitchellRakoff@Yahoo.com.

Air personality! Jay-Diamond one HOT rookie DJ seeking radio gig. On-air or in production. Larry, 918-402-6634.

Creative radio school grad with 2 years experience wants to be part of your team. Hard working, dependable. Great on-air and production. Brandy, 918-520-7558.

Rookie broadcaster breathing new life into radio. Full of energy & enthusiasm. Great news and copywriting! Jesse, 405-677-3573 or jclark64@cox.net.

ACTION-GRAM

EQUIPMENT LISTINGS

Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations *only*. All other end users will be charged. This FREE service does not apply to Employment Help Wanted ads or Stations For Sale ads. These are published on a paid basis only. Send your listings to us by filling out the form below. Please be aware that it takes one month for listings to appear. The listings run for two consecutive issues and must be resubmitted in order to run again. Thank you.

Please print and include all information:

Are you currently a subscriber to Radio World?
☐ Yes ☐ No

Signature _____ Date _____

Contact Name _____

Title _____

Company/Station _____

Address _____

City/State _____

Zip Code _____ — _____

Telephone _____

Brokers, dealers, manufacturers and other organizations who are not legitimate end users can participate in the Broadcast Equipment Exchange on a **paid** basis. Line ad listings & display advertising are available on a per word or per inch basis.

WTS ☐ WTB ☐ Category: _____
Make: _____ Model: _____
Brief Description: _____
_____
_____
_____
Price: _____

WTS ☐ WTB ☐ Category: _____
Make: _____ Model: _____
Brief Description: _____
_____
_____
_____
Price: _____

***Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.**

Broadcast Equipment Exchange
PO BOX 1214, Falls Church, VA 22041 • Tel: 703-998-7600 • Fax: 703-998-2966

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This listing is provided for the convenience of our readers. Radio World assumes no liability for inaccuracy.

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◆ READER'S FORUM ◆

Jocks going too far

Bravo for having the courage — and class — to write about employers of shock jocks who piously wash their hands of some of the more distasteful stunts pulled by their employees (Nov. 6, "How Far Is too Far?").

Too many in our industry wrap themselves in the First Amendment while keeping an eagle eye on the bottom line. I suspect that their actual views are closer to a cynical "If we don't do it, someone else will."

You were also correct to scoff at owners' claims of ignorance of slimy promotions or program "bits." Do they really mean for us (and the commission) to believe that they don't know what's on their air? Hey, Mel: I know what's on my air!

Chuck Crouse
President/GM
WLMI(FM)
Kane, Pa.

The real reason for IBOC

After reading the letter from Frank McCoy (Oct. 23, page 62) the light finally came on.

What IBOC is *really* all about is a spectrum grab by those currently in possession of frequencies to keep future competition off the air. The public and its interest be damned.

Why *else* would there be such a push for a signal that nobody will be able to hear, and when they are able, won't be excited enough to do anything about it? Never mind, the NAB has kept its ox from being gored for another 10 years or so until it is finally determined that HD radio isn't catching on.

Meanwhile, other voices that could have been on the air won't get there, so that the useless HD signal can take up space and keep the current occupants from having to face more competition in their own realm. Meanwhile, the competition from other media realms (read: satellite radio, MP3 players, etc.) continues to gain market share.

I am ashamed to have missed this obvious point up until now and even more ashamed to be part of this business that, with complicity from the FCC, is perpetrating a major scam on the American listening public.

Mike Shane
Operations Director
KCRO(AM)
Omaha, Neb.

Gender bender

Times are hard for most of us in radio, and a little bit of humor could not hurt every now and then. So here's a funny story that happened to me. I am sure that are many such stories that subscribers might contribute.

We are in the processing of moving into a new office, so we're building workbenches and doing a lot of the necessary cabling to support our new office and training rooms. We have a temporary helper, a nontechie named Brent, assisting in this project. Our lead in this effort is Alex, who is very capable techie and a big burly type guy.

This morning I walked back into that area looking for Alex, who was obviously not in. So I asked Brent, who was finishing some painting on the new workbenches, if he knew where Alex might be. Brent, with a serious face, replied, "I don't know, but he mentioned he was going out for a gender changer, so we might not recognize him when he gets back."

Claude "Marty" Martin
Exec. VP Marketing & Sales
North America
D.A.V.I.D. Systems Inc.
Manassas, Va.

Ad not effective

I feel compelled to comment on the Eventide ad on page 19 of Radio World's Oct. 23 issue. Due to a storm of controversy, the advertiser took a flawed ad and actually made it more confusing by cropping the photo.

In the previous version, a young lady was depicted "giving the finger" to the reader, ostensibly demonstrating that a caller on a talk show can be profane. After a number of readers who obviously had never seen this gesture before wrote to complain, the ad was cropped to show only the lady's face, which now takes up 3/4 of the page.

Now someone seeing the ad is confronted with a scowling woman. What is this, taken alone, supposed to mean?

The phrase printed across her nose ("Cover your assets") is a trite and unfunny pun.

Let's start with the original premise. The product advertised, the Eventide BD500, is a wonderful unit that can save a talk host's show and career. It can also save a station's license. The concept of a digital box that can eliminate the profanities and gradually ramp up the delay without a gaping silence is a great thing.

But several things bothered me about the first ad concept. Why a woman? Out of any 100 profane moments on a talk show (not created by the alleged air talents themselves), about 100 of them come from males. Why depict a woman, when that gender usually goes out of the way to be polite? Are women just more photogenic and appealing to a mostly male readership?

Second, the best print ads focus on the key features of a product and make them obvious at a glance. Both versions of this ad failed to do that.

I'm not going to write an ad for Eventide, because I'm sure they have a high-priced agency to do that for them.

In a world of terrorists, rap music, Geraldo Rivera and other atrocities, I am certainly not offended by either version of the ad. I just think Eventide is not getting its money's worth and it is generating needless and silly controversy. The company should focus on the prime benefits of its product.

Ken Deutsch
President
Ken R. LLC
Maumee, Ohio

Buying Direct: Just Part Of the Story

Are broadcast equipment dealers doomed, now that industry giant Clear Channel is seeking to buy direct from some manufacturers? No.

Certainly the role of dealers and distributors has changed. Consolidation has given major radio groups more buying clout, and it is not surprising to see equipment buyers at Clear Channel exploring that.

News of this type shakes up existing sales channels and the people working within them. But since the Telecom Act of 1996, we've expected more of this kind of thing — big groups seeking to negotiate the best bulk deals they can. Whatever name the practice goes by — "buying direct," "blanket orders," "preferred vendor agreements" — it means the same thing: big buyers looking for the best possible price. A centralized approach to purchases is attractive when a group is outfitting a large amount of stations.

But radio is far too diversified for the traditional manufacturer/dealer relationship to disappear entirely.

Dealers have much to offer any buyer, including large groups. Dealers offer choices and expertise. Dealers extend credit. Dealers act as advocates for the buyer. Dealers maintain toll-free customer lines and equipment loaners. And dealers offer a channel to hundreds of vendors via one phone call. How many broadcasters can afford to research and establish a buying relationship with a different vendor for *every* type of product it buys?

Dealers offer much to manufacturers, too. Experience shows us that both buyers *and* sellers generally want dealers. Even manufacturers of the most specialized products talk about the importance of dealer channels — to carry their economy models; to conduct their sales overseas; to assist them in their systems business.

Some smaller, less-efficient dealers have gone by the wayside over the past decade. Competition in that market will continue to be fierce. Like radio itself, the dealer business isn't for mom-and-pops anymore. And no doubt, other large broadcast groups will be asking their suppliers about buying direct. Groups will expand their large-scale direct purchases where they can.

But we still see a place in radio for the professional, well-stocked dealer with a trained sales staff.

— RW

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