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The Newspaper for Radio Managers and Engineers
November 21, 2001

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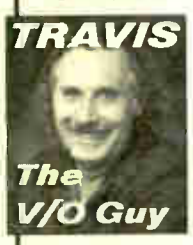

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Anthrax Complicates Mail Sorting

Radio Groups, Networks Adjust Policies, Try to Safeguard Employees Against Contamination

by Naina N. Chernoff

WASHINGTON The threat of biological weapons targeted at some U.S. media companies drove several radio networks and group owners to take added precautions.

Mailroom personnel at many radio stations donned protective gloves and masks in recent weeks after traces of anthrax spores were found on pieces of mail sent to the offices of television news anchors Tom Brokaw and Dan Rather and following several anthrax-related deaths.

While reports increased of the bacteria being detected on pieces of mail sent to members of Congress and about 20 federal buildings in the nation's capital, stations took precautions to protect employees.

Soon after the incidents, most media companies began following the

See ANTHRAX, page 5 ▶

'Perfect Paul' to Be Dumped Next Year

by Randy J. Stine

WASHINGTON Even though it used the best technology of its kind when launched in 1997, Perfect Paul was never quite good enough.

That's why many broadcasters and Emergency Alert System managers say they won't miss the much-maligned computer-generated voice used by the National Oceanic and Atmospheric Administration's weather radio.

National Weather Service officials say two new voices — a male's and a female's — will replace the old system beginning in early 2002 if testing continues to go well.

Named Craig and Donna, these voices will help deliver warnings and

See NOAA, page 6 ▶

Photo by Chris Boone

Lisa Thomas, left, music director of KDMX(FM) in Dallas/Ft. Worth, and CE Chris Boone discuss features of the Sage EAS encoder/decoder.

◆ NEWSWATCH ◆

Public File Rules Eased

WASHINGTON Because radio and TV stations have been targets of anthrax scares, the FCC granted NAB's request to waive a portion of the station public file rules for 60 days, through Dec. 23.

The association asked that stations be excused from retaining in their public files all written comments and suggestions received from the public regarding station operation and programming that may be considered violent.

"The circumstances now prevailing are extraordinary, involving as they do a biological attack of as yet uncertain dimensions but certainly directed, in part, against United States media outlets," stated Mass Media Bureau Chief Roy Stewart in the order granting the waiver in order to minimize any public health threat to station personnel.

"We recognize that these procedures may evolve as the nature and scope of the threat is better understood and we commit to broadcasters' good faith belief the actual criteria used in selecting mail that will not be opened. We expect broadcasters to return to complete compliance with the public inspection file rule as soon as they believe the danger has passed."

"Stations are screening letters and packages for indicators of a possible threat ... and returning such mail, unopened, to the U.S. Postal Service," stated NAB President and Chief Executive Officer Eddie Fritts in his letter to the FCC accompanying the request.

If stations need the exemption for more than 60 days, NAB can ask for an extension.

Harris Cuts Back in Carlsbad

CARLSBAD, Calif. Harris Corp. will move its Pacific broadcast console and cabinetry manufacturing operations to its headquarters in Cincinnati.

Until now those functions had been carried out in its Carlsbad, Calif., facility, which Harris obtained when it acquired Pacific Research & Engineering two years ago.

Approximately 60 employees are affected, according to spokeswoman Martha Rapp. Of those, about 10 will be transferred. Apparently the remaining 50 jobs will be lost, although Harris did not confirm that figure.

The company said about 15 engineers will remain in Carlsbad, functioning as its Pacific Design Center.

"We remain fully committed to the Pacific console and cabinetry business," Rapp said. "This is a business decision vs. one necessitated by economic conditions." She said the move, to be completed by mid-January, would improve efficiency and lower costs.

The Harris Broadcast Division, Rapp said, has enjoyed five consecutive record sales quarters. The company does not make those figures public.

According to one source, Harris is reviewing individual employee requests to

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NEWS ANALYSIS

Media, Spectrum Rules Under Scrutiny

Commission Chairman Powell Says Frequency Allocation, Media Regulation Need Overhaul

by Leslie Stimson

WASHINGTON Broadcasters' special aura when to comes to regulation at the FCC may be coming to an end. That's how some telecom attorneys interpret Chairman Michael Powell's recently publicized goals for agency employees in the next six months.

Although studying broadband deployment tops Powell's action list, he has outlined what could amount to big changes in spectrum allocation policy and media regulation.

Calling the FCC's spectrum policy "seriously fractured," Powell wants it overhauled. He said spectrum allocation policies are reactive and, as a result, the agency is not able to keep up with "relentless demands" for new spectrum.

He favors fostering the ability of users to transfer spectrum in secondary markets. Current rules impede the ability to do this, he said.

For example, Powell said, the wireless industry may now tell the FCC it needs new spectrum. "Then we have to figure out whom to take it away from. Surprise, they never want to do that."

The commission then needs to take the spectrum away from incumbent users, find other, unused spectrum for the incumbents and pay to move them to the new spectrum. Powell wants the FCC to be out of this expensive, time-consuming process.

Allowing a data provider to buy unused secondary spectrum from a broadcaster, for example, would allow that spectrum to move more efficiently to new uses, Powell said.

Spectrum auctions still figure prominently in the commission's plans for spectrum policy. Powell said auctions increase efficiency and he doesn't foresee exempting radio from any future changes in auction rules. While incumbents are not charged for spectrum, radio must pay for any new allocations.

Efficiencies

Could radio pay a fee for ancillary services it offers when it goes digital? That would be up to Congress, Powell told Radio World. While TV does not pay for its second channel, Congress did tack on a 5 percent fee off the gross annual revenues for ancillary spectrum use.

The FCC also plans to improve interference limits in an effort to allocate spectrum more efficiently. That includes considering where best to set limits: transmitters, receivers or both.

One attorney said that because FM's use of the spectrum is inefficient, a gradual change to better-designed receivers through mandated FM receiver standards would allow for future expansions in service of existing FMs and future stations.

The FCC will map out all assigned and unassigned spectrum with identified licensees and uses. The FCC does not have such a comprehensive list of spectrum use now, Powell said.

Photo by Leslie Stimson

Michael Powell

Media convergence also is on the chairman's mind as he directs the agency to review media regulation. "Current policy focuses on free broadcasting in a world in which most Americans pay for television," Powell said.

He said the entire underpinnings for media ownership regulation are outdated and do not take into account the business models in today's environment. Powell has directed the agency to study media markets, and specifically, diversity, pricing and its media ownership restrictions.

One source said that there are many "the emperor has no clothes" rules in broadcasting, such as the public file and main studio rules that the source said offer little benefit to the public. Powell will look at those types of rules, the source said, as the chairman inventories public interest and policy goals that led to adoption of broadcast rules.

Attorneys predicted more aggressive questioning from the agency as to why broadcasting should be given special protections or benefits in a time when media is converging. As the FCC's resources continue to be reduced, this chairman also is going to be forced more than have past chairs to get rid of unnecessary regulation that tends to compartmentalize different communication services, they said.

NEWSWATCH

▶ Continued from page 2

relocate from Carlsbad on an as-needed basis and providing workers with severance packages, financial support programs and a career fair with other employers in the area.

Also affected is the small telemarketing office that Harris had operated out of the Carlsbad plant. That function closed in October. Harris has expanded the hours of its Broadcast Center in Cincinnati to 8 a.m. to 8 p.m. to serve West Coast callers.

Former PR&E President Jack Williams, now a consultant to Harris, remains with the company, Rapp said.

National Amber Plan Begins

WASHINGTON Radio and TV broadcasters have joined with law enforcement officials and advocates for missing children to begin a nationwide rollout of a voluntary program to help local communities recover abducted children.

The Amber Plan institutes voluntary procedures for local broadcasters to issue on-air alerts after being notified by local law enforcement that a child had been abducted.

Photo: NAB

NAB President/CEO Eddie Fritts joins recovered child Rae-Leigh and her parents, Steve and Patricia Bradbury, and Tyler Cox, president of the Association of Radio Managers, Dallas/Ft. Worth.

The Emergency Alert System is the major element of an Amber plan and the FCC is considering a proposal to add a missing-child statement to EAS (RW, July 4).

The plan's name derives from Amber Hagerman, a nine-year-old child who was abducted and murdered in Texas in 1996. "Amber" also is an acronym for America's Missing: Broadcaster Emergency Response.

Free kits describing the Amber Plan will be distributed to local law enforcement agencies and stations. NAB President and Chief Executive Officer Eddie Fritts said more than 20 states and communities have implemented Amber plans, leading to the recovery of 16 children by late October.

Indecency Complaints Rise After Attacks

WASHINGTON The FCC received six indecency complaints in August, but the number rose to 24 in September, according to a report released by the FCC's Consumer Information Bureau.

The FCC said that figure included "consumer concerns about inappropriate comments made (during the) 'Howard Stern Show' after the terrorist attacks."

Some listeners to WXRK(FM), New York claimed they heard one member of the show propose that New York City prostitutes should provide complimentary sexual favors to city firefighters.

See NEWSWATCH, page 7 ▶

FROM THE EDITOR

Radio World People, Doing Well

by Paul McLane

A long-time friend has been accorded a great honor for his work in broadcasting.

Mark Durenberger is one of a dozen radio and TV professionals inducted into the new Museum of Broadcasting Hall of Fame at the Pavek Museum in St. Louis Park, Minn.

Photo: Wm. Miller Photography

Paul Hedberg presents plaque to Mark Durenberger.

The Pavek, in collaboration with the Minnesota Broadcasters Association, held its inaugural Hall of Fame banquet in October in Bloomington. The master of ceremonies was CNN's Lou Waters. Almost 350 people took part.

Durenberger, one of the earliest influences on this publication, has worked as general manager of Group W Network Services, Minneapolis, where he used digital technology to develop new communications markets. He did early work on the 3M digital recorder and was a pioneer in AM-AM and AM-FM stereo broadcasts and synchronizing FM stations. His work with small-antenna satellite technology led to the first Ku-band radio sports network.

What that official bio won't tell you is that he is also a fine person, as anyone who has worked with him knows. I salute you, Mark.

Also inducted were Roger Awsumb (Casey Jones), Frank Befera, Charlie Boone, Roger Erickson, Earl Henton, Bud Kraehling, Don Linder, Willard Linder, Stuart A. Lindman, June Persons and Bob Ryan.

Learn more about the Pavek at *www.museumofbroadcasting.com.*

★ ★ ★

Congratulations also to Harry Cole, intrepid author of our *Cole's Law* column, who has become a member of the firm Fletcher, Heald & Hildreth. Harry has represented clients throughout the broadcast industry for more than 25 years and specializes in assisting clients in navigating the regulatory processes of the FCC. He is an experienced appellate litigator and has appeared before the U.S. Supreme Court.

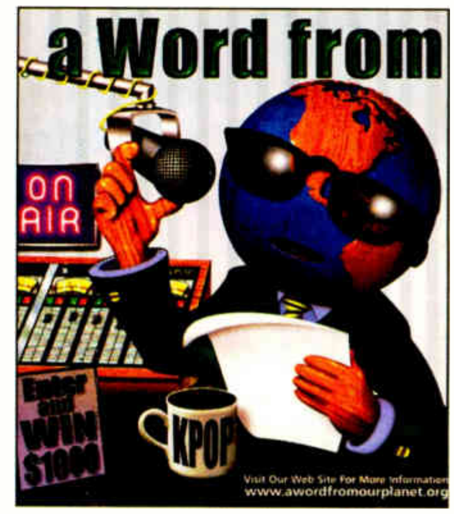
If you want to contact Harry, drop him an e-mail to *cole@fhhlaw.com.*

★ ★ ★

And lest I forget, kudos to a member of our staff, Mr. Cool Stuff, who apparently has found a part-time job!

In going through my mail the other day I opened a press release, and there looking out at me was someone who looked mighty familiar, as you can see.

Actually the resemblance to our spokes-globe is just a coincidence (I think). The well-dressed announcer seen here is promoting a contest that encourages students to use the tricks of the radio ad trade to sell ideas for a greener earth.



Mr. Cool Stuff apparently has been doing some moonlighting.

"And Now a Word from Our Planet" is sponsored by ZPG's Teachers' PET Project. It challenges students in grades 6 to 12 to write a script for a radio ad on behalf of the Earth, with prizes of up to $1,000.

The contest sounds neat. It runs through mid-February. If you have school kids in your life, visit *www.awordfromourplanet.org* for details.

Meanwhile, I'm going to have to talk to Mr. Cool Stuff. He'll be showing up in Esquire next.

★ ★ ★

Now you can get a weekly roundup of late-breaking news headlines and product announcements from Radio World.

If you visit our Web site, you know that we offer NewsBytes every business day. If you like, we can send you a weekly summary of those headlines.

Did your favorite supplier just release a new digital console (or file for bankruptcy)? Did the FCC announce a record-breaking fine for an EAS violation? How many people attended that big broadcast convention this week?

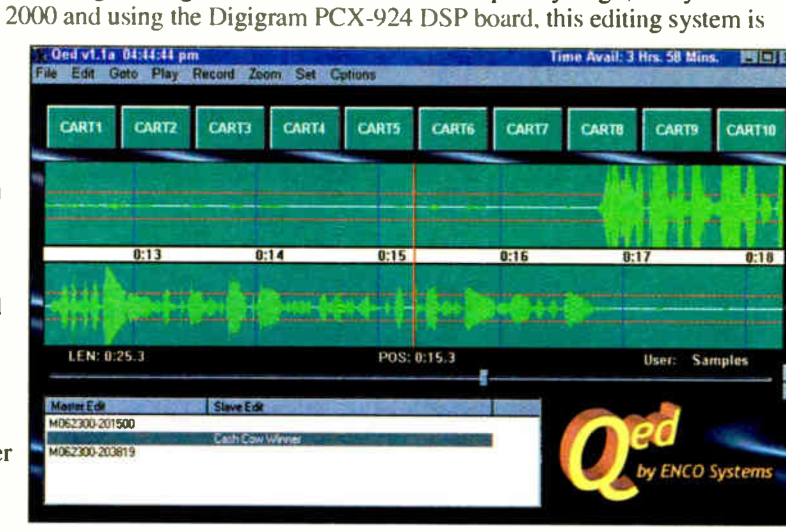
Sign up at *www.rwonline.com* and we'll e-mail you the headlines weekly.

This week's sweepstakes prize is the new ENCO Systems Qed, a fast PC-based phone editor with a retail value of $4,995. Our random winner is Andy Laird, vice president of radio engineering for Journal Broadcast Group. Way to go, Andy!

Running on a fast Pentium III CPU with Windows 2000 and using the Digigram PCX-924 DSP board, this editing system is optimized for on-air recording and editing of phone calls. Scrolling waveforms follow the audio; marker points make editing a breeze. Left or right channels can be erased or a bleep can be inserted independently. Qed includes 10 hot keys at the top of the screen, each featuring its own countdown timer. The user can control Qed with its jog/shuttle control surface or via keyboard shortcuts, the mouse or an optional touch-screen. Qed will also work with the Mac-based VoxPro control surface.

This great prize includes the computer, DSP board, controller and software. All the user must add is a monitor and audio source.

Silver Sweepstakes RW 25 YEARS



Anthrax

▶ Continued from page 1

procedures set out by the U.S. Postal Service and the FBI detailing how suspicious mail should be handled. Both organizations advised companies to scrutinize mail carefully for signs of tampering or suspicious contents, including strange odors, poor handwriting, excessive postage, an unusual return address or no return address. In addition, many companies invested in industrial gloves and masks for their mailroom employees.

Several radio companies, including CBS/Infinity and ABC Radio Networks, stopped mail delivery for one day in mid-October following the first incident at the NBC office of Tom Brokaw.

On Oct. 15, CBS/Infinity Radio, housed in a separate building from the one that houses Rather's office, began to sort all inbound mail in an enclosed area using protective equipment, said spokeswoman Kim Sartori.

All business mail was examined and distributed, while packages, listener mail and correspondence addressed to specific employees were opened and inspected. She said employees were being asked to identify personal or confidential mail before it was given to them.

Though the benefits of the procedures outweighed the disadvantages, Sartori said, the procedures cause a slight inconvenience. "Mail is going to be slower," she said. "There are some unavoidable delays."

According to ABC spokeswoman Julie Hoover, ABC halted network mail distribution for one day and then resumed operations the next day following the federal procedures.

The mail is examined every day and separated into two piles, she said. "Anything that is clearly business mail will be distributed," she said. "Anything that is not in that category will be held in the mail room."

Correspondence addressed to an employee was being held in the mailroom and staffers were asked to identify the material before it is given to them, she said. Because of this policy, Hoover said some "fan" mail, correspondence sent by listeners and viewers, would most likely be unopened. The network's television shows asked viewers to send postcards instead of letters in envelopes.

As for as taking additional steps to protect ABC mailroom staff from anthrax infection, she said the network was considering more changes but could not comment further.

Other radio organizations were taking a wait-and-see approach to making additional changes to mail handling procedures.

Officials at the New York and Washington offices of the Associated Press made the decision to change mailroom policies according to the suggested federal guidelines after the NBC incident, but said further changes would not be made unless the offices were specifically targeted with anthrax-laden mail, according to spokesman Jack Stokes.

NPR also began following the procedures outlined by the postal service, and was evaluating the situation each day to determine whether further changes are needed, said spokeswoman Gretchen Michael.

Slow mail

As of the beginning of November, mail delivery was still slow at NPR's Washington headquarters. Because the network received its mail from the Brentwood processing plant in the northeast section of the District of Columbia, where two postal workers had died of inhalation anthrax, NPR did not receive mail for almost a week. Soon after, the network started to receive mail originating from a plant in southern Maryland.

NPR began asking listeners to send faxes and e-mail instead of letters, Michael said.

Emmis Communications left the decision of what to do with listener mail to each of its 23 radio stations, said spokeswoman Kate Healey.

Though the staff distributed information from the postal service and the FBI to each of Emmis stations, each set up its own security procedures.

Healey said all the stations instructed employees that handle mail to use gloves and masks and increased general security. Some stations decided to confine mail sorting to one area, put one person in charge of the sorting or restrict mail delivery to early-morning hours when the fewest people are at a station.

The stations, she said, have come up with good ideas of their own, which have been shared throughout the group. While morale was high throughout the company, Healey said, "Everyone is being cautious. We're all in a state of heightened awareness."

For suggestions on increasing your station's security, see GM Journal, page 19.

Photo: AP GraphicsBank

Hazmat teams work outside ABC offices in New York.

No Mail for VOA

WASHINGTON Voice of America is among federal employers that had to cope with frightened workers and mail delays last month, and was forced to create an emergency plan to stay on the air after health officials thought they had found signs of anthrax spores in its mailroom.

The Centers for Disease Control and Prevention announced in late October that one out of five samples taken from the mailroom of the Cohen building, which houses the offices of the Department of Health and Human Services and the broadcast studios, newsroom and offices of the VOA, showed presumptively positive results for anthrax.

Later, more sophisticated testing proved initial results wrong, but VOA instituted mail-handling procedures in the interim.

The CDC reported positive signs of anthrax at other government office buildings, including a second structure that houses Health and Human Services Department offices and the Agriculture Department as well as the buildings that house the Supreme Court and the State Department.

Following the findings, VOA shut down its mailroom, said VOA spokeswoman Tish King. At that time, mail was not being delivered because the facility in Washington where VOA mail is processed had been closed for more than a week.

According to the U.S. Postal Service, much of the mail delivered to the government offices where contamination was found passed through the Brentwood mail-processing plant, where two workers had died of inhalation anthrax.

At the beginning of November, broadcasts were proceeding as normal, King said, including the expanded broadcasts VOA has been doing on the war.

In addition to the need for its business mail, King said VOA also would like to start receiving mail again from listeners worldwide, many of whom don't have access to e-mail.

VOA employees were tense.

"Everybody is very sensitive to the threat," said Gary Marco, president of Local 1418 of the American Federation of State, County and Municipal Employees, an organization that represents radio broadcast technicians at VOA. "It's a credible threat that you keep hearing about."

Marco also said he was worried about the lack of a backup plan to continue broadcasts of VOA's English and language services if the building had to be closed for decontamination. In the event of an evacuation, he believes VOA could arrange for some operations to continue at various broadcasting sites in Washington such as NPR or the BBC, but doubts it could provide all of its current programming.

Marco said VOA management was working on a plan for alternative broadcasting sites but he expected the agency would have to prioritize which programming would remain on the air if operations had to be moved. "I think they're scrambling."

— by Naina N. Chernoff

NOAA

▶ Continued from page 1

forecasts for the 121 weather stations in the United States.

The decision comes after months of focus groups and online surveys to determine a suitable replacement. Weather service officials said their goal was to find a voice-synthesis system more easily understood. Broadcasters long complained that Perfect Paul often was unintelligible. Some refused to air the robotic warnings.

The technology used for the new voices is different from the outmoded software of Perfect Paul, said Joanne Swanson, NWS meteorologist and voice-evaluation leader. The new voice's text-to-speech software, called Speechify, combines concatenated pre-recorded phonetic sounds with the intonation of a human voice.

Welcome to 'Speechify'

The new voices are human voices, recorded and cut at the syllable level with intonation and grammar added, she said. NOAA meteorologists will be able to tune the system to include local geographical terms and pronunciations.

The NWS awarded a $633,000 contract to Siemens Information and Communication Network for the voice synthesizing software. Siemens will team with SpeechWorks International to provide the computer program for the voice makeovers.

"It's a more natural language sounding system. I think everyone would admit that Perfect Paul had problems. What is more important is how far the automation has come in the past five years," Swanson said.

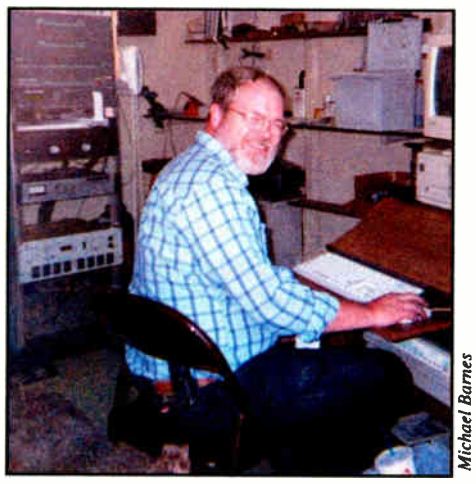
The automated system was implemented as part of the Console Replacement Program the NWS undertook beginning in 1997, which allows meteorologists to type in messages and have them automatically "voiced" by computer.

Swanson said the "timeliness and effectiveness" of warnings are critical in protecting the public. She said that's why the public's input was important in determining the new synthesized voice.

More than 19,000 Internet surveys were relayed to NOAA about Paul's possible successor between March and July. A NWS Web site featured five voices, including Paul, for comparison.

Of the samples, the voices called Art and Linda failed to make the grade while Craig received the highest marks, Swanson said. Ninety-five percent of respondents rated his voice number one. Donna got an 80-percent approval ranking, according to the public surveys.

Swanson said the NWS was asked by its meteorologists to provide a female voice to give them the option of alternating male and female voices.



Michael Barnes

Michael Barnes is chief engineer of KVMV(FM) in McAllen, Texas. His Sage Endec EAS unit is in the rack to the left.

To download and hear the new voices, visit the NWS Web site at *www.nws.noaa.gov/nwr/newvoice.htm.*

EAS officials differ as to the likely success of NOAA Weather Radio's Craig and Donna voices. Swanson said the NWS wants to make sure EAS officials and broadcasters are "back on board" and carrying the weather warnings promptly, she said.

Swanson said some broadcasters have refused to carry Paul-voiced warnings because they found him hard to understand. Instead, those broadcasters waited for the information to be read by an on-air person.

Clay Freinwald, chairman of the SBE/EAS committee and Washington State EAS committee, said the difference between the old and the new voice system is dramatic.

"I think they have made a significant improvement. It's likely that broadcasters who had concerns previously about carrying the automated messages won't be hesitant to do so now," said Freinwald.

Bill Croghan, CE for Las Vegas radio stations KOMP(FM), KXPT(FM) and KENO(AM), said it's likely more stations will now carry the verbatim NWS warnings.

Craig vs. Donna

"That should help in eliminating the delay in getting the warnings out. I consider the new voices a great improvement over Perfect Paul," Croghan said.

Several other radio sources said they had listened to the voices and believe Craig is the best. "Except for a few inflection problems, the voice is very natural-sounding," one source said.

However, despite advances in text-to-speech technology, some EAS officials and broadcasters are not yet satisfied with the timbre of the new voices.

Richard Rudman, chairman of the EAS National Advisory Committee and the Los Angeles County local emergency committee, said he wished the voice choice committee would have waited for something better to come along.

"The new voices chosen are an improvement but still have major shortcomings," Rudman said. "They still have quality and inflection issues that bother me."

Rudman commended the Weather Service for listening to broadcasters' complaints about quality problems. He said he hoped the NWS will continue to seek improvement.

"What EAS folks want is the best possible voice for the purpose of issuing warnings," Rudman said.

"I won't be inclined to carry them," said Chris Boone, chief engineer for KDMX(FM) and KEGL(FM) in Dallas/Ft. Worth. "They still sound computer-like and too canned. I can hear the digital artifacts in them. ... not as bad as Paul, but I wouldn't put them on a broadcast station."

Boone said he would rather have the Dallas LP-1 station, WBAP(AM), air a human read of the warning, even if that means delaying the information by a minute. "It's still better than the robot radio voice," he said.

Michael Barnes, CE at KVMV(FM) in McAllen, Texas, was disappointed with the results of the search.

"We do not air Perfect Paul and I'm not sure if we'll use the new system or not. I have heard better-sounding computer voices on various IVR (interactive voice response) systems and other automated systems," Barnes said.

Swanson admits the new voices are not perfect.

"It's very subjective. However, they are the best we have right now and the closest technology can get us to sounding more human. We have signed up for all of the available upgrades when they become available, so we expect the system will improve with time."

Each weather service office will receive a new computer and Speechify software. Swanson estimates all 121 weather stations should be retrofitted with the new equipment by the end of 2002.

EAS Patent Dispute Lingers

WASHINGTON Radio broadcasters remain confused over the status of claims by Quad Dimension Inc. requesting stations pay royalty fees for using the Emergency Alert System. The outcome of a patent dispute between the federal government and Quad remained pending in early November with no resolution in sight.

The uncertainty dates back to early 1999 when Quad mailed notices to 1,500 broadcasters requesting payments and signed licensing agreements. Quad says it owns the patent to EAS. The company claims the national notification system is based on its SAFE (Storm Alert for Emergencies) technology.

Officials with the National Weather Service contend that the NOAA Weather Specific Area Message Encoder was developed first and is the basis for EAS.

Still pending is Quad's appeal of the findings in a second re-examination by the United States Patent and Trademark Office in October 2000. The PTO allowed the majority of Quad's patent claims but denied two of them.

At the time Quad spokesman Daric Laughlin said, "Our appeal of two claims will delay issuance of a second certificate of reexamination."

A source at the Department of Commerce said "nothing new" was happening with the case. He suggested it may be some time before an appeal could be heard if Quad requested a hearing.

"The PTO Board is backed up with appeals that will further delay any decision," the source told Radio World.

Quad received a patent in 1992 for its SAFE technology. It faced its first re-examination in 1997. Quad was reissued its patent after it modified some of its claims which more specifically targeted AM and FM broadcast stations. The PTO ordered the second reexamination at the request of the NWS.

Quad Dimension officials have said on several occasions that the government could resolve the matter by buying the SAFE technology for its use by the broadcast industry.

Quad President Mike Fessler said the company had "no new information" to share at this time and declined further comment.

"We will not comment on the Quad case since it is still in limbo," said Susan Weaver, spokeswoman for the National Weather Service.

— Randy Stine

◆ NEWSWATCH ◆

▶ Continued from page 3

"We are well aware, of course, that many of the complaints we receive do not involve violations of FCC rules and the existence of a complaint does not necessarily indicate any wrongdoing by the company involved," said CIB Chief Dane Snowden.

The report said the number of inquiries about LPFM dropped from 298 in August to 171 in September.

The CIB report will be released quarterly, and is expected to alert the FCC to potential problems that may require further consumer education or policy change.

FCC Adds Conditions To Repeater STAs

WASHINGTON The FCC has tacked on additional conditions to the special temporary authority for Sirius Satellite Radio and XM Satellite Radio to operate their terrestrial repeater networks.

Sirius and XM must disclose the locations and technical parameters of all repeaters, including those operating at or below 2 kW equivalent isotropically radiated power, to Multipoint Distribution Service and Instructional Television Fixed Service licensees if they make an interference complaint.

Sirius and XM already had been required to disclose such information to wireless companies to resolve interference complaints.

Sirius and XM also must reduce power, or, if necessary, cease operation of any repeater that causes interference to any of these licensees. The FCC will allow Sirius and XM to enter into non-disclosure agreements with the other services to protect the locations of the repeaters.

The STAs are an interim measure to allow Sirius and XM to operate their terrestrial repeater networks before the FCC issues permanent repeater rules (RW, Oct. 10).

DAB at Upcoming AES Show

NEW YORK The AES 111th Convention, set to take place Nov. 30 to Dec. 3 at the Javits Convention Center, will feature a session on digital broadcasting in the United States.

"Digital broadcasting is changing the way consumers view television and listen to the radio," said David Bialik of DKB Broadcast Associates and 111th special-events chair.

In addition to representatives from XM Satellite Radio and Sirius Satellite Radio, the panelists who will discuss the best methods for delivering high-quality audio in broadcasting include Jerry Butler, PBS; Ralph Justus, CES; David Layer, NAB; Jeffrey Riedmiller, Dolby Labs; and Deepen Sinha, Ibiquity Digital.

The event is slated for 9 a.m. on Saturday, Dec. 1.

For information on events of the 111th AES Convention, visit *www.aes.org*

BUSINESS DIGEST

Klotz Reorganizes Management Team

ATLANTA Klotz Digital America is shuffling its American operations.

The company said the U.S. subsidiary of Klotz Digital AG in Atlanta will be unified under a new management team along with Graham Patten, a division it added last winter located in Grass Valley, Calif.

John A. Carey becomes president of Klotz Digital America. He had been VP of business development for the parent company.

Michael J. Hession, formerly an executive of Orban, becomes VP of finance for Klotz Digital America.

Earlier this month, Ramon Esparolini resigned from Klotz; he had been managing director and launched the U.S. operation. He told Radio World that he had accomplished what he was hired to do and was looking for new opportunities.

In a statement, the company said, "Centralizing American management will maximize Klotz Digital's resources, reducing operating costs and thereby allowing Klotz to become more competitive in the broadcast market."

A new headquarters in Campbell, Calif., will oversee operations on both coasts. The sales and engineering support facility in Atlanta will continue, the company said. But Graham Patten's manufacturing facility will begin production of Klotz VADIS and DC II products for U.S. operations.

Correction

In the Oct. 10 issue on page 5, the name Robyn Walensky, of AP Radio, was misspelled. She was at the site of the World Trade Center crashes, not the Pentagon as indicated.

MARKET PLACE

2002: A Year Of Towers

If you love the legends and lore of big steel, check out the "Tower Site 2002 Calendar," published by Scott Fybush. He has collected a dozen of his favorite photos of radio transmission sites from his travels around North America. Among them are the three shown here.

South Mountain in Phoenix is a huge tower farm that rises above the city and is home to most of the city's FM signals and all its TV transmitters. South Mountain is a Phoenix city park; one can drive all the way up to the site on public park roads.

KDIS in Los Angeles is the former KMPC(AM) 710, Gene Autry's Hollywood radio outpost. If you look carefully at the old building on Burbank Boulevard, you can still make out the KMPC call letters and the legend, "50,000 Watt Radio Station."

Mt. Greylock, the highest point in Massachusetts, is crowned by a 1950s-vintage tower, home to public radio WAMC(FM) in Albany and ABC affiliate WCDC(TV), which relays Albany's WTEN(TV).

South Mountain in Phoenix

Mt. Greylock, Adams, Mass.

This may look like an aerial photo, but it's actually taken from a stone observation tower a few hundred feet from the WCDC/WAMC stick. Mt. Greylock is a popular destination for hikers, most of whom probably are unaware of the broadcast significance of the site.

Other interesting tower sites included are KFAB(AM), the 50 kW voice of Omaha, Neb.; WPHT(AM), the former WCAU in Philadelphia; Boston's WAMG(AM), the old WCOP; XEPRS(AM) in Rosarito Beach, Mexico, the descendant of Wolfman Jack's historic XERB; Seattle's Queen Anne Hill TV/FM site; and CKOT(AM) in Tillsonburg, Ontario, the last remaining Canadian AM daytimer.

The calendar is available for $15 postpaid to U.S. addresses (New York residents add sales tax), and US$20 postpaid to Canada. Send check or money order payable to Scott Fybush, to 92 Bonnie Brae Ave., Rochester NY 14618.

For more information, send e-mail to calendar@fybush.com *or visit* www.fybush.com.

KDIS(AM) in Los Angeles

CLEARLY NOT FOR EVERYONE

Your Grandmother is certainly a very nice lady. but a Porsche is probably not her ride.

It's the same with processing: Some people should stick with the conservative stuff. Give them something too fast and they just won't know what to do with it. Frankly, the new Omnia-6 is probably not for them. It's just too potent, too flexible.

On the other hand, maybe you are the sort who can run a fast machine. Who loves the thrill of smooth power. Who revels in the admiration of others.

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Workbench

Radio World, November 21, 2001

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

Don't Get Taken by Deadbeats

John Bisset

If you've spent some of your nice fall days cleaning your transmitter site, watch what you use for the job.

Kirk Harnack, who works for Telos/Omnia and has a long history of contract work, cautions about the use of powdered substances in transmitter buildings.

The key is to check the ingredient list before using bug bombs, foggers and other products aimed at killing insects.

Tom Osenkowsky, an engineering consultant, has some advice if you are waging a war on bees. These insects return to the nest at night, so spray their nests when it's dark. Keep the spray from antenna tuning unit light bulbs, which can explode. Buy a box of mothballs and spread a few in each ATU and in the wire troughs in your transmitter building to discourage pests.

★ ★ ★

Speaking of contract work, are you having trouble getting paid?

Consider the suggestion of Bob Groome of Wheatstone. Set up a charge card account with Visa/Mastercard through your bank. Before you start your work, call for approval for the estimated charge.

If the charge is approved, go ahead with the work. If the charge is denied, head off to your next location. Bob says there is a 2 percent surcharge for the service, but there's no billing, no chasing slow-pays and no collection problems.

Everyone has credit cards these days, so you won't waste your time with deadbeats!

★ ★ ★

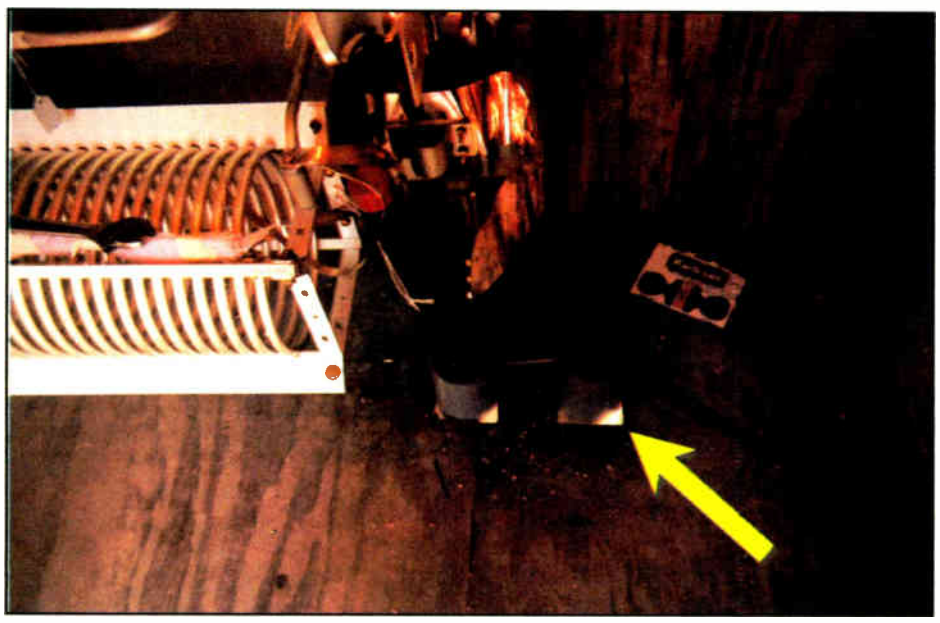

Fig. 1: Seal spaces around PVC entry pipe to keep out the elements and furry friends.

He gives as an example boric acid products like the brand Roach Prufe. Kirk encountered a site where this product was used by a staff member who thought they were helping. The powder dust was sucked into an FM transmitter, tarnishing everything silver by turning it black. Kirk spent a day cleaning the IPA and PA cavities, sockets and tubes.

Although it was a good day for billable hours, the damage could have been avoided.

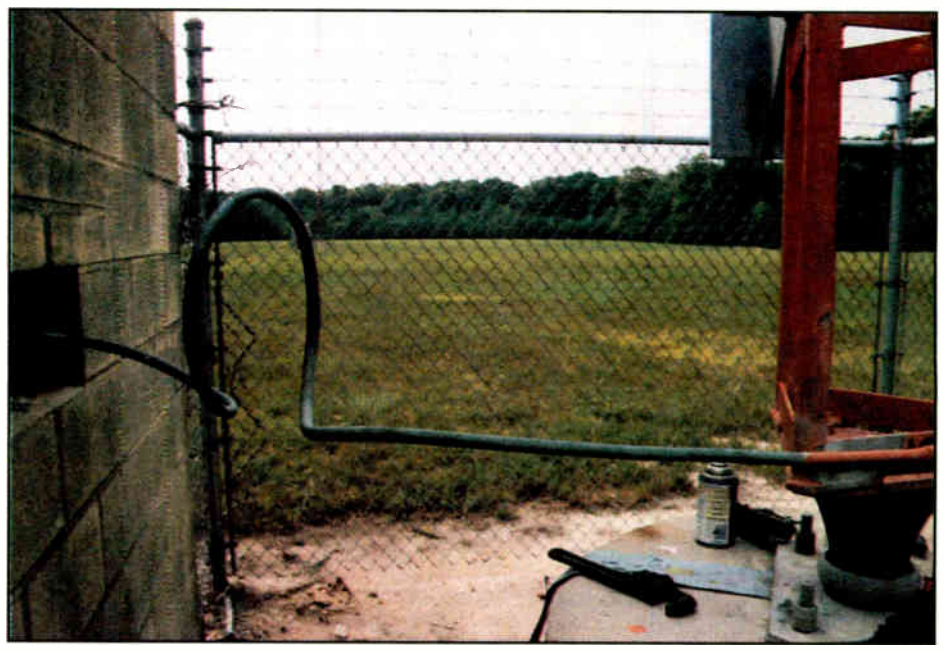

Fig. 2: A Choke on an AM Tower

Fig. 1 shows the inside of a coupling building. The PVC pipe will protect the sample and RF feed cables, but before the project is finished, the spaces around the pipe must be sealed.

These are the kind of minor points that often get forgotten. Not only will the space provide an entry for nesting animals, you'd be amazed at how much cold air whips through that space on a cold night!

Stay warm, and keep your buildings clean. Plug those holes.

★ ★ ★

John Stortz of Moody Broadcasting in central Florida wrote about a tower that one of his FM stations leased from a propane gas company.

The tower was hit by lightning four to five times a year, usually damaging the gas company equipment. Damage included their base radio, power supply and even their fax machine.

Building on his successful grounding at other sites, John made a two-turn coil out of their coax at the base of the tower, then used a Polyphaser ground kit to tie the coax to the tower ground strap. (John is the king of the ground rod, providing a variety of rod driving techniques in previous *Workbench* columns.)

See WORKBENCH, page 17 ▶

Hooked on Radio Systems line of analog audio consoles

by: Mark W. Persons, President
M. W. Persons & Associates

BRAINERD, MN: A few years ago two of my radio station customers became "hooked" on the Radio Systems line of analog audio consoles. I found that I enjoyed the same excitement when I installed the consoles for them.

It all started when I was asked to recommend a console to a broadcaster who still believes in programming live 18 hours a day. The console had to be rugged, reasonably priced and the audio had to be clean. That ruled out all consoles with audio transformers. Over my 30 years of radio broadcast engineering, I have installed and reinstalled more than 100 audio consoles, but at this time I noticed that Radio Systems was gaining a good name in the industry with the RS-12 series 12-channel audio consoles. After installing the first one at WJJY FM Radio in Brainerd, Minnesota, there was no turning back. The client was so impressed that he would then accept nothing else for his main studios. To date he has purchased one for each of his seven stations and ordered two more for stations scheduled to be built soon. Three of them are in his new $800,000 studio facility in Brainerd.

What brought on this attitude? The Radio Systems RS-12, and later the RS-12a Millenium Audio Consoles, are designed to be rugged and easy to use while keeping audio quality high. The operators love them.

Personally, I like the red peak lights on each analog VU meter. Console output commands to start and stop CD players and digital audio storage equipment are easily programmable with computer-type plug-in jumpers. The commands can be continuous or momentary. Audio stays on the audio cards in the bottom of the console and is adjusted by audio voltage-controlled amplifiers, which are clean as a whistle and have left-to-right stereo gain matched to fractions of a dB. Front-panel buttons turn the VCAs on and off. Front-panel slide pots are DC controls for the VCAs.

The Radio Systems RS-12a 12-channel Millenium console was introduced two years ago. It was a good upgrade to the RS-12. It kept the wonderfully clean audio boards in the bottom of the console frame and replaced the black colored top with a beige/blue panel of the same size.

The most interesting changes were soft rubber pushbuttons with LED lamps instead of the original hardware switches with incandescent lamps. The new buttons have a really nice feel as well as being completely silent in their operation. The factory people tell me the meters have been improved to be more accurate. Either way, they work just fine.

For stations with the original RS-12 console there is an upgrade kit, which will replace the black top with the new beige/blue Millenium top. They throw in new mahogany sides to make it look like a new console. The kit costs $2,000. For $2,500 you can send a console to the factory for a reworking, including bringing it up to factory-new specifications. A new RS-12a 12-channel audio console is $5,495. Six-channel, 18-channel, and 24-channel models are available too. High-quality P&G faders are available as an option.

Digital may be a current buzzword, but for the client's money and mine, these analog consoles are as good as it gets. Until we have a real digital standard, I am staying with analog consoles.

Disaster Relief
From now until the end of the year, Radio Systems will donate $100 for every console sold to the American Liberty Partnership.

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Better FM Coverage Can Be Yours

Expert Consultants Share Ideas to Help You Improve Your Station's Performance

Richard J. Fry

A station's antenna and its siting can be critical to its commercial success. Incorrect choices are difficult to evaluate and expensive to fix.

Without the professional analysis of an experienced consulting engineer, some managers may have a tendency to choose and install FM antennas with a certain amount of misplaced belief, often based on "street lore" and emotion.

To provide some insight into this subject, three prominent broadcast consulting firms were asked to respond to 15 topics about FM antenna performance. The first of the consultants' responses are shown below, and the rest will follow in future issues. The participants are Ben Dawson of Hatfield & Dawson; Bob Culver of Lohnes & Culver; and Don Markley of D.L. Markley & Associates.

Note that any consultant would need specific site and application information to provide an accurate recommendation for a given situation.

Issue: Number of antenna bays vs. antenna height AGL vs. ERP vs. terrain profiles.

Ben Dawson: The proper selection of high-gain antenna configurations, such as those for UHF TV with typical gains of 30 or more, requires careful evaluation of the terrain so that the combination of gain, beam tilt and horizontal plane pattern provides more or less uniform illumination of the desired service area.

This is less troublesome at VHF frequencies, where the antenna gain typically is lower, but it still should be the basic determining factor in most situations.

Bob Culver: The antenna vertical pattern, being controlled by the antenna aperture length (hence number of bays and spacing) is the issue here. Obviously this is a tradeoff relative to antenna gain, transmitter power output (TPO), necessary line size (power rating) therefore loss, station ERP, antenna height, line length (loss), etc.

There are a multitude of interrelated variables that have to be considered to arrive at the desired end results. Some variables will be primary in that there is little room for change.

For example a very low antenna height may dictate 1/2-wavelength bay spacing and perhaps a short antenna aperture. On the other hand, a remote location may supply a limited prime power capacity and therefore a low transmitter power, requiring a relatively high antenna gain and low loss system.

Don Markley: For best service, we usually recommend the maximum power and height for the class of station with a reasonable number of bays of antenna. Like many FM criteria, this is a judgment call.

For example, you don't normally go after 100 kW ERP with a two-bay antenna. On the other side, avoid 12 bays if you can.

We usually recommend three or four bays for Class A, B1 or C3, five or six bays for Class B or C2 and eight bays for Class C0, C1 or C.

This also requires some judgment regarding the terrain in the area. In very hilly or mountainous terrain, use fewer bays and more transmitter power. High-gain antennas seem to work best for level terrain such as on the prairies out west.

Issue: Vertical bay spacing (effect on non-ionizing radiation on the ground near the site and other pattern parameters).

Dawson: Reduced spacing (typically 0.95 lambda or lower, down to 0.5 lambda) provides substantial benefits in reduction of nearby NIER levels, reduced potential for site electromagnetic incompatibility and reduced foreground reflection.

Culver: I have no problem with using reduced-bay spacing to achieve reduced ground-level RF energy exposure level. Using 1/2-wavelength spacing is physically easy with some antennas where a 180-degree phase shift can be arranged by inverting the antenna elements and will then work with a 180-degree interbay line length.

Reduced spacing, but not 1/2-wavelength will reduce downward and side lobe signals. This can be used where less spacing is not physically possible (panel antennas) or electrically desirable.

The resulting vertical pattern is determined by the full antenna assembly. Some individual elements are inherently suppressed in their downward signal and the array can be more easily built to limit downward signal.

Markley: We normally just use one-wavelength spacing unless there is a problem with close-in radiation.

Richard Fry is a retired FM applications engineer with almost 35 years of service with major U.S. broadcast transmitter and antenna manufacturers.

He can be reached via e-mail to rfry@adams.net.

Rave Reviews!

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

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

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

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

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

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GUEST COMMENTARY

IBOC DAB Benefits Will Be Few

One Observer, Skeptical of the Concept, Says 'Pay No Attention to That Man Behind the Curtain'

Aaron 'Bishop' Read

I belong to a few online mailing lists. Recently, a well-meaning fellow on one radio group asked for opinions on what radio would be like in five or 10 years, what with digital radio and IBOC looming.

Hoo-boy. I steeled myself for the usual onslaught of e-mail.

If you know me, you know I'm opinionated. ("No, really?" my cube-neighbor pipes up. I smack him with my Nerf football). Also, I tend to join lists that attract folks like myself.

Pessimism

Not surprisingly, the posts flooded in. Also not surprisingly, the majority were pessimistic about the viability of IBOC.

"The audio quality just isn't there." "The cost of conversion is too high." "The delay is too great." The usual suspects, if you will.

But then someone hit the magic answer: "The public won't buy the receivers because there's nothing better about IBOC for them."

Ahhhh. Give that man a cigar.

It's a question that must be asked before any business venture is started. Not "why is a customer going to buy this," but "why *isn't* a customer going to buy this?"

Greg McLemore, founder of Pets.com, are you listening?

I say IBOC is boiling down to something my dog wouldn't eat for most FM stations, and a potential death knell for Class D, LPFM and small Class A stations.

So *what* if IBOC is digital radio, anyway? Didn't we learn our lesson from AM stereo? Didn't Eureka flop in Europe?

Well, it's a lot of extra bandwidth channels, so you could offer more services!

Hmmm, wait a minute. What exactly could we offer here?

Well, how about a national system that automatically switches from station to station to keep the same genre on (i.e., always keep the top 40 hits goin' as you cruise from Boston to Los Angeles)? That'd be nice.

Hmmm, don't think so; the system might switch a listener to a nearby competitor. Okay, scratch that idea.

Well, we could show cool announcements like "Call in and win!" Yeah, that's cool. Hmmm, but it's yet another thing to take my eyes off the road.

I live in Boston, which is right next door to Cambridge, where the lovable Click and Clack of NPR's "Car Talk" have helped push through a ban on the use of cellphones while driving. I can see them choking between their cackles when they hear about displays on a radio.

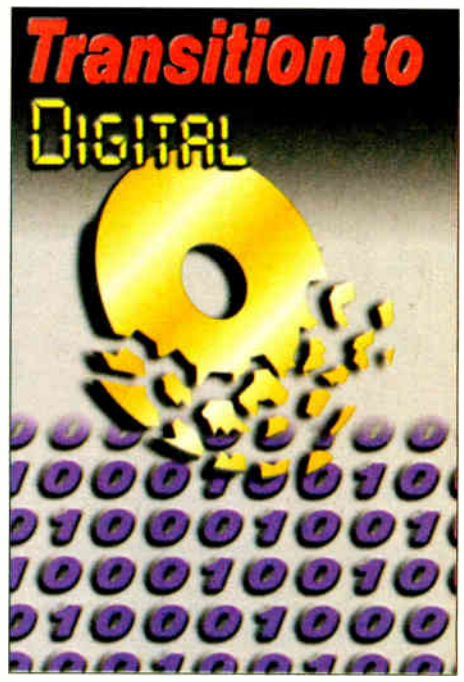
Starting to see a pattern here?

Well, Ibiquity, the surviving IBOC proponent, tells us IBOC will sound better! There we go, a real improvement!

Err ... wait a minute, FM radio already sounds pretty good. And here's the real rub: *it won't sound any better in the car.*

The numbers don't lie: morning and afternoon drive are the main times people listen to most stations. And they're in their cars, a notoriously poor acoustical environment.

So how will they tell the difference? They can't. Jeez, I can only listen to my MiniDiscs in my car because they sound so awful on my home stereo, but fine when I'm on the road.



guy is doing it, and if they're digital, then they *must* be better, right?

Yes, I can hear you groaning now, and I feel your pain. I know more than a few of you engineering readers have installed a knob that does nothing at master control and pantomined turning the knob in the presence of the PD because he or she insists your station doesn't have enough (pick one) "funk," "punch," "jazz," "life," "rock-n-roll," "presence," "awakeness" (yes, I have actually heard that one), "buzz," "loudness," or "that thing."

Oops, I just gave away our secret, didn't I? Sorry, guys.

AM resurgence

So what does this all boil down to?

I say IBOC is boiling down to something even my dog wouldn't eat for most FM stations. Also it is a potential death knell for Class D, LPFM and small Class A stations that can't foot the steep bill for a digital transmitter. Rosy picture, eh?

Sound like I'm overlooking someone? Nope, I haven't forgotten AM stations. They're about the only group I see benefiting from this. And it could be a nifty benefit. Certainly audio fidelity would improve.

It could be a nifty benefit for AM stations. Certainly audio fidelity would improve.

Speaking of which, haven't we all noticed how ridiculously overprocessed most FM stations are these days? I listen to my local rocker to lose weight. After 20 minutes, I'm so fatigued I feel like I ran 10 miles.

How can they get away with it? Because most cars are so loud to begin with that you can't possibly hear the audio loss from over-processing. But then *why* do they do it?

"Well hell, we gotta sound louder than the other guys," screams the PD. And God help us, but satellite radio's coming down from above like the meteors in "Deep Impact" and they're digital, too!

Ahhhh, now *there's* a reason to go to IBOC — because your GM / PD / SM / SA / VI (Village Idiot) heard the other

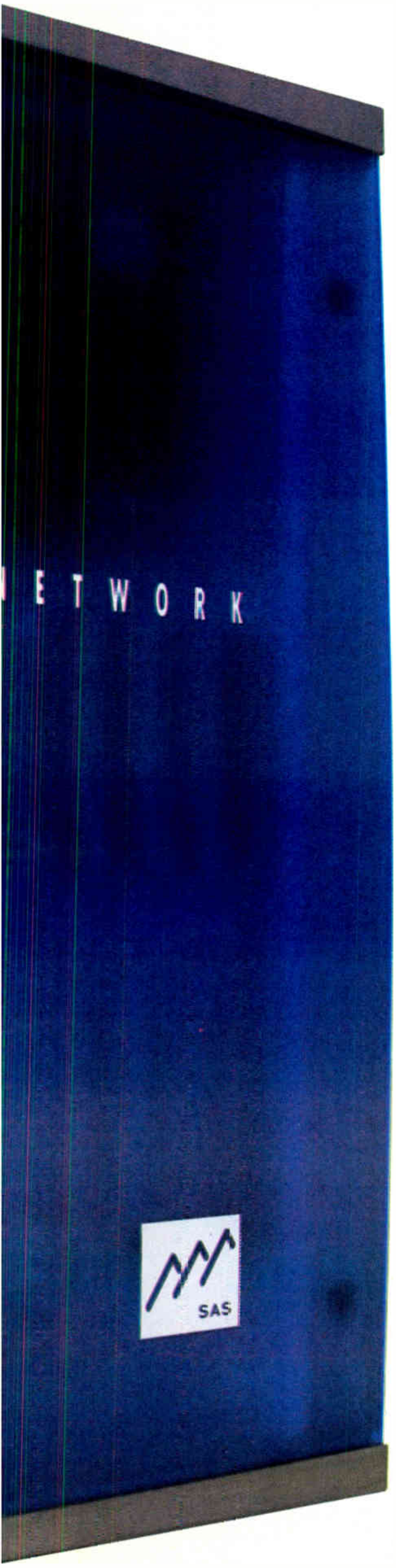
We could see a nice resurgence of AM radio. Certainly it could be the lifeline that helps save AM from being hit hard by satellite radio ... as both AM and FM may well end up be.

Ah-*hah*. We *finally* found a benefit that outweighs the detriments for IBOC. Hoo-rah!

I guess only time will tell, eh? Because this is where the curmudgeon behind the curtain puts away his crystal ball and gets back to pretending to work.

Aaron Read isn't an engineer, but he plays one on TV. He says he spends far too much time at WBRS(FM) in Waltham, Mass., and Allston Brighton Free Radio instead of getting some real work done. Reach him at aread@speakeasy.net.

RW welcomes other points of view.



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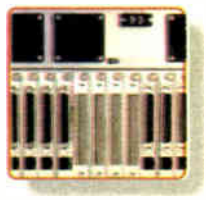

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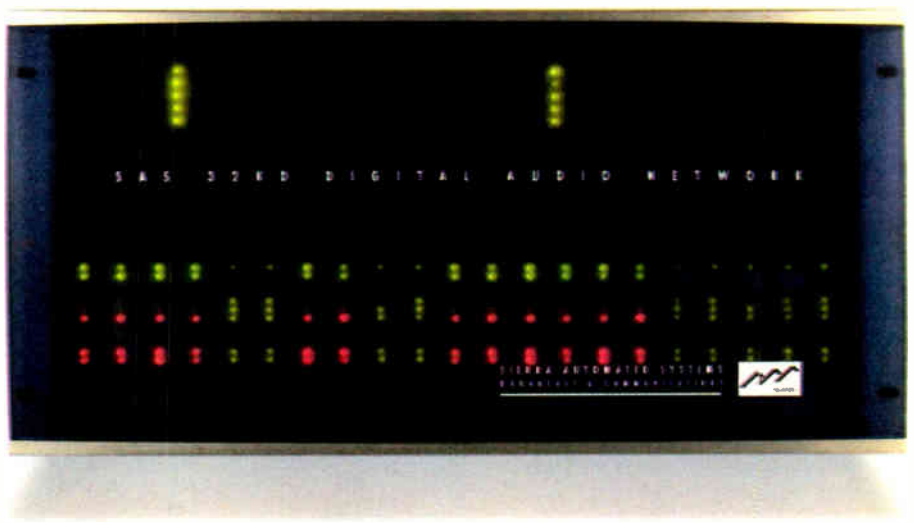

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KLOTZ DIGITAL

Workbench

▶ Continued from page 10

With this in mind, John drove a ground rod next to their building. That was last summer; so far, there has been no damage from lightning for anyone.

It's a simple solution with a big payoff. John's idea is similar to the "choke" seen on most AM towers and pictured in Fig. 2 on page 10. When the tower "spark" or "ball" gaps are properly set, the static charge should jump the gap, rather than enter the coupling network.

★★★

While we're on the subject of regulations, David Maxon of Broadcast Signal Lab in Cambridge, Mass., wanted to comment on a pointer made in the Sept. 1 *Workbench*. We showed a leaking capacitor, filled with PCB oil, and cautioned, "Don't become contaminated with it." David points out that personal contamination is only part of the problem. Because the capacitor is no longer intact, it must be treated as a hazard requiring prompt containment and disposal.

Broadcast Signal Lab is an engineering firm that helps stations comply with technical standards, regulations, RF spectrum rules and RF exposure rules, as well as EPA and OSHA regulations. Although "small" capacitors (less than 100 cubic inches in volume) may be disposed of in the regular trash, the leak changes the situation dramatically.

David ran into a leaking capacitor problem several years ago, and the disposal costs and tracking requirements were astonishing. His advice: correct the problem now, before the capacitors start to leak. The cost of disposing of a leaky capacitor properly is not trivial.

Engineers should reference Title 40 CFR 761, which outlines the PCB regulations.

★★★

Ed Bukont works for CommStruction, a broadcast projects company. Ed is a source of lots of neat products like the Home Depot knee pads that are great when you're on your knees in front of a transmitter (praying or fixing!).

The Miles Tek brand is another of Ed's finds. As engineers spend more time handling network and computer problems, this company quickly will become one of your best friends.

Check out *www.milestek.com* or call (800) 524-7444. The company stocks a variety of networking cable, plugs, voice/data accessories and connectors. It also provides technical information like how to distinguish 50-ohm from 75-ohm BNC connectors.

The product line includes audio/video and wire management. Are you running cable through a plenum? Take a look at their pulley device for making plenum cable pulls a breeze.

Tell them you heard about them from the pages of Radio World.

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

AM Radio Rebounds in France

Franck Ernould

With the FM band completely saturated, regulators in France have received an increasing number of requests for permits to broadcast on medium wave.

Following in the wake of the success of Ciel AM, a new service that brought private radio back to medium wave in Paris, it seems listeners are willing to sacrifice a degree of audio quality to tune into programming that cannot be found on the FM dial.

Ciel AM and other medium-wave broadcasters, however, hope that they will soon be able to offer listeners more than unique programming: The Digital Radio Mondiale system promises to allow AM broadcasters to transmit digital signals with audio quality that equals or betters that of FM radio.

First convention

This summer, Paris hosted the first convention of an association for the development of amplitude modulation, known by its French acronym ADAM.

It was formed to promote digital AM broadcasting to French broadcasters and listeners. Noted broadcasters and industry experts took part.

In France, new applications for AM licenses and the projected deployment of the DRM system for DAB could prove to be as important as the deregulation of FM was 20 years ago.

The theme for the meeting was "What is the future for AM in France and for radio elsewhere?" Attendees seemed to find confirmation that a small revolution is taking place in the radio world.

After 50 years of neglect, medium-wave broadcasting is attracting new attention.

While FM stereo is available here on most all radio receivers and FM offers much better listening quality, there is no longer any room available on the 87.5 MHz to 108 MHz FM dial, especially in Paris and other large cities across the country.

With the exception of the pubcaster Radio France, only a few private broadcasters are using AM broadcasting here.

But this was not always the case. In 1920, after World War I, radio had demonstrated its strategic value to the military and was beginning to grow into civilian applications.

Among the political figures of the day, there were many advocates for establishing a state-run radio monopoly, but the emerging radio industry — backed by influential newspapers and wealthy industrialists — favored free competition on the airwaves.

Little control

In the end, the government exercised little control over broadcasting, and a mixture of public and private broadcasters established themselves in Paris and the provinces. Nearly all these stations transmitted on medium wave with 500 watts to 5 kW of power.

By 1930, about 30 radio stations served 500,000 listeners in France. Half of these stations were private, financed by advertising and "tolerated" by the government. Certain public stations were supported by listener contributions and advertising.

In 1932, the government purchased Radio Paris from its private owner. The station, broadcasting on longwave with 150 kW of power, could be heard across the country and became the official voice of France.

Just before World War II, more than 6 million radio receivers were in use across France, and during the war, in both Nazi-occupied and Vichy France, broadcasting evolved as a propaganda tool, making the transmitters military targets.

By the end of 1944, the national longwave center in Allouis and 95 percent of the medium-wave radio transmitters across the country had been destroyed.

After liberation, the Resistance established a monopoly on broadcasting, commandeering all the private stations to rid the airwaves of political or economic meddling.

The founding of national broadcast service Radiodiffusion Télévision Française, or RTF, was one result of this action.

Regional network

RTF broadcast across the nation from the Allouis longwave station, which was supplemented by regional medium-wave programs from Paris. French listeners could also tune broadcasts from the neighboring nations: Radio Luxembourg, Ràdio Andorra and Radio Monte Carlo.

Gradually, the network of regional medium-wave stations was recreated, using dozens of small transmitters. But the growth of AM programming stalled in the 1960s with the spread of FM broadcasting from Paris to other cities across the nation.

To highlight the audio benefits of FM, the public-service broadcaster launched France Musique and began relaying its long- and medium-wave services on FM.

As new FM transmitters went on air across the countryside, the public adopted FM receivers and the medium waves gradually fell into disuse.

With the liberalization of the airwaves in the 1980s, many new stations and broadcasters have filled the FM waveband, but the medium waves have remained calm.

In 2001, however, Ciel AM revived private radio on MW in Paris. Its launch was followed by applications for AM licenses from Radio-Télévision Berbère and Littoral AM.

This new interest — combined with the projected deployment of the DRM system for short-, medium- and long-wave DAB in 2003 — could prove to be as important as the deregulation of FM 20 years ago.

According to Thales Broadcast and Multimedia, one of the primary players in the DRM consortium, more than 70 broadcasters and manufacturers are involved in the development of the DRM system.

MARKET PLACE

Orban Updates 8200 With Anniversary Edition

Orban/CRL Systems Inc. has replaced its Optimod-FM 8200 series of digital audio processors with the 8200 Signature Series, which marks the line's 10th anniversary.

The Signature Series has the same features of the 8200's version 3 software and adds eight custom-tuned presets. The units offer standard sample-rate converting AES/EBU digital input and output that handle rates of 32, 44.1 and 48 kHz. A redesigned front panel with Bob Orban's signature commemorates the digital audio processor's first decade.

The Signature Series maintains the 8200's compatibility with most broadcast plants, including those using uncompressed digital STLs operating at a 32-kHz sample rate. The unit has tight 15-kHz bandlimiting, remote control facilities and clock-based dayparting.

For more information contact Orban in California at (510) 297-2749 or visit www.orban.com.

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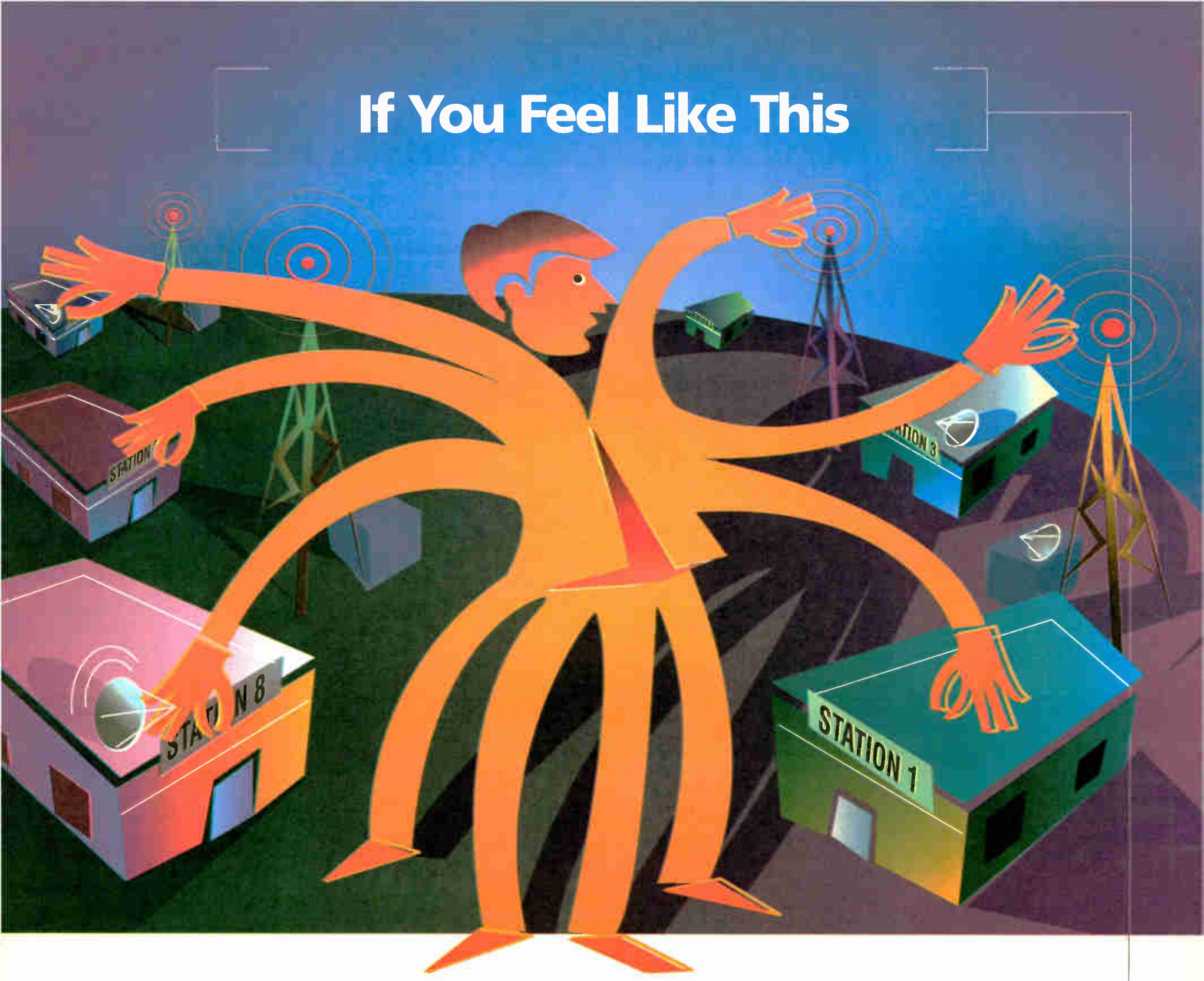

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GM Journal

Radio World — Resource for Business, Programming & Sales — November 21, 2001

Vermont Nets the Snowman

Dennis Snyder

I have been a radio engineer for many years. From my perspective, nothing makes a busy morning worse for the staff than bad weather.

It is a more common occurrence when you have three radio stations under the same roof that sit on the edge of two New England states with listeners who have children in schools on both sides of the border.

With the additional people who call to ask "Is my school is closed?" telephone calls can increase twenty-fold.

I was on our local school board for 18 years and know how many calls (and code words) a school administrator must list to notify all stations in their area. As a member of the Vermont Association of Broadcasters board of directors, I maintain the *VAB.org* Web site.

Net rescue

Four years ago I suggested to the VAB board that our association provide the means to list all school closings on the Internet. This would not only make the school administrator's job a little easier; it would help the local radio stations maintain a little more order in their busy morning programming.

While the board took the matter "under consideration," Burlington, Vt., television station WCAX was planning a morning news program. Its studio is only a few hundred feet from us and WCAX asked us to explain how we managed school closings at our radio stations — WJOY(AM), WKOL(FM) and WOKO(AM).

We explained the process we go through to serve our 150 schools with only our normal morning staff. WCAX has a much larger service area. A quick calculation proved it would be a huge undertaking to manage the task for the 400 schools in the area that includes the state of Vermont plus parts of New York and New Hampshire.

I mentioned my goal of using the Internet to list closings in Vermont and our border states.

Meetings were set up with the Vermont Superintendents Association to explain the plan. We assured them that the VAB would provide the necessary funds to purchase and maintain the server. They welcomed the idea when they learned a superintendent or principal would only be required to make only one call to a toll-free number rather than call each and every radio and television station in their area.

I surveyed all Vermont radio and television stations in 1998 to learn the number of stations that had access to the Internet. The survey showed

See CLOSINGS, page 22 ▶

It's not always this bad in Vermont, but this broadcast tower on Mt. Mansfield shows that winter weather there can be horrific.

What to Do If You Get Odd Mail

The safety of incoming radio station mail is something most managers probably hadn't given much thought until recent weeks. How times have changed.

NAB reports that some of its member radio stations have received suspicious letters in recent weeks. What should you be looking for?

NAB President Eddie Fritts listed these warning signs, echoing advice from U.S. postal authorities. Watch for mail with:

- no return address
- handwritten or poorly typed address
- incorrect title
- title but no name
- misspellings of common words
- sender name unfamiliar to you
- "personal" or "confidential" markings
- a strange odor or stain
- postmark different from return address
- unusual shape
- weight not distributed evenly
- weight that shifts as you handle the package
- too much tape or string, or excessive postage — usually too many stamps

See SECURITY, page 20 ▶

Security

▶ Continued from page 19

The NAB also recommends that concerned stations review the information on what to do if you receive a suspicious package that U.S. Sen. Bill Frist posted on his Web site (*www.senate.gov/~frist*). Before he was elected, Frist was a surgeon.

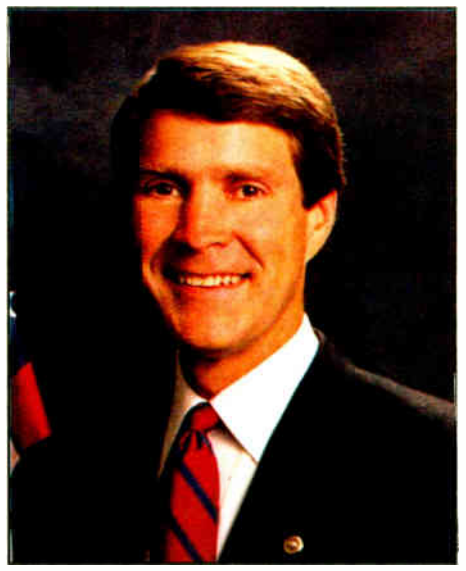
RW reprints Sen. Frist's list below.

If you receive an unopened letter or letter that appears empty:
1. Place envelope in a plastic bag or glassine envelope
2. Wash hands with soap and water
3. Notify the FBI, state police and your supervisor

If you receive an envelope with powder that spills out onto surface:
1. Do not clean powder up — keep others away
2. Wash hands with soap and water
3. Do not brush off your clothes — remove clothing and place in plastic bag as soon as possible
4. Notify the FBI, state police and your supervisor
5. Shower with soap and water; do not use bleach or other disinfectant
6. Put on fresh clothing
7. Make list of all people who had contact with the powder and give to local public health authorities. Those individuals may be instructed to watch for fever or other symptoms over the next couple of days.

If you receive a package marked with a threatening message:
1. Do not open
2. Leave it and evacuate the room
3. Keep others from entering
4. Notify the FBI, state police and your supervisor

If there is aerosolization or a small explosion:
1. Leave the room immediately.
2. Close the door, or section off the area to prevent others from entering
3. Turn off local fans or ventilations units in the area — shut down air handling system in the building, if possible
4. Notify the FBI, state police, and your supervisor
5. Remain on premises until responders arrive
6. Make list of all people who were in the building at the time and give to local public health authorities. Those individuals may be instructed to watch for fever or other symptoms over the next couple of days.



Sen. Bill Frist

Control Access at Your Radio Station

Exactly who is walking around in your radio station? Are you sure?

Al Kenyon, VP of technology for Clear Channel, and Gary Kline, Cumulus Media's corporate engineer, offered some suggestions for controlling the flow of people at a time when broadcasters are more sensitive to security issues.

• Control levels of access for each employee. Not everyone needs to go everywhere.

• Install a card reader that personnel must swipe or at least possess in proximity of a sensor, not only to enter your buildings, but also to go from one area to another.

• Check logs from these access devices to determine if there are suspicious patterns.

• When an employee's status changes (i.e., he/she is fired or leaves), make sure the person's access and codes are changed in a timely fashion.

• Non-station people visiting any area should be required to enter an eight-digit code on a keypad consisting of the last four digits of their social security number and the last four digits of their phone number. These numbers should be logged at the receptionist's desk.

• In the case of people attempting to gain entry to a station after hours, a simple code word or phrase will separate people who should and shouldn't be buzzed in. Example: (name) on a (current day) i.e., "Ken on a Monday."

— Ken R.

Prepare Your Staff for Disasters

There are precautions stations take routinely such as testing back-up generators and maintaining door locks and security lights around transmitter and studio facilities. In these unusual times, broadcasters might wish to prepare for station evacuation, too.

Al Kenyon and Gary Kline also offered tips for managing in extreme emergencies such as acts of God and terrorist attacks.

• Establish a primary and secondary meeting point away from the station in case of evacuation. Make sure all employees know these locations.

• A current list of employees' cell phone, personal e-mail address, home address and home phone should be printed out weekly from a station database for top managers. Only top managers should carry this list at all times.

• The control rooms should have the following phone numbers posted at all times: all local sheriffs, fire department, FAA for tower light problems and home and cell phone numbers for key personnel only.

• Provide extra training for operators who will be at the station in off-hours to read remote equipment.

• Obvious flashing lights should show at a glance conditions such as doors open, smoke, loss of air signals, etc.

• Panic buttons can be tied into station alarm system for operators in the control room or other key areas of the station. The button can automatically send a prerecorded phone message to "911" and key station personnel.

• Test your automatic dial-out equipment *now* at the transmitter to be sure that it is calling the current list of emergency people. Events that should trigger calls include power failure, the presence of water, plate current surges, severe or sudden temperature changes, unauthorized entry and problems with nitrogen pressure sensors.

— Ken R.

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How to Play the Big Prize Game

Scott Fybush

It came out of nowhere, just a year ago: Radio stations all over the country suddenly offered their listeners million-dollar cash prizes, while competitors were trying to win listeners with giveaways where $10,000 seemed like a big prize.

Behemoth link

The common thread that linked those big-money contests was easy to spot: a common owner, Clear Channel, with the resources to run a contest across multiple stations in dozens of markets at once.

"I had some very disgruntled clients," said Don Hallett of The Positioning Works, a radio consultant firm. "They got clobbered by Clear Channel in their markets and asked me, 'What can we do?'"

Some answers to that question — and to the overall trend of "collective contesting" that began with Clear Channel and later spread to Infinity — came during a panel at The NAB Radio Show in New Orleans, which took place before the Sept. 11 terrorist attacks.

For Hallett, the question was best answered with another question: "Why can't these things cross ownerships?" he asked. "Why can't mom-and-pops and groups of 20 or 30 radio stations get into these things?"

As a result, Hallett's firm is launching what he calls "America's first independent collective contesting initiative," an attempt to bring smaller stations together to be able to challenge the big groups' sheer size advantages.

Not for everyone

Not everyone's a fan of collective contesting, though.

"When the audience has to dial '1-800' to get through to the radio station contest ... they know they're not calling the local radio station," said Jim Leven, former owner of Pilot Communications.

Leven compared the collective contests to the multi-state Powerball lottery games

See CONTESTS, page 25 ▶

Closings

▶ Continued from page 19

that 70 percent of Vermont stations had access and several more were planning to soon.

With the excellent help of WCAX staff engineer Carl Dow, the project really got going. I provided the information to Carl that we had gathered at that point and he investigated additional software that would best suit our needs. The VAB purchased an NT server and a Broadcast Software Solutions "SchoolTouch" system for $19,000.

Carl Dow and others at WCAX set up and maintain the database, server and the T-1 line. The telephone input card, purchased with the software, provides four inputs for toll-free call lines that allow up to four school administrators to access the server simultaneously.

Each school administrator is assigned a touch-tone passcode for his/her school and/or district to access the password-protected school-closings page. When they enter their proper passcode, they are voice-prompted to choose one of the following school status reports: close or delay opening one hour, 90 minutes or two hours.

If a delayed opening turns into a closing, the school administrator can change status by placing a second call to the toll-free number.

We program the software to automatically "re-open" all schools on the notification list at 11:00 each morning. The site is available to all VAB member and non-member radio and TV stations to disseminate to the general public.

The software uploads the closed and/or delayed schools' reports to the Internet every 45 seconds. Verification for the stations are maintained by the screen display of the correct time and date and is online continuously. If there are no closings or delays, the Web site also reports that.

The server automatically sends scroll video to WCAX on-air feed. All closings and/or delays are sorted by state and county. Radio stations have the ability to "freeze" their CRT screens (from the 45-second update) if they wish to read the information directly from the CRT while on the air. All printouts are automatically time stamped from the VAB header page.

Success

We have completed our third year with the Internet system for school closings, with an expanded list that now includes private schools, New Hampshire and New York schools and large daycare centers as well as the Vermont public schools.

Each fall, the VAB mails a request to all broadcasters to send in the name and address of any additional school (from border states) that it serves, so we can include them.

A second letter from the VAB is sent to every school or district to explain our service to the school and/or district administrator. Due to turnover of school personnel, a follow-up letter is sent each fall to schools in our database to remind them of our service and ask if they had any questions.

Reach Snyder in Vermont at (802) 658-1230 or via e-mail to DSnyder@hallradioVT.com.

"Feature-rich and flexible"

Steve Runck of the Northwestern Radio Group has a lot to say about BSI's digital automation

August 22, 2001

When we started down the road with BSI's digital automation in 1996, our immediate need was for a good satellite controller. We also had been fighting to keep an old analog automation system on the air on our AM station. Today we use BSI's automation not only as a satellite controller, but also as our FM automation system.

We also use BSI's software to automate our AM schedule, including music on hard drive. We use a third system for satellite store-and-forward duties. The import routines make it a snap to integrate music and spots from your scheduling software with your BSI logs, and the voice-track editor's drag-and-drop capabilities make having a great hosted sound so easy that any jock will be able to quickly learn it.

The really great part about BSI's digital automation is that you can design as simple or complex of a system as you need in an economical, non-proprietary software and hardware environment. BSI's automation is so feature-rich and flexible that we will never run out of new possibilities for implementing our broadcasting mission. And if you really need a feature that's not already there, chances are good the BSI team will respond to that need in a future release. Where we started with a single PC running BSI's digital automation, the Northwestern Radio Group now employs approximately 17 automation programs at our stations in the Upper Midwest and Florida. KFNW is now down to 12-hour days for manned operation, and our staff is finding more time to be creative, both in the production room and out in the community.

We always like to think we will never need tech support, but I've always been thankful for BSI's 24/7 commitment to us when we DO have a problem. I've even gotten some of those poor guys out of bed in the middle of the night, and they've always gotten us back up and running within a reasonable amount of time. They've even helped us when the problem was hardware-related, and not software.

Yes, we like BSI's digital automation too!

Steve Runck
Staff Engineer
KFNW AM-FM, Fargo, ND

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Contests

▶ Continued from page 22

that draw headlines for their enormous jackpots.

"You have to be nuts to think you really have a chance to win those things," he said.

In Syracuse, N.Y., Pilot's stations, including WNTQ(FM), gave away small prizes such as $100 cash and free dinners. It may not sound like much, especially compared to the million-dollar prizes collective contesting made possible across town at WNTQ's competitor, Clear Channel-owned WWHT(FM), but Leven said that his contests had an advantage over the big guys.

Many vs. few

"A lot of people won," he said.

"People want to know their neighbors are winning and that they have a chance to win," Leven said, emphasizing the importance of promoting the local ties of his stations' winners.

"(WNTQ) brought its 'boom box' out to the streets of the winners," he said, referring to the station's remote vehicle. "We weren't just some big corporation handing out millions of dollars in cash."

That local focus extended to on-air promotions that reminded listeners that the winners they heard on WWHT were in places far distant from Syracuse, N.Y.

"When someone else is giving away a million dollars and you've got dinner coupons," Leven said, "this is war and you've got to win."

There's a way stations can offer listeners big prizes without collective contesting, according to Henry Ferry, vice president of American Media.

His company works with stations to create "insured contests"in which huge prizes are offered by creating contests that are difficult to win.

"What better way to say, 'We're offering a million dollars in *this market*'?" Ferry said.

> **When someone else is giving away a million dollars and you've got dinner coupons, this is war and you've got to win.**
>
> — Jim Leven

But for station managers suddenly conjuring up a vision of the old "WKRP" episode in which Johnny Fever created a contest specifically designed not to be won, only to end up with a winner anyway, never fear: The key word here is "insured."

By paying a relatively small insurance premium, the risk of having to pay out a winner ends up with companies like American Media instead of the station itself.

And with a clever sales department, Ferry said, stations can avoid even the cost of the premium.

Gifts for all

As an example, he offers a recent contest at KIIS(FM) in Los Angeles in which a casino picked up the cost of the premium in exchange for co-promoting the contest.

Even if nobody wins the big prize, Ferry said it's important for stations to make sure listeners don't walk away empty-handed.

When his company creates "moneybags" contests for stations, in which a listener has to choose which of several bags contains a big cash prize, Ferry advises stations to make sure every bag has at least a small prize instead of being empty.

"Before you dive into contesting," warned Tony Quin, president of the consulting firm IQ Television Group, "every radio station has to ask, 'Why are we doing this?'"

Quin said his research shows only 4 percent of radio listeners actually play contests, while the other 96 percent sit back and listen. On the other hand, he said, "those 4 percent tend to be the same sort of people who fill out diaries."

Quin said too many stations run contests that fail to grab the attention of their listeners in a memorable way.

Henry Ferry

"People get it today," he said. "They understand that you're buying their participation."

Simply offering lots of money may not be the answer, especially when rival stations keep upping the ante.

"They sort of cancel each other out and nobody wins," Quin said.

Grabbing an audience's attention doesn't have to be expensive, he said, citing one radio station's offer to pay $1 million to any listener whose house was hit by the space station Mir when it fell from orbit last year.

"That was a great example of a prize that captures people's imaginations," he said.

Net, Satellite, Rock Shake Radio

Ken R.

Is satellite radio a threat to terrestrial broadcasters? If so, is there anything that traditional radio can do to improve its chances in the new world of broadcasting that includes not only satellite radio, but also wireless handheld devices, new, multi-band in-car receivers and Internet radio ?

And what about "radio sucks!" — the youth audience's succinct opinion that has been cited in many recent studies. What should radio do now to build the audience of the future?

These issues were discussed among a panel of well-known radio consultants at The NAB Radio Show. RW was there – here's what was said.

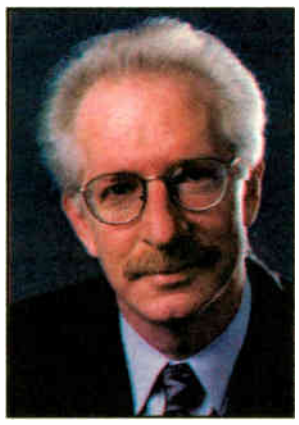
Birds fly, radio sighs

Rusty Walker, president of Rusty Walker Programming Consultants, said the business models of the two major satellite services (XM and Sirius) require 5 million subscribers each to reach critical mass.

"Each of those services will have over 100 channels so the listener numbers may be small in each market, but these companies can be successful nationally with small audiences in each town," Walker said.

Fred Jacobs, president of Jacobs Media, said no one has really heard satellite radio work yet and many questions remain, such as whether they will need terrestrial repeaters to reach their audience.

"It's just like it was when cable threatened television," McVay said. "Satellite won't be a flash in the pan, but it will take a while to become a big success."



Fred Jacobs

Mike McVay

Randy Lane

Warren Kurtzman, vice president of Coleman, said that with the exception of test markets Dallas and San Diego, no measurement of consumer demand has been charted.

"It's all still very premature," Kurtzman said.

Mike McVay, president of McVay Media, said satellite radio might pose a long-term threat, "but that it would be way down the road."

Larry Rosin, president of Edison Media Research, said satellite radio is initially being marketed to drivers.

One standing

"But in-car listening is only about one-third of the overall ratings," Rosin said. "Don't be surprised if there is a shakeout and only one of the satellite companies remains."

Guy Zapoleon, president of Zapoleon Media Strategies, said top-40 stations are having a tough time trying to keep their formats cohesive with harder rock, hip hop and pop elements pulling in different directions.

"I think that rock is coming back like it did in the early 1990s and rhythmic crossover will be a big explosion," said Zapoleon.

And probably, this trend will see a drop-off in alternative rock, Jacobs predicts.

"Grunge is now 11 years old," Jacobs said. "And it's largely incompatible with the more extreme music and the rap. The formats are spreading apart, but classic rock appears to be just fine."

Walker, who specializes in consulting country stations, said reports of the death of that format are premature.

"Where is country right now? It's like Chicken Little running around saying the sky is falling. But we've already bottomed out and now there are some great new, original artists coming up," Walker said. "There is less 'cookie-cutter' music coming out of Nashville (Tenn.)."

Walker described the country format as the only one that has not fragmented into many sub-formats.

"Country is still country," Walker said.

Tracking down talent

The group discussion turned to air talent and the recent trend toward voice tracking shows which air in many markets.

"At first I resented voice tracking," said Randy Lane, president of The Randy Lane Co. "But now I see that using a combination of local and regional voices has merit."

Lane said a majority of radio stations now track their overnight hours, which saves money, but eliminates a time slot in which new talent can blossom.

McVay said many of those desiring to become announcers are looking toward the Internet for those first lucky breaks.

Satellite radio may pose a long-term threat, but that's way down the road.

— Mike McVay

"I was talking with the manager of a broadcast school recently who believed that the Internet is the only place for experimentation," Lane said.

Ken R. is a former broadcaster who likes the oldies format but wonders if anyone will be humming tunes by Snoop Dogg in 30 years.

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This super affordable rack mount CD player is the latest in Gemini's pitch control models with up to a 12% pitch control with pitch bend. Besides the cool play functions, the CDX-601 makes use of Gemini's Auto Disc Calibration System (ADCS) to recalibrate the CDX-601's laser to each new CD you play. **Features:** multi-speed jog wheel search; instant start; digital output.

Gemini CDX601 List $319.95 ONLY $199.95

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M5 ONLY $99.00 ea.

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Before you dismiss this mixer as a $99.00 toy ..wait up. We've never been more impressed with a quality mixer that at $300.00 or $400.00 would be a bargain. This 3-channel mixer (4 mono and 2 stereo) is ideal for applications that demand quick mixing in a limited space. **Features:** 4 mic preamps with phantom power; 3-band EQ; 2 AUX sends; 2 stereo AUX returns; durable steel casing.

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ARP Comes Full Circle
See Page 32

Radio World — Resource for Radio On-Air, Production and Recording — November 21, 2001

How to Survive the Audition

Travis

Years ago, when I was still working in radio, long before I had considered getting into voiceover, I accidentally got my first voiceover job, narrating an industrial film. The film's producer already knew me and had heard me on the radio; he liked what he heard on the air, so no audition was necessary.

That is one of the benefits of working on the air. You get quite a few voiceover jobs without ever having to audition; someone hears you on the air and contacts you.

If, however, you start to work toward doing voiceover work full time, you need to learn how to audition for parts without driving yourself crazy.

Dreaded auditions

For many announcers and voice actors, having to audition for jobs is the worst aspect of the business. That's understandable, because most of the time when you audition, you are going to be rejected ... and no reasonably sane person likes rejection.

In Hollywood, unless you are a well-known star, you will get most of your jobs through auditions. Although you will get a few jobs off your demo tape or CD, most of the time a producer will want to hear what you sound like on their particular material.

They will record a spot or a section of a narration and listen to see if you are the best person for that project. You also will be compared with between five and a 150 other people who auditioned for the exact same job.

Smaller markets and projects with lower production budgets usually require less auditioning. Auditions are expensive, both for the talent and the production company. Someone needs to set up the auditions, listen to all of them and make a determination.

As this costs a considerable amount of time and money, companies working on projects with lower production budgets often will hire talent with whom they have already worked. Another way companies save money on auditions is to simply hire talent from material sent in on demo tapes or CDs.

When a project has a large budget, however, the production company will leave as little to chance as possible.

The production company will do whatever it takes to get the most appropriate talent for their project. With so much at stake, what is presented at the audition has increased importance. Other factors, such as your relationship with the producer, will be less important than they would be otherwise.

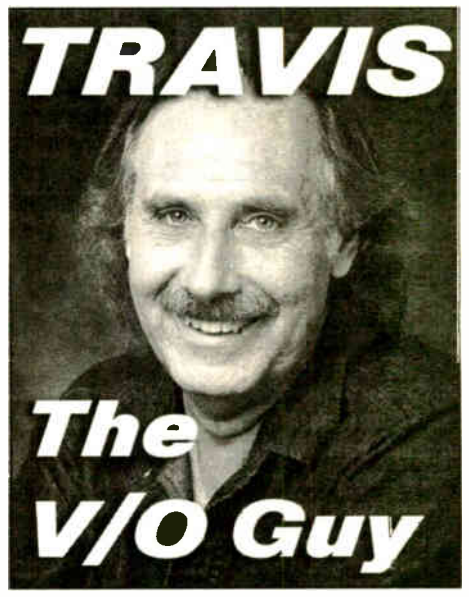
If you are in the voice-talent business and you audition frequently, the important thing is to find a way to avoid being driven crazy by the constant rejection. Here are a few things to remember:

Be gentle ...

The first time you audition, no matter the odds— even if there are a thousand others vying for the part — you will wait by the telephone for an answer. And you will be *crushed* when you find out that you didn't get the part.

It seems that it is best just to let this happen. Don't feel stupid, this has happened to me and just about everyone else I know who works in the talent business.

Remember — *everyone* hates the audition process, not just you. The talent, the casting director, the producers, even the recording engineer. If you go to an audition and everyone seems in a bad mood, that's normal.



Sometimes you will go to the audition and it will seem that you are being completely ignored. I have been on plenty of auditions where everyone else was on the telephone while I was trying to read for my part. On several of these,

See TRAVIS, page 32 ▶

PRODUCT EVALUATION

Fanfare Tuner Is Useful for Radio

Don Scott

Quality FM tuners suitable for both broadcast and professional use are nearly as extinct as full-time engineers. Equally scarce are the high-performance consumer products of the 1970s — McIntosh, Accuphase, Sansui and Harman-Kardon to mention a few — that were adaptable for more critical applications.

These tuners were remarkably sensitive and often had sufficient audio finesse to serve as air monitors.

There remains a demand for high-end receivers for recording purposes and for translator use that provide accurate air monitoring by the management of multistation operations.

One such product is the Fanfare FT-1A, an FM tuner/monitor.

The FT-1A has several professional broadcast features, including three sets of audio outputs, both low- and high-level RCA unbalanced audio jacks and balanced XLR connectors.

On the back panel is a BNC connector with an associated level control for composite output. This provides direct connection to translator exciters, modulation monitors or other off-air measuring devices. A fused IEC power connector also is included.

See FANFARE, page 36 ▶

General Al: 'I Shall Return'

Alan R. Peterson

As I write this, I am sequestered in a small, misshapen room in an Arlington, Va., office building, about two miles from the battered-but-not-beaten Pentagon.

To the left of me is a Colorado Digital virtual console on a touchscreen. To my right, another touchscreen is running the Enco DADpro32 digital audio management system. An unused E-V RE-20 mic dangles in front of me.

Welcome to WBTK

Except for an older SAS router and a couple of studio components, there is little else in here.

Welcome to WBTK(AM), Richmond, Va., Salem Communications' new voice of religious radio in the capital city of the Commonwealth of Virginia.

I have been tapped to observe and note conditions of the digital playback system for a couple of weeks. A station management team is writing and refining automation programming details to make the system fly on its own for the particular demands of WBTK.

I cannot help but grin when I think how my presence here in this 8-by-8-foot, slightly trapezoidal booth completes a very large circle of events, predestined by my own design a good 15 years prior. However, the result is totally not what I had expected.

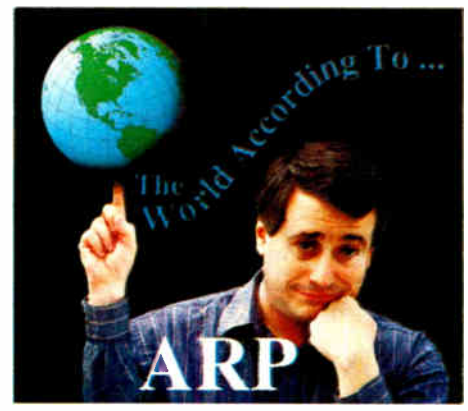
Back in 1986, I bought a house in western Massachusetts. Unfortunately, it was shortly after that when it dawned on me that I did not want to begin and end my career up in the mountains of New England.

For some folks, nothing could be finer, and I left behind many friends who call that picturesque region home to this day.

It was clear Gen. Grant and I had much in common: Richmond didn't want me around either.

But I had higher aspirations, including an eventual return to the New York metro area where I was raised.

Let me tell you, it is a bad sign to want to move out-of-market mere months after buying a house. Laying down those big bucks usually meant a degree of permanency was part of the equation. But I wasn't fulfilled in my job and began to



explore other medium- to large-sized cities where I could continue to hone my craft and perhaps branch into TV.

In-laws in Phoenix told me to stay away, that the traffic was ridiculous and you could see the smog, sitting over the city like a big brown bowl, from 20 miles away.

Exploring options

Dayton, Ohio, was closer, but still farther away than I wanted to be from my family. Buffalo, N.Y., had some great stations, but was snowier than where I already was.

Hartford, Conn., flat-out didn't want me, da bums ...

I began to explore some cities where Park Communications owned properties. I got to know the company by way of friends in Syracuse, N.Y., where Park owned WHEN(AM) and WRHP(FM), and noticed it also owned radio and TV operations in other cities, including Knoxville, Tenn., and Richmond, Va.

Richmond ... hmm ...

See ARP, page 34 ▶

Travis

▶ Continued from page 31

I have gotten the job! How, I cannot figure out, because it sure did not seem like anybody was listening.

After you've been through a few hundred auditions, you will finally realize that there is no way to tell whether you got the job based on how you feel after the audition. You will get hired for just as many jobs where you felt you were really awful as you will when felt you did a really great job.

There's one exception to this rule, however: Every once in awhile (like once every decade) you will simply know that you have the part before you read the script — before you even know what the job is.

You will walk up to the audition trying to shake the feeling that you already have the part. There may be a thousand others vying for that part, but you will already know you have it. You will simply do the audition and you'll get the part.

Later on at other auditions you will try to recreate that feeling and convince yourself that you have the part, but that won't work. Whatever this is, it is totally out of your control. I have no explanation for this phenomenon, but I have experienced it and I know many others who have as well.

When you do not get a part, it is simply because someone else was better-suited to the role. Their voice may have been higher or lower, older or younger, smoother or rougher. Perhaps the person who got the part had a voice that was more familiar to the audience — or less familiar to the audience.

The person who got the part might have had some quality that reminded the client of his Great Aunt Hilda. Maybe the person who got the part *is* the client's Great Aunt Hilda!

No good reason

The point here is that there are literally thousands of reasons why you might be more- or less-suitable for a part than someone else. Most of these reasons have nothing to do with your talent, or what you did at the audition.

Auditioning for jobs is the worst aspect of the business — most of the time, you are going to be rejected, and no reasonably sane person likes rejection.

If you want to beat yourself up for not getting a particular job, you have every right to do that, but it won't do much good.

Producers generally only call you if you get a part, they will not call if you don't. People don't like to give other people bad news, and it is an accepted practice in the industry to only call talent when they get a part. So they usually won't contact you to give you their condolences.

It is also considered bad form to contact the producers to ask why you didn't get a part. The best thing to do is let it go and move on to the next audition, whenever that may be.

Eventually, after you have been rejected enough times, the rejection won't be a problem for you. I have finally gotten to the point where, when I have an audition, I truly enjoy the audition itself, possibly a bit more than the job, should I get it. It would be really great if they paid you for auditions.

I will perform the audition, and usually have a great time doing it, then not even think about it afterward. It took me a few years of auditions to get to this point. And when I get a gig from an audition, it is neither expected nor a surprise — it is just a nice thing that happens once in awhile.

Travis can be reached via e-mail to Travis@voice-guy.com.

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ARP

▶ Continued from page 32

The name of the city carried some baggage of its own with me.

As a very young child in New York, I remember Richmond Brothers Hardware Store across the street from where my father worked. I also remember being deeply moved by seeing said store in ruins one winter morning following an overnight fire.

Richmond Hill, N.Y., was the site of a train disaster on the Long Island railroad some 50 years ago. And of course, Richmond, Va., was itself plagued by conflagrations in 1787 and 1865.

Historically speaking, however, Richmond was infinitely fascinating. The capital of the Confederacy. Saint John's Church, where Patrick Henry declared, "Give me liberty or give me death!" Arthur Ashe, Captain John Smith and Edgar Allen Poe.

Many claims to fame

Actor-siblings Warren Beatty and Shirley MacLaine were born there. And any radio station employee who has ever used a paper towel already knows the name "James River" (often a brand name on towel dispensers).

Adding to that was that the small town of Richmond Furnace, Mass. — just up the road from where I once lived — was as picturesque a community as I had ever photographed.

The plusses of the name "Richmond" began to outweigh the negatives with which I had unfairly saddled it. I felt lucky and contacted the Richmond Chamber of Commerce for some promotional material.

What came to me was a view of a charming medium-sized city where houses were affordable, where names like Midlothian and Chickahominy held sway, where late actor/pitchman Jim Varney hawked dairy products from billboards, and the radio-TV market was ripe for my triumphant arrival (yeah, right).

My first wife and I combined our planned vacation to Busch Gardens in Williamsburg with a job go-see and made plans to visit Richmond.

What was going to complicate our journey was my then-wife's broken leg, sealed in a cast following a rough-and-tumble women's softball game a few weeks prior. Rather than get stuck in the hotel room for half a week while I hit the bricks, she decided to tag along with me on all my go-sees.

I was hoping the sympathy angle would help when she and I visited stations: "Please hire me ... Tiny Tim needs the operation."

So we caught a flight to Richmond and off we went!

In 1986, the stations making the biggest noise were the team of WRVA(AM) and WRVQ(FM). That was my first stop. At the time, the stations were at the top of a prominent hill in Richmond, overlooking everything.

Photo: Richmond Metropolitan Convention & Visitors Bureau

Scene of the Crime: Richmond, Va.

The morning team of Alden Aaroe and Tim Timberlake was highly visible in the market. For me, the attraction was due to an old photo I had at home of late guitarist Chet Atkins as a young man, gathered with the WRVA house band around a microphone stand. Chet was my guitar hero then (and now), and to work the same airwaves he did would have been pretty sweet.

I believe the program director at the time was a man named Garry King, who welcomed my limping wife and myself into his office. We talked for a while, he gave us the facility tour, happily accepted a demo reel from me and bid us both well for our vacation.

I never heard from him again.

Next stop was a drive over to Basie Road to visit WRNL(AM) and WRXL(FM). Although I called ahead to the PD to say I was in town and would like to have a chat, the receptionist ran interference for him and had me simply fill out an application.

Although I enjoyed listening to the Richmond Braves and Syracuse Chiefs play baseball that evening on WRNL, the prospect was another dead end.

I hit a couple of television properties as well, with the intent of leveraging my radio skills into some part-time TV work.

My travels took me to "The South's First Television Station," WTVR, which also sported a co-owned FM and AM combo in a townhouse office complex behind the TV tower.

What I found out upon entering was that this was a Park Communications property — the very station and corporation that piqued my interest in Richmond in the first place! I felt a surge of encouragement; maybe this was where I was meant to be.

That is, until I caught sight of the facilities.

The FM side was running an automation rig that, even by 1986 standards, was pretty beat up. It was noisy, unstable and had mistracked twice in the 20 minutes I was there. File boxes and "temporary" cables were everywhere, and the place had the unmistakable smell of burnt transformers and old cigarette smoke.

As I later found out once I ended up in Syracuse myself, the Park organization tended to run things a little on the lean side. WTVR radio was no exception in 1986.

With a pile of handshakes and little else to commemorate my trip to Richmond, we took off to Williamsburg to get on with our vacation. One plus to having a cast on your leg: the ride technicians at Busch Gardens move you right up to the front of the line.

After a few phone calls over the following months, it was clear Gen. Grant and I had much in common: Richmond didn't want *me* around either.

Now, some 15 years later, I am in Washington.

All in the family

My new wife is also my Radio World editor, and one of my free-lance endeavors is helping out in whatever capacity I can for the Salem Communications stations based here — WAVA(FM), WITH(AM) and WABS(AM), along with three channels on the XM birds.

In May 2001, Salem purchased WBTK(AM), 1380 kHz, Richmond, and is now airing contemporary Christian talk and music on the station, originating inside my little booth in Arlington and being ISDN'd down to the capital city.

Here is where destiny is playing out its little joke on me. WBTK is the former WTVR(AM).

The station ended up variously with Cox and Clear Channel following the Park Communications selloff. The new calls WBTK were applied, and a few of us were put in place to observe the behavior of the automation rig, reporting back to the programmers for refinement.

Remember, Park information is what got me on the plane to Richmond in the first place. The sole station I *didn't* feel comfortable with was the one that the Park organization ran: the former WTVR. Now for about seven hours a day, I am at the helm of the station I *didn't* want to be at, in the city that I *did* want to be in.

I may not actually be in Richmond metro in person, much less crack a mic and say a single word, but after 15 years, I can say with some amusement that I finally worked Richmond, and on the former Park station that drew my attention there in the first place.

I always wondered when I'd get around to it.

Alan has a message for the former WRVA PD: "Hey Garry! Look! I'm in Radio World now! You coulda had all dis, babe, but no-o-o!"

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NEUTRIK CONNECTING THE WORLD

Fanfare

▶ Continued from page 31

As on many FM receivers, storing a preset is achieved by tuning the desired station and holding in one of the eight selected presets until the word "set" appears in the aqua blue display.

Manual tuning speed increases in 500-kHz increments after holding Manual Tune Control up or down for a few seconds. The auto-scan threshold stops only for stations exhibiting 50 dB quieting or better. The quickest method to tune in a new station, if it is below the 50 dB quieting level, is to select Scan, let the tuner get close to the desired station and then touch the Tune Up or Down to fine-tune the station.

Two IF bandwidths and a five-segment signal meter are provided. The remote control included duplicates front-panel functions.

The circuitry in the FT-1A is basic technology: It uses a four-gang front end, three ceramic IF filters, quadrature detector, conventional stereo decoding, and surface-mount techniques.

Most circuit traces are small, which aid the tuner in rejection of out-of-band signals and extraneous noises. The low-level RCA audio outputs are capacitor-coupled; the high-level and balanced audio connections are direct-coupled.

A buffer stage isolates the composite output from the IF strip. The enclosure and parts are of good quality and the unit has a three-year limited warranty.

It would be difficult to build a high-gain, narrow-band tuner and obtain a better capture ratio than that of the Fanfare.

The tuner features a sliding high-blend circuit to lessen stereo noise. The purpose of a high-blend circuit is to diminish weak-signal stereo noise and still preserve as much stereo separation as possible. Blend is adjustable by an internal potentiometer.

The quirk with the Fanfare's blend circuit is that when it is set to affect noise on weaker stations, it rolls off treble response in both stereo and mono.

If a station is too weak to be listened to in stereo, a push of the mono button should bring relief, not muffled highs.

Precise preservation

I understand why this is done in automotive environments. In a car, the absence of noise generally is preferable to the ultimate preservation of fidelity. However, in professional use, precise preservation is preferred.

In addition, the car-radio style blend is a gradual blend toward mono as signal strength decreases. I have found that moderate signals, or those slightly less than optimum, can be noisy as well due to on-channel interference, requiring a fixed mild blend to take the edge off the slight noise present, regardless of signal strength. A

See FANFARE page 37 ▶

Fanfare FT-1A
FM Tuner

Thumbs Up
- ✓ Three sets of outputs plus composite
- ✓ Good enough for critical listening of own FM signal and competitors

Thumbs Down
- ✓ Not intended for use as a diagnostic or calibration device
- ✓ Price may send frugal broadcasters elsewhere

Price: $1,400

For more information contact Fanfare Electronics in New York at (716) 683-5451, fax (716) 683-5421 or visit the company Web site at *www.fanfare.com.*

AES Makes Standards Available for Free Download

Recognizing that Audio Engineering Society standards should be more readily available to engineers, standards and information documents now are available for downloading at no cost.

John Nunn, chair of the AES Standards Committee, said this new service will be particularly helpful to small companies and consultants with budgetary constraints, or those who are not entirely certain that what they are purchasing is relevant to their needs.

Standards will continue to be made available for purchase from Global Engineering Documents in paper and CD-ROM forms. In the works is the ability to include links to other AES standards and to the references contained within the standards, which will be helpful to standards users.

For more information call the Audio Engineering Society at (212) 661-8528, e-mail aes_standards@aes.org *or visit* www.aes.org.

Fanfare

▶ Continued from page 36

sliding blend (as used by Fanfare), dictated by signal strength, does not address these noisy situations.

On the positive side, it is possible under the right conditions — slightly weak signals that have constant signal strength — the internal blend in the FT-1A can be adjusted to effectively reduce noise without losing too much stereo or high-frequency content.

Creative station engineers often employ a spouse's car radio as an impartial monitor to check a station's audio quality. So, maybe there is some merit to Fanfare designing a 110-V product using similar circuitry?

To answer that question, here are the results of testing these important parameters: sensitivity, adjacent-channel selectivity, capture ratio, SCA suppression and overall sound quality.

Sensitivity: Mono 30 dB quieting occurs slightly above the specified 10.5 dBf/0.92 uV at 11.10 dBf/0.98 uV, still a fairly good figure. In stereo, the manufacturer claims 11.50 dBf/1.03 uV for 30 dB quieting. (*Ed note: Fanfare prefers the term "useable sensitivity," which it has determined to be between 20 and 30 dB.)*

Sensitivity not a problem

The overall evaluation is that the tuner is 10 percent shy of its sensitivity claims, but this is not a serious problem unless all out sensitivity is needed, for instance, in a translator application.

Adjacent-channel selectivity is the most critical parameter in any tuner due to the thousands of signals in North America. If a weak station needs to be received clearly next to a much stronger signal, adjacent-channel selectivity in the order of 40 dB accompanied by low distortion is needed, otherwise splatter will occur. The Fanfare claim of 25 dB was nearly met at 102.1 MHz vs.102.3 MHz.

Tuning each side of these frequencies, adjacent-channel selectivity dropped to a low of 10 dB at 88.3 MHz vs. 88.5 MHz and was at about 15 dB at the upper end of the dial. Note the Fanfare does have adequate selectivity for most applications.

Capture ratio is an important characteristic, especially when on-channel interference is a problem. The manufacturer's claim of 1.5 dB was correct in wide and only slightly less in narrow, satisfactory and typical of a quality tuner. From what I understand, a capture ratio of 1.5 dB means it takes +94.38 percent, or nearly twice the desired signal, to obtain 30 dB down of the lesser signal.

A capture ratio of 2 dB would require +200.35 percent, or nearly three times the original signal for the 30 dB down as a capture ratio of 1 dB. Going the other direction, a capture ratio of 0.05 dB would be three times as good as a capture ratio of 1 dB.

It would be difficult to build a high-gain, narrow-band tuner and still obtain a better capture ratio than that of the Fanfare, and I encountered no unusual problems with the tuner rejecting on-channel stations. In comparison, the reference Kenwood unit's capture ratio is 0.08 dB in wide, 1 dB in normal and 1.70 dB in narrow.

SCA suppression: The -70 dB figure claimed was met. There was only slight birdie residue from RDS artifacts on classical stations with low, masking modulation.

I listened to this tuner through all three of its audio outputs and was not thrilled by the audio quality of what I heard from the low- and high-level outputs because, while fairly clean, dynamic punch was not revealed.

I happened to catch some Irish folk music, filled with lots of foot-stomping dynamics, on Vassar College radio station WVKR(FM) in Poughkeepsie, N.Y.

I switched quickly between all three audio outputs: the balanced outputs running through a quality 600 ohm to 75 k-ohm matching transformer and all three outputs feed into an upgraded B&K Pro-Five preamp.

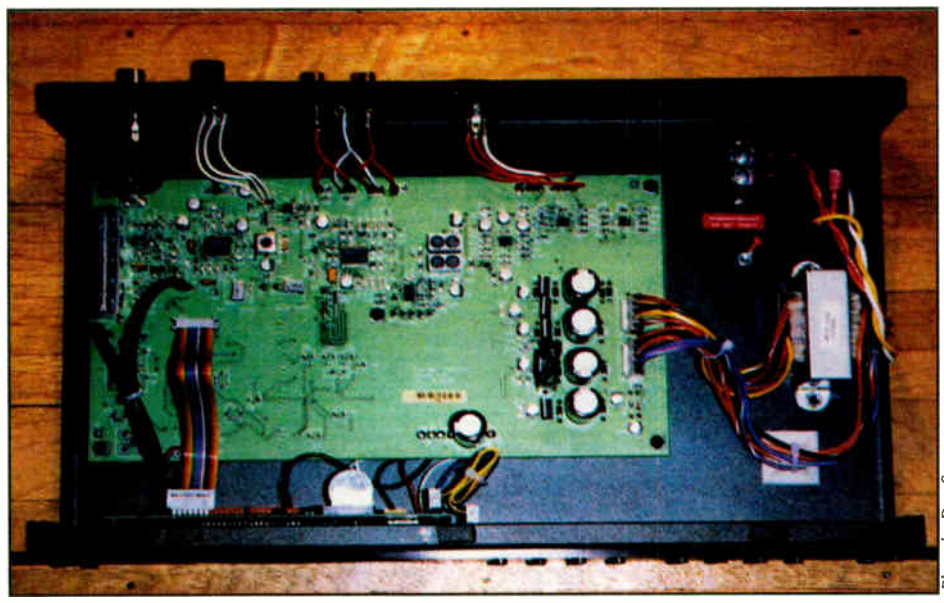

Photo by Don Scott

Interior of the Fanfare FT-1A

Bingo — prominent on the balanced outputs, the punch was there along with deeper bass and less murky treble, matching the reference Kenwood in this respect.

In another instance, I caught some reggae on WNTI(FM) in Hackettstown, N.J., and got the same results. Consequently, I recommend using the balanced outputs where possible.

Stereo separation specs of 40 dB and careful listening verified that stereo separation was nearly at what is obtainable, as long as the provisions under the blend discussion in this article were met.

There are few competitors that offer both balanced audio and composite outputs as standard features. The Fanfare can blow its trumpets at being the lowest-priced at $1,495. Factory options available for the FT-1A include AMAX AM stereo, RS-232 data I/O, Carrier Sense and control lockdown.

Few competitors

A typical setup for broadcasters might be the Inovonics tunable 530 FM modulation monitor/receiver at $2,500, advertised as a broadband receiver not intended for high adjacent-channel selectivity.

Climbing higher is the Magnum Dynalab MD-108 at $5,850, although the company does offer composite output as an option on its other tuners priced from $1,600 upward. Another upper-end domestic tuner to consider would be the Accuphase T-109V, at about $3,800.

On the low end of the stick is the Rolls RS79 AM/FM tuner with balanced audio for $380, which can serve as a utility tuner. If a tuner is needed without the added features of balanced audio or composite outputs, the Sim Audio "Moon" tuner at $2,695 has outstanding performance.

With all things considered, the Fanfare offers good performance/dollar value.

Evaluation Philosophy

Each station seems to have developed its own tonal signature, some magnificent and others horrific. Flat response in many instances has become a fudge factor for proof of performance tests.

Judging requires an FM tuner that is neutral, doesn't add its own colorations and is perhaps more accurate than the outputs of some modulation monitors themselves.

Then how does one judge the audio worthiness of a tuner?

I am dead-set against testing a tuner with only a signal generator because it does not reflect the real world. My first question to someone who believes in this method is, "Did you add two SCAs, RDS and a little multpath to your generator?"

My evaluation of the Fanfare pitted it against 10 domestic tuners on hand, with particular attention paid to an A/B comparison with a 1977-vintage Kenwood 600-T.

This particular tuner has an eight-gang tuning capacitor, three separate IF strips for each bandwidth (only the super-narrow has been modified), stereo that is second to none, a highly accurate, fast-acting modulation meter and mono and stereo sensitivity that always shouts "winner."

Its performance parameters have been verified carefully using two Motorola 2002R signal generator/monitors and a Sencore SG-80 generator.

— Don Scott

Don Scott teaches at Centenary College, Hackettstown, N.J., and is a contributing editor to The Audiophile Voice. He wrote for Stereophile for 15 years and was chief engineer of four radio stations and a broadcast sales engineer in New England and western New York.

Wheatstone

DIGITAL AUDIO NETWORK ROUTER

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- *ALL DIGITAL DOMAIN AES SWITCHING*
- *ANALOG OR DIGITAL (AES SAMPLE RATE) INPUTS*
- *BOTH ANALOG AND AES DIGITAL OUTPUTS*
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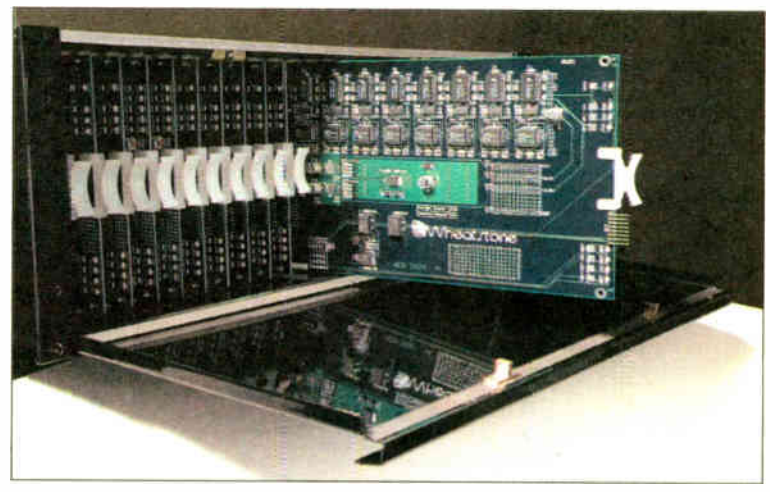
THE 2001 MAKES AUDIO NETWORKING PRACTICAL. It's simple to install, easy to learn, and certain to reduce system costs. Compact enough for small applications, yet stackable for tremendous growth potential, it's design consists of 7"rackmount digital routing cages, each capable of handling 512 simultaneous audio channels on its backplane.

Units can be stacked to suit particular card complements (analog or digital input and output cards or optical network cards) but more significantly cages can be separated by great distances and network their audio through either bidirectional fiberoptic links or a single CAT-5 wire. **ONE INTERCONNECT DOES IT ALL:** 64 channels of simultaneous bidirectional digital audio, intercage communication, X-Y controller commands plus auxiliary RS-232 data streams. This single interconnect between your studio and central rackroom can save you tens if not hundreds of thousands of feet of wire in a typical installation.

The 2001's graphic based setup software is intuitive and easy to use, with all the authorization and security levels you could want. And of course we have a full complement of control panels and PC applications to choose from—all designed for straightforward operation and a rapid learning curve.

With 25 years of experience, Wheatstone has the infrastructure in place to help you build your OWN infrastructure. Contact us for answers.



MIXED SIGNAL SWITCHING is easily accomplished with a choice of AES digital or ANALOG 24-bit A>D input cards, and of course 24-bit digital or 24-bit D>A ANALOG output cards, all of which can be serviced from the front of the cage. All signals are routed entirely in the digital domain.

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USER REPORT

Bonneville Uses Audemat for Analysis

by Talmage Ball
Director of Engineering
Bonneville International Corp.

SALT LAKE CITY In March 2000 Bonneville International Corp. made an investment toward enhancing our ability to improve our services in the commercial broadcast and media communications business. We purchased an **Audemat** FM-MC3.2 with GoldenEar software.

The FM-MC3.2 is a mobile RF field-strength meter that automatically can measure 99 stations simultaneously. The software performs base-band analysis and audio and modulation analysis of individual stations. It gave us the capability to measure a specific parameter of many stations in our target area and to measure multiple parameters of an individual station, including composite signal, pilot, RF, RDS, left channel, right channel, L+R, L-R and multipath.

Investing in the future

We made this investment for a few reasons. Our overall goal was to attain a record of what the contours of our stations looked like. We wanted to archive this information so we could compare signals and go back and check them from time to time.

We also had a few antennas that we considered to be suspect and wanted to take a look at them, make some adjustments and then look at them again. The Audemat equipment allowed us to do this.

The multipath study was interesting to observe. The machine takes the first signal and counts the number of reflections coming in and calculates a multipath percentage. We found that the multipath and interference on this station were the major causes of the problem.

We now can focus on ways to reduce these instead of wasting time on new antenna configurations.

I found this to be an interesting piece of equipment. As we drove we could watch how the signal strengths ebbed and flowed. Afterward we watched the playback. Because the audio and data were recorded, we could listen to the audio, watch the playback and analyze what high multipath and low RF, for example, did to the audio.

We analyzed modulation characteristics, including all components of the composite signal, and checked various components of the signal.

Washington, D.C. — We ran similar tests here on our transmitter, which sits on the outskirts, 23 miles from downtown. We tested along the city's beltway and in town.

Later we wanted to see how well our backup was functioning and to test our main compared to the backup. During the daytime we drove a loop around the beltway and a loop around the downtown area. Then we traced our steps with GoldenEar. We got back to the station and played one campaign over the top of the other and looked at the difference.

San Francisco — We've examined the contours of our stations in San Francisco many times. Currently we are working on a proposal to move a transmitter from one site to another to see if that would improve our signal.

We identified comparable stations in each of these areas and took readings. We drove the entire route around the Bay, down I-5 and 101, to the Oakland area and around the north end of the Bay where the stations were broadcasting. We drove down Market Street, through the financial district and over the top of Point Hill to determine which transmitting tower did the best in those areas. Then we overlaid the results and took a look at them.

With our previous FIM 71 equipment it took a day to get 25 readings, or "points." With Audemat, you can do 25 points every few minutes. You literally put the equipment in your vehicle, program in your information and drive.

That we recently did more than 900 measurements on 17 stations — more than 15,300 field-strength readings — in the Washington, area in less than four hours proves its capabilities.

Besides using the equipment to test ourselves and our competitors, we will use it in the consideration of purchasing additional stations to verify published contours. Audemat gives you real-world contours, not theoretical contours. Nothing compares to real-world figures.

More than anything else, this box tells you what a listener can hear. It's interesting to get back to the station and play the hard drive, listen to the programming on the station and visually distinguish in a graphics format what is happening.

The recorded data can be manipulated in many ways. GPS results, which display as color values, can be turned into numerical values and sorted as required. Visualization filters filter out anything over or below specific criteria. If you get a crowd of engineers in the room with you, they get excited about being able to see that, including all the components of the signal.

There is nothing on the market that can give me this kind of analysis and data. It performs to everything Audemat says it will. It meets every expectation.

For more information contact Audemat in Virginia at (866) AUDEMAT or visit www.audemat.com.

We did more than 900 measurements on 17 stations, more than 15,300 field-strength readings, in the Washington area.

Since purchasing the equipment we've run testing campaigns in our major market areas. We have acquired a wealth of information.

Chicago — In this market we share a community antenna. We were having transmission problems, more so than the other stations, so we investigated. Using the FM-MC3.2 we dialed in all the stations and ran a campaign around major interstates and various areas of complaint. This campaign documented field strength. We discovered that our signal strength was comparable to other stations on the antenna.

We then ran a campaign using GoldenEar software. We measured and recorded a number of parameters. We also got a measurement from the multipath and made some comparisons. After making a few adjustments we checked again.

USER REPORT

Belar Makes Versatile Spectrum Analyzer

by Dennis J. Martin
Chief Engineer
KZLA(FM)

LOS ANGELES Not too many years ago, Fast Fourier Transform spectrum analyzers were rather uncommon, partly because they were prohibitively expensive. In more recent times, PCs running FFT-enabled software began to open the process up to the masses.

Today, digital signal processing combined with high-speed, high-resolution A/D converters has made the analysis power of FFT for signals up to 2 MHz available at an affordable price in a dedicated unit.

FFT display

FFT may best be described as a mathematical routine that converts digital amplitude vs. time records into a display of amplitude vs. frequency, which is more useful for many applications.

That's what the new **Belar** CSA-1 FFT Spectrum Analyzer does in real time — it digitally captures, calculates and displays the amplitude vs. frequency characteristics of static and dynamic signals, from 0 Hz (DC) to 2 MHz, and over a 120-dB amplitude range.

One of the significant advantages of FFT is its resolution. In the CSA-1 amplitude can be resolved to 0.1 dB, and frequency to 1 Hz, using the audio or digital inputs, and 10 Hz for the 150 kHz and 2 MHz inputs.

The unit is controlled using 11 front-panel buttons, and the results are viewed on a large vacuum-fluorescent display. It can be controlled remotely using supplied software, which provides the added benefit of saving and printing data.

See BELAR, page 41 ▶

USER REPORT

Dorrough Uses DSP Technology

by Mike Cane
Design Engineer
Cane Research

LOS ANGELES In the new and ever-advancing world of audio technology, the audio tone generator is decidedly "low-tech" and ubiquitous. Every professional audio user should have one for establishing reference levels and performing audio path testing.

Dorrough Electronics took the basic tone generator concept and applied new digital signal processing technologies to create a more accurate tone/test source.

Dual-domain generator

The TG-10A is a dual-domain generator with outputs available in analog and digital forms simultaneously, and allows for a complement of connectors to interface with most equipment or systems. For analog the generator uses balanced XLR and unbalanced RCA connectors, and for digital, 5 V balanced XLR, 1 V BNC, 0.5 V RCA and optical outputs are provided.

An XLR digital input is available for locking the generator to an external AES bit stream, performing sample rate conversion and converting digital audio bit streams to analog.

Program pass-through connectors are provided for analog and digital. A user interface consisting of a single "radio knob" and backlit 2 x 16 plain-language display is all the user needs to access operating functions quickly.

Signal generation is performed with Direct Digital Synthesis techniques for accurate and stable output waveforms. Tone frequency resolution and accuracy is 1 Hz, and you can select any arbitrary frequency up to 0.45 of the sample rate.

Output master and offset level attenuators are provided for digital and analog outputs. Attenuator resolution and accuracy is 0.01 dB for the first 40 dB of attenuation. Stereo phase can be adjusted for all modes within one degree of accuracy. Standard digital audio sample rates from 32 to 96 k can be selected. Channel status bits for both pro and consumer modes are programmable by the user.

Burst and step tones

Burst tones are generated with the output waveform gated at zero cross for a DC-free and glitchless output. The burst ON time is programmable in a number of waveform cycles.

In the step tone mode, 12 arbitrarily chosen tone frequencies can be selected. The number of steps and step duration are programmable. Short duration steps will emulate a sweep tone and a scope trigger output is available for programming relative frequency response tests.

The TG-10A also features a data transmit function. When enabled, the TG-10A will append each step tone sequence with a data burst of up to 16 alphanumeric characters from user-entered memory. Especially useful for audio-only transmission paths, it can be used for source identification and transmitting simple messages. The data transmitted adheres to ITU V 23 FSK standards and, by utilizing a modem or obtaining destination-end demodulation/display equipment from Dorrough, the data can be captured and displayed.

A parabola output mode, where only the positive half of a sine wave is generated, is useful for checking the absolute phase of wiring or equipment. In the "overs" test mode, you can program the amplitude and number of samples in succession at a selected amplitude.

Similar to burst is the Burden mode, where the output waveform dwells at Amplitude A during Period A, and at Amplitude B during Period B. This is useful for checking a variety of equipment's output response to amplitude step changes such as power amps and audio metering.

The control functions of the TG-10A are accessed by a simple ASCII string-based protocol through an RS-232 port. The TG-10A has power-down context save which retains the current generator operating status. It also has save and recall for four additional user setups.

The TG-10A will find a home in a variety of audio test applications. It's ideal for broadcast, uplinks, remote trucks, servicing, equipment test and demonstrations, automated product tests and design labs.

For more information contact Dorrough in California at (818) 998-2824 or visit www.dorrough.com.

USER REPORT

Will-Burt Mast Meter Offers Safety

by Wayne Fick
Director of Engineering
Johnny Appleseed Broadcasting

MANSFIELD, Ohio I hold the position of director of engineering for WMFD(TV), WOHZ(TV), WVNO(FM) and WRGM(AM), where I am responsible for the operation and maintenance of the broadcast equipment at our stations. Prior to that I worked in radio as a chief engineer.

WVNO is an independent station located between Cleveland and Columbus, Ohio, and our coverage extends into both markets. WVNO supplies its listeners with adult contemporary programming. WRGM provides 24-hour sports coverage to its listeners. Both stations do numerous remote broadcasts, which keeps our remote vehicles on the road on a daily basis.

Mast safety

At our stations, we try to be proactive when it comes to giving our employees a safe working environment. **Will-Burt** contacted me in 1999 about a new product, D-Tec, an overhead power line- and object-detection system for telescoping masts.

Prior to the D-Tec System we had a product called Sigalarm, which is a power-line detector device. However, it had only one element of safety operation, while the D-Tec has four. I felt that the previous unit was not as complete a safety system as the D-Tec.

The four safety elements the D-Tec provides are a look-up light that illuminates the area directly above the telescoping mast; an AC high-voltage sensor that aides our operators in detecting overhead power lines; a sonar anti-collision sensor that will automatically stop mast extension, assisting our operators in detecting overhead power lines; and a tilt sensor to ensure that our operators have the remote vehicle level and that the D-Tec is pointing upward prior to extending the mast.

Will-Burt sold me on the D-Tec, so we drove our vehicle to their factory in Orrville, Ohio, to have it installed. We were pleased with the installation and the performance of the unit we received. It only took one day for the company to install the D-Tec system into our news van. The system has performed to the level that Will-Burt claimed it would.

If the mast comes too close, "a distance of 10 to 15 feet," to a power line or overhead object, the system stops the mast from extending, keeping the operator out of danger. To extend the mast in our vans the first thing you have to do is turn the D-Tec system on or the mast will not extend.

After you turn the system on you wait about 10 seconds for the system to check itself to make sure it is operating OK. After the system goes through its self-check to make sure there are no overhead power lines or objects or that the vehicle is level within +/-10 degrees, the system will give you a green system ready light showing that the mast is ready to be extended.

We have installed the mast's up/down control in a location that forces the operator to be outside the vehicle during mast extension so he can watch the mast extend for added safety.

Over the years Will-Burt has provided me with products that are durable, easy-to-use and reliable. The service we've received from Will-Burt has been excellent. We've had our mast overhauled with a quick turnaround of one day and the parts we've needed have always been in stock.

For more information contact Will-Burt in Ohio at (330) 684-5247 or visit the company Web site at www.willburt.com.

Belar

▶ Continued from page 39

The CSA-1 has left and right balanced (XLR) and unbalanced (BNC) analog audio inputs that accept full-scale levels of -14 to +16 dBu, and AES/EBU (XLR) and S/PDIF (RCA) digital audio inputs.

The digital inputs are usable with sample rates from 10 to 56 kHz and all bit depths, although — as theory dictates — the unit's full 120-dB amplitude range is achievable only with 20-bit signals and above.

For extended frequency range applications, the 150-kHz input (BNC) is adjustable over a full-scale range of 350 mV to 3.5 VRMS, and the 2-MHz (BNC) input accommodates 150 mV to 2.0 VRMS signal levels.

Four modes "optimize" the display for the signal you're measuring: real-time, peak hold, average and infinite hold. Real-time, as its name implies, is a near-instantaneous display of the spectrum (the display updates immediately after the FFT is calculated).

Peak hold shows "snapshots" of the spectrum, useful for rapidly varying signals. Average displays the "average" value of a specified number of FFT samples. Infinite hold captures and displays the highest level at each frequency.

Spectral mask, a unique function, overlays limit lines on-screen to simplify measurements. FM (IBOC) and AM NRSC-2 are preloaded, and eight user-defined masks can be stored in non-volatile EEPROM.

Broadcast applications

The Belar CSA-1 is versatile, covering applications from audio through IF/RF. For FM broadcast use the 150-kHz input to directly analyze composite stereo signals at the output of the stereo generator. You can examine how much energy above 53 kHz is added as the processor/stereo generator is adjusted for more aggressive operation. At the output of an analog composite STL, check for noise and interference.

Connect the 150-kHz input to the composite output of a modulation monitor receiving the station's signal off-air. Non-synchronous modulation that increases in level with increasing frequency can be an indication of first-adjacent channel interference. Normally this condition is difficult to troubleshoot, but the CSA-1 makes it simple and reliable.

Check the injection levels of RDS and other subcarriers against a calibrated 19-kHz pilot. Also, investigate sources of interference that can reduce the demodulated signal-to-noise ratio of subcarriers.

Using the 2-MHz input, directly check the output of an AM transmitter. You can also connect a suitable antenna — like a vertical whip or shielded loop — and verify NRSC-2 compliance. FM transmitter measurements can be made using a down converter such as the Belar DC-4 or a Belar FMM-2 modified to provide a 650-kHz IF signal.

Off-air, use an RF amplifier that provides a low-frequency output; the Belar RFA-1A fixed frequency and the RFA-4 frequency-agile FM RF Amplifier both produce 650 kHz IF outputs.

In the studio, you can monitor analog and digital audio signals. Switch to dual display mode and compare, say, the left-channel analog signal to the left-channel digital signal. Even view L+R and L-R signals side by side.

The L-R function allows you to measure the difference, however subtle, of audio devices like equalizers and limiters. Bridge the left channel of the CSA-1 across the input of the device under test and the right channel across the output of the device. Switch to L-R mode and view the difference in real time.

Because of its power and versatility, it's as much at home in the studio as it is on the test bench and at the transmitter site.

On the test bench use the CSA-1 in combination with an analog or digital test generator, a test CD and a CD player (used as a source of digital test signals) or suitable software.

Check device or system response using single tones, a swept tone or wide-band noise. Inspect harmonic distortion components and CCIF Twin-Tone intermodulation distortion. Examine the noise floor of devices, and measure channel separation and crosstalk.

Even though the name Belar normally is associated with modulation monitors, the CSA-1 FFT Spectrum Analyzer should not be limited to just modulation analysis. Because of its power and versatility, it's as much at home in the studio as it is on the test bench and at the transmitter site.

For more information contact Belar in Pennsylvania at (610) 687-5550 or visit the company Web site at www.belar.com.

SPECIAL REPORT

Digigram Helps Modernize Network

Medialatina, created in January 2000, is the Spanish subsidiary of Télé diffusion de France (TDF) and the French telecom group, France Télécom.

In March, Medialatina acquired the Canal Ser network, the top-rated radio group in Spain with six radio channels and a 30-percent marketshare. The network has approximately 250 sites around the country. One of its objectives for 2001 was to create an enhanced FM radio broadcast network.

Part of the project was implementing a system of supervision that guaranteed the quality and control of the broadcast at each site. Another goal was global, consolidated monitoring and control of its transmission equipment.

Monitoring and control

Medialatina chose **Digigram**, which had proposed its FMTEL5 Radio Monitoring and Control System and other products in its Aztec line.

Medialatina received the FMTEL5 equipment and IP2 solutions and contracted with Digigram for configuration and technical support for implementation at the many sites, CTRL2000 supervision software for the central server in Madrid and the training of its teams and local partners.

Digigram said Medialatina also liked its history in the FM supervision sector, in particular the Aztec FMNET supervision service existing in France since 1996 and the implementation of the OPT network in New Caledonia in 1999, based on remote control through IP2.

Through the integrated network connectivity of the FMTEL5 and its IP2 network connection, Medialatina benefited from the advantages of broadcast management via IP network. With the functions of the FMTEL5, Digigram said, the system's reliability was much higher than if the system required PCs at each site.

Because Digigram's Aztec equipment used industry-standard SNMP, Medialatina could achieve network management via high-level professional tools, such as HP Open View, an SNMP manager. Medialatina's FM transmitter equipment can be monitored and configured remotely; site equipment is interconnected via a small "technical intranet" using Aztec's IP2 port and its integrated router.

At a supervision level, the FMTEL5 is a suitable tool due to its two tuners and the parameter flexibility of the supervision criteria. The FMTEL5 allows the recording of transmitted sound to be used for later analysis and it allows a direct-play audio streaming of the monitored audio through the network. The direct play of what is being broadcast allows anybody to validate in real time the nature of any alarm states reported by the FMTEL5.

By September, Medialatina had 34 operational sites, and in the future that number is expected to grow to 100.

For more information contact Digigram in Virginia at (703) 875-9100 or visit www.digigram.com.

The Aztec FMTEL5-IP2port-rack is shown being installed.

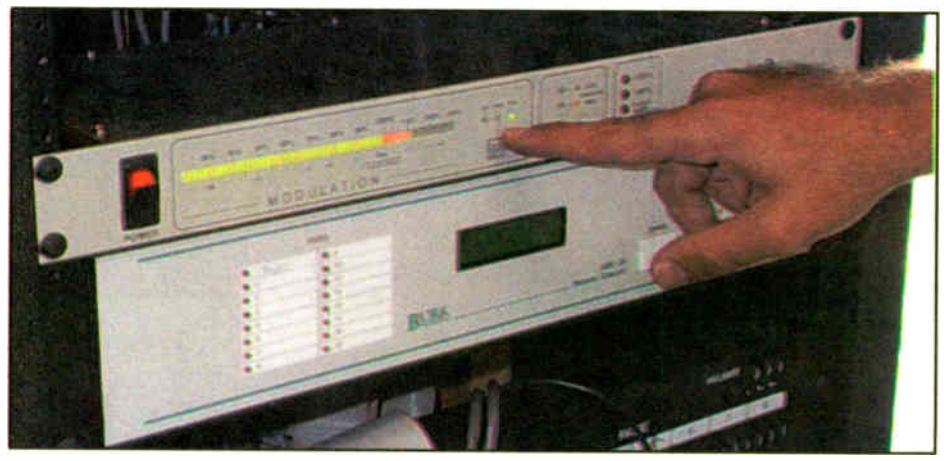
USER REPORT

Modulation Meter Works in Texas

by Ben Downs
Bryan Broadcasting

COLLEGE STATION-BRYAN, Texas The construction permit for our new AM station was in hand and I was given the go-ahead to begin construction.

Like any good engineering type, I took a solemn vow not to repeat the mistakes I had seen in other installations. I promised that my new installation would be loud, clean, immune to lightning and humless, and would probably cure the common cold.



The Inovonics 520 Monitor

Again, like most engineering types, I had a well-developed set of prejudices about transmitters, consoles and processing. Eventually, though, it was time to choose the modulation monitor and I had no preference. Don Jones of RF Specialties suggested the **Inovonics** 520 monitor as an option that was reasonably priced, ran cool and worked great. So we added it to the order.

Immediate installation

The day it arrived, I was surprised at the size of the unit. One rack space somehow looks smaller on a mod monitor, but everything seemed to be there. The LED bargraph on the front was large enough to give details. The inputs on the back were there. The alarm and peak lights were right up front and quite large.

Here's a quick question: what is the first thing you do when you get a new piece of equipment? You install it without reading the carefully written manual! This time it worked. So now it was time to read the manual and find out why.

Inovonics built the 520 to be a low-priced but highly accurate option for AM monitoring. The installation alternatives cover every circumstance. The 520 has two inputs on the back, a high-level BNC input for direct connection to the transmitter mod sample and a type-F connector for a random-length antenna. The high-level BNC input requires no adjustment, but if you want to monitor via RF through the air, you'll need to set the station's frequency by using the DIP-switch bank inside the cover. The 520 covers the AM (medium-wave) band in 1-kHz steps, making it suitable for U.S. 10-kHz or European 9-kHz channel spacing.

For monitoring away from the transmitter, Inovonics sells an antenna that is phantom-powered through this jack. When operating, the 520 uses less power than a VCR that is turned off.

Warning! Warning!

The Inovonics 520 is stocked with LED warning lights. The carrier alarm indicates a carrier level too low or too high for accurate monitoring. The "loss of audio" alarm allows for an over-the-air silence sensor.

Best of all, in addition to the fixed +125-percent and -100-percent peak light alarms, you can adjust another set of peak flashers with your own settings. I assume everyone will set these high and adjust modulation so they become nightlights.

A totally cool feature is the RS-232 connection on the back. With the supplied software you can connect the 520 directly to your PC comm port to get digital monitoring of your signal, or connect it to a modem for remote access and control. You could even let the manager log in and watch.

In practice I use the 520 at two AM sites. My existing AM was using an ancient, often-calibrated mod monitor. I increased my modulation density by about 15 percent through a combination of more accurate peak indication and by watching the absolute peaks in relation to the relative peaks I had set.

At the new facility the 520 has proven to be a trouble-free little box. In fact, we're quite affectionate toward it. It was refreshing to get a new, high-tech piece of equipment that worked the first time and has ever since. The chance to use it without adjustment at two sites makes it that much more attractive.

Eighteen months ago I could have bought any modulation monitor I wanted. I bought the Inovonics 520 and I'm so pleased with the decision that I'm putting it in writing. The price point is remarkable and the ease of operation belies the complement of features.

For more information contact Inovonics in California at (800) 733-0552 or visit www. inovon.com.

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USER REPORT

DK Audio Meter Delivers

by Howard Massey
Consultant
On The Right Wavelength

CENTERPORT, N.Y. The DK Audio MSD600M is one of the most flexible audio meters available. Not only is it capable of displaying mono and stereo signals in several ways, it also displays relative surround-sound level and phase relationships. Many people believe this will be useful in the future, particularly as digital broadcast equipment continues to evolve.

Actually, the 600M is much more than a meter. A user can install four input and four output modules, each carrying two channels of balanced analog audio and two channels of AES/EBU digital audio on a DB15 connector. An outfitted unit thus provides an 18 x 16 input/output matrix, and there's an additional reference stereo AES/EBU input/output on the supplied utility module.

The I/Os have routing controls that enable inputs to be mapped to any outputs and/or to any metering functions.

A/D converters are 20-bit, and D/A converters are 24-bit; both use fixed sampling rates of 48 kHz and are of the sigma-delta variety. An RS232 port is provided for updating the 600M software via a Windows PC and can be used to interconnect with DK's CDR-1616 rack-mount 16 x 16 digital matrix.

The display area is approximately 5.5 inches wide by 4 inches high. Most of the color schemes can be user-configured. It can be mounted directly on your mixing console using the supplied brackets or can be used free-standing with an optional stand base.

If you need a larger viewing area, hook up a standard monitor to the VGA output. To the right of the main display is a set of PPM bar meters with peak hold, and beneath the main display is a series of soft buttons used for programming the 600M. One provides a +20-dB input switch so you can boost low-level incoming signals for finer detail.

Every kind of useful display is included here, including center-zero phase correlation and Lissajous-format vector oscilloscope. Each can be set to slow or fast reaction times. Eleven user-definable presets are provided, allowing you to switch the 600M to custom setups using a button.

Create your own

Meter ballistics follow the selected PPM scale. Numerous factory scales are provided and you can create your own using the "DK-Scale" Windows software. Overs in the PPMs can be color-coded, and you can set up dual peak indicators so that one set retains its original ballistics while a second set shows true digital peak, regardless of the selected scale.

A loudness scale (Leq) window can also be brought to the fore. This gives a numeric readout of the weighted average audio power level of the incoming signal, which is particularly useful in post-production work and for checking SPLs in theatres. A "trip" function causes the display to flash red when the level exceeds a particular value.

A built-in signal generator can be used to output a sine wave at a user-specified frequency and amplitude or random or "pseudo" pink or white noise. "Pseudo" noise is derived from impulse signals with repeated frequency content. There's also an esoteric EBU mode, whereby the right channel is switched off for three seconds then on for one second.

An FFT spectrum analyzer function displays the frequency makeup of any selected input signal or the sum or difference of any two input signals. Curves can be held and stored in temporary or permanent memory for comparative analysis, and various window types can be selected depending upon the relative degree of selectivity vs. dynamic range required.

For more information contact dealer TC Electronics in California at (805) 373-1828 or visit www.tcelectronic.com.

TECH UPDATES

Moseley Features Transmitter Control

Moseley makes a two-chassis, dedicated system to monitor and control transmission sites. It can reduce an engineer's responsibilities by letting the remote-control operator handle mundane control and monitoring tasks.

The MRC-1620 Studio and Transmitter unit has 32 relay-isolated commands, 16 status and 16 telemetry channels. The front panels are easy to read. The status channels are displayed on a set of 16 LEDs. If a door security alarm is tripped or the fire alarm goes off, the unit will alert the studio.

Telemetry channels are calibrated with upper and lower limits at the transmitter site. PC and touch-tone pads are not required. Good RF immunity keeps readings stable. Communication between the two units can be established over dedicated circuits, STL/TSL, FMSCA or 2/4-wire leased lines.

A separate communication port allows a station's engineering department to contact the MRC-1620 using the Moseley TaskMaster for Windows software. The software also can be used to connect a PC at a studio or transmitter site for automatic log-in and control.

For more information contact Moseley in California at (805) 968-9621 or visit www.moseleysb.com.

BTI Offers Two Remote Controls

Broadcast Tools Inc. makes two remote controls for use at radio transmission sites.

The AVR-8 can be used as a voice-response and remote-control system. It automatically reports changes detected on its eight digital inputs to a remote telephone and/or pager. After speaking a greeting message that may identify the source of the call, the AVR-8 speaks a unique message for each input change.

The unit comes with factory-programmed messages, but users can record their own. After reporting, the AVR-8 lets you give commands or activate the four relays through the users' telephone keypad. The AVR-8 also features a tower light monitoring function.

The DC-8 Plus Dial-up Remote Control allows the user to control and monitor external devices from a touch-tone phone. The unit, when called, will answer the phone after a user-programmable number of rings, accept an access code, and, if valid, allow the control of six SPDT and two 2PDT relays and the monitoring of eight logic-level status inputs.

The DC-8 Plus is equipped with an adjustable audio hybrid, allowing the user to send and/or receive external audio while controlling the unit.

Additionally, the unit is equipped with an auxiliary audio input and a mute circuit to control an optional delay unit for the removal of DTMF tones. The pager-alert function allows the activation of three digital pagers by any or all of the status inputs, allowing the display of a user's defined phone number and which status input triggered the alarm.

Programming is performed with a touch-tone telephone. Functions can be programmed remotely, except the recall of factory defaults and setting of the access code, which must be done locally. Connections are via screw terminals.

For more information contact BTI in Washington state at (360) 854-9559 or visit www.broadcasttools.com.

Logitek Delivers Metering Flexibility

Logitek Electronic Systems' Ultra-VU meter offers several types of metering in a high-detail LED bargraph display.

Each bargraph contains 63 tricolor LEDs, allowing the VU level to be shown as a green bar and the peak level to be shown as a red dot through the range of the display. The zero VU point is user-adjustable. A switchable "hold" feature supplies a momentary or continuous hold of the highest peak reading.

Each meter features dual bargraphs, which display the left channel above the right channel. Pressing the Mode button causes mono sum to be displayed on the lower bargraph and phase to be displayed on the upper bargraph. This phase display uses a red LED to show the location of the furthest left sound in the sound field and a green LED to show the location of the furthest right sound.

Pressing the Mode button again activates a filter that tailors the VU frequency response to track the perceived loudness of the signal. Pressing Mode a third time causes the meter resolution to expand around the reference point with a resolution of 0.2 dB per segment.

Rackmount models are available with one or two stereo pairs; the Ultra-VU displays are also used in Logitek's 5.1 and 7.1 Surround meters. Analog or digital inputs are available.

For more information contact Logitek in Texas at (800) 231-5870 or visit www.logitekaudio.com.

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SRC-1616L Serial Remote Control
Equipped with 16 opto-isolated and CMOS/TTL compatible inputs and 16-Relay (Form C) outputs that may be controlled from a host computer, or a pair of units can be used in a stand-alone configuration (relay extension cord).

MC-16 Telephone Hybrid/Coupler
Full featured telephone line coupler/hybrid provides 32 programs; 32 ASCII strings (DTMF to ASCII); 64 macros; 16 relays; auto answer; 4-digit access codes and much more.

BOS, ROS & PBB-24 Switch Panels
The BOS offers 12 N.O. dry contact switches with status LEDs in a desktop panel. The ROS is similar, but in a single-space rack unit. The PBB-24 provides 24 momentary buttons that can be programmed to output ASCII character strings.

SRC-8 Serial Remote Control
The SRC-8 provides a means of adding 8 channels of remote control to RF, wireline and fiber type STL systems and may also be used with dedicated modems (full & half duplex models).

SSM Smart Silence Monitor
Monitors any stereo or two independent monaural sources and generates alarms indicating loss of carrier when white noise and/or silence is detected.

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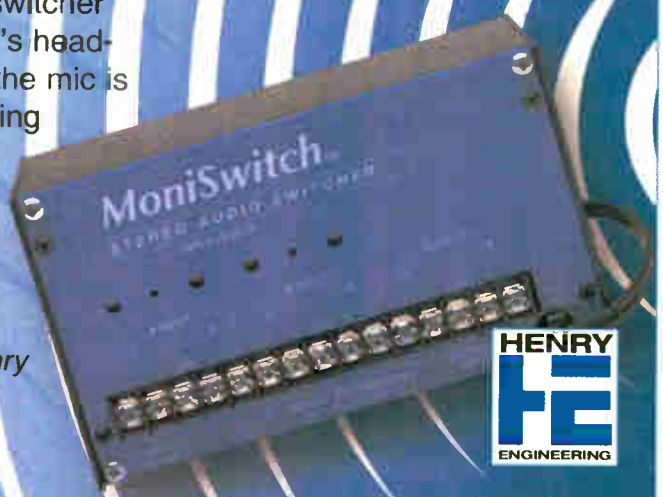

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TECH UPDATES

Ward-Beck Offers Audio Test Meter

The XTM4 from **Ward-Beck** is a test meter designed to measure analog, AES-3 and SDI-embedded audio signals over a wide sensitivity range. The range for analog signals is -70 dBm to +30 dBm and for AES digital signals is -50 dBfs to 0 dBfs.

Occupying two rack spaces, the unit is equipped with a stereo set of moving-needle, VU and PPM meter pairs. Meters are LED-illuminated.

Front-panel pushbutton controls and a bright dot matrix display allow the user to select the input signal source and set the mode of operation and sensitivity of the meter. An LED bargraph phase indicator is included.

Connection to the XTM4 is via rear-panel female XLRs for the analog and 110-ohm AES-3 signals and via BNCs for the AES-3ID and SDI signals. The rear panel has a stereo analog output of the displayed signal on a male XLR connector pair.

The analog input pair and AES-3 input pairs are routed through "normalling" telephone jacks on the front panel. These jacks give rapid access to the XTM4. A stereo headset jack is provided on the front.

The base XTM4 comes equipped with analog, AES-3 and AES-3ID inputs. The facility to handle SDI sources may be added as an option. The XTM4 is powered internally and will operate from 115/230 V, 60/50 Hz AC mains.

For more information contact Ward-Beck in Oregon at (866) 771-2556 or in Toronto at (800) 771-2556 or visit www.ward-beck.com.

Neutrik Introduces Digilyzer

Neutrik Test Instruments (**NTI**) has introduced its Digilyzer DL1.

The product is an addition to the Minstruments line, and is equipped for digital audio field testing with functions for audio signal analysis, ancillary data interpretation, carrier signal analysis and analysis of video-related audio problems.

The device handles AES-3 signals through balanced XLR 110-ohm input and unbalanced S/PDIF signals via the 75-ohm RCA connector. It also uses an optical TOS-link connection through which optical S/PDIF and ADAT signals can be analyzed.

The Digilyzer can analyze TASCAM multitrack recorder signals using a TDIF interface. Commonly standardized sampling frequencies up to 96 kHz are handled in consumer and professional formats.

Applications for the Digilyzer include analyzing each ADAT channel before wiring to a mixer, sorting out the cabling between analog and digital equipment, verifying the digital format and function of the signal at each node to localize problems and measuring the digital carrier properties to find the cause of bit errors.

For more information contact NTI in Montreal at (800) 661-6388 or visit the company Web site at www.nt-instruments.com.

Burk Adds Several Products

In November **Burk** released the AutoPilot for Windows version 2. New wizards and VB scripting make setting up corrective actions simple. It also contains AutoPilot LT for use with laptops and home computers and AutoLoad for saving and restoring settings on the fly.

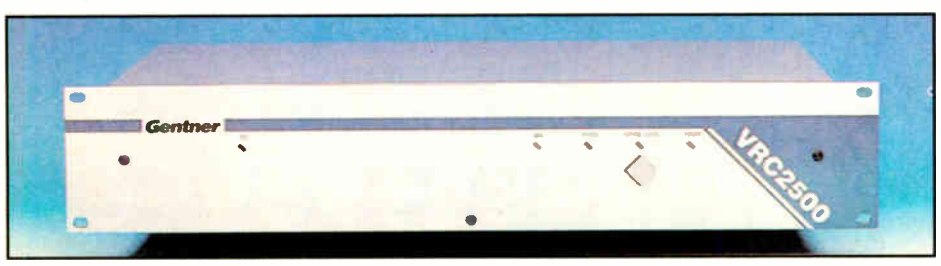
New for 2002 will be the ARCPlus, capable of monitoring and controlling 16 direct-connected sites with the capability of 256 channels per site. Features include built-in macros, Ethernet capability and a large graphics display.

Burk has also added the GSC3000 and the VRC2500 (formerly available from Gentner) to the established ARC-16 remote control product line. The VRC2500 is a 16-channel remote suited for single-site stations with Windows application software. The GSC3000 modular approach allows remote monitoring and control of one site with minimum requirements or a number of sites with extensive requirements.

The SP-16 for multiple-site monitoring of remote status at a glance has been added as an ARC-16 accessory.

Due to demand from growing Hispanic markets, Burk has released a line of remote controls with a Spanish-speaking voice interface and a Spanish-language display.

For more information contact Burk in Massachusetts at (800) 255-8090 or visit www.burk.com.

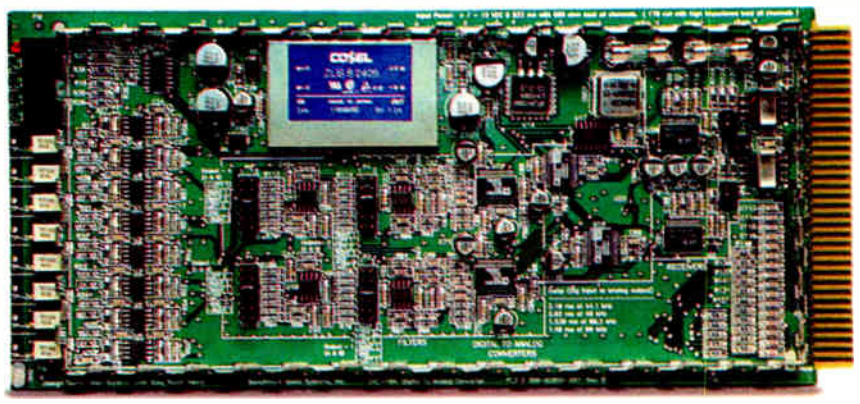


The Burk VRC2500 Remote Control

Benchmark Releases Converter Module

Benchmark Media Systems recently introduced the DAC-104, a four-channel, 24-bit, 96-kHz digital-to-analog audio converter module for the System 1000 module frame. It is the first digital audio module for the System 1000.

The DAC-104 is a cardframe DAC with UltraLock technology, an alternative to the traditional two-stage phase-lock-loop, Benchmark's new digital lockup technology. The technology provides jitter immunity and high performance that the company says is repeatable at the test bench or under adverse input signal conditions.



The converter module has a THD+N of 0.00079 percent at -3 dBFS and an input sample-rate range of 28 through 108 kHz.

Features include auto detection and processing of preemphasized digital audio, jumper selection of discrete stereo, matrix stereo (L+R and L-R), polarity inversion and mono sum on its outputs. Output level controls are at the front card edge and provide an analog output adjustment range of +7.5 dBu to +28 dBu at 0 dBFS.

Volume shipments of the DAC-104 are available. Additional modules in development are the ADC-104, a four-channel analog-to-digital audio converter, and the DDA-108, a digital audio distribution amplifier.

For more information contact Benchmark in New York at (800) 262-4675 or visit www.benchmarkmedia.com.

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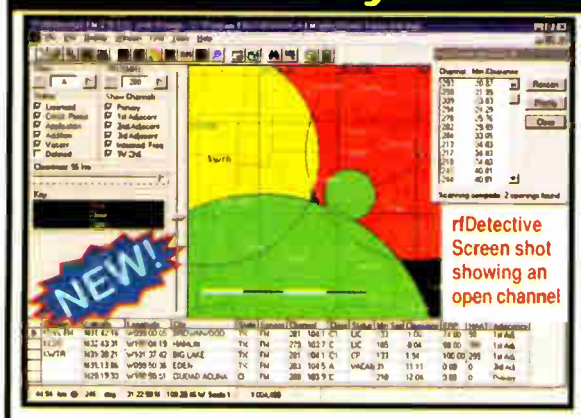

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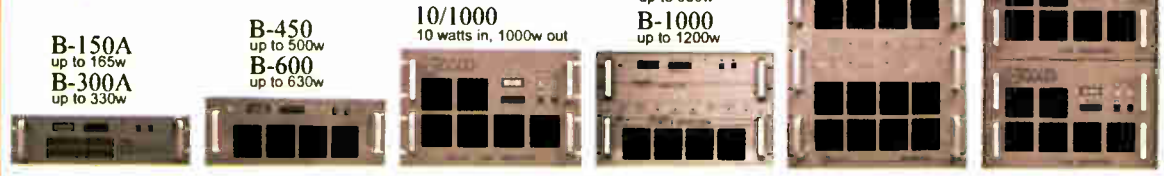

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TECH UPDATES

Audio Precision Uses Dual Analyzers

The **Audio Precision** PC-based ATS-2 audio test and measurement system has analyzing functions to assist engineers and technicians in finding errors in equipment.

The ATS-2 has balanced, unbalanced and optical inputs and outputs in analog and digital formats. It can generate sine, IMD, square wave, noise, arbitrary waveforms, multitone and certain special signals. Technicians can use the Harmonic Digital Analyzer function to find circuit problems and can use the Multitone Analyzer to perform five tests in a single sweep and display collated data on graphs.

The multitone tests are two-channel frequency response, total distortion vs. frequency, noise vs. frequency, interchannel separation vs. frequency and interchannel phase response. Measurement capabilities include jitter, FFT of jitter, pulse amplitude, delay, word width, bit activity, sample rate and high-level decoded status bits. A performance option can increase the analyzer bandwidth from 30 kHz to 120 kHz and adds other measurement functions.

For more information contact Audio Precision in Oregon at (800) 231-7350 or visit the company Web site at www.audioprecision.com.

Fluke Releases New Accessory Line

Fluke Corp. recently released a line of accessories for low-energy test and measurement applications. The add-ons are built for use with test meters from Fluke and other manufacturers. The 12 accessories are designed for electronic circuit boards and other low-energy CAT I or II environments.

Probe accessories are electronic test probes with replacement tips, extra replacement tips for the probes and a test probe adapter kit. Patch kit add-ons are a patch cord kit and 61-cm and 91-cm patch cords.

For test leads Fluke makes mini-hook test leads, mini-pincer test leads, micro-hook test leads and a test lead holder. The last of the new accessories are a hook and pincer kit and a double banana plug kit.

For more information contact Fluke in Washington state at (888) 492-7544 or visit the company Web site at www.fluke.com.

Sine Offers Remote-Control Gear

The **Sine Systems** RFC-1/B Remote Facilities Controller consists of the RFC-1/B control unit and an RP-8 Relay Panel. The RP-8 provides eight channels of telemetry input and control output. Up to 64 channels can be added.

The RFC-1/B can be used for a variety of functions. Readings and adjustments can be made from a touch-tone phone. Each channel has two outputs for raise/lower operations. Eighty timed events can be programmed into the system to trigger automatic tasks based on date and time. The monitoring/alarm system is programmable and can perform adjustment or warning functions based on the status of the transmitter, either fixing a defect or sending a warning call to the main station if there is a serious problem.

Eight telemetry channels can be monitored for out-of-tolerance conditions. The unit can call six telephone numbers for warnings. It can be expanded to include data communications, printing, tower light monitoring, temperature sensing and audio failsafe termination by adding optional hardware in an extra chassis, the RAK-1.

For more information contact Sine in Tennessee at (615) 228-3500 or visit the company Web site at www.sinesys.com.

Dorrough Meter Measures Loudness

Dorrough Electronics manufactures the 40-A2 and 40-B2 Loudness Meters. The meters allow users to see the factors in an audio waveform in one place. The loudness of program content and real peaks can be seen, and the unit can be used for optimizing modulation.

The 40-A2 can be used as the reference for each mixing point in a facility, particularly in a production room where program elements are being loaded into digital workstations and digital storage systems.

This can improve loudness consistency from file to file and lessens the burden on audio processing trying to cover excessive variations from source to source.

The company's analog and digital loudness meters provide the same simultaneous peak and persistence ballistic characteristic. They use a three-color LED display. Standard features include two types of peak hold settings, the ability to display sum and difference and alarm triggers for signal loss and "over conditions."

The 40-A2 has a scale showing 14 dB in headroom. The 40-B2 has the same ballistics as the other model, but is referenced to 100 percent and has a scale from 3 dB to -36 dB.

For more information contact Dorrough in California at (818) 998-2824 or visit www.dorrough.com.

Prism Offers Flexible Test System

Prism Media makes the dScope Series III audio test system for applications in R&D labs, production test, maintenance, repair and field service.

The unit performs dual-channel analog and digital audio testing with independent signal generation and analysis for each channel at sampling rates to 192 kHz. Filter options, IMD, digital interface tests, FFT analysis, arbitrary waveform generation capability and VB-based script automation are standard. The dScope Series III is PC-based for the Windows operating system.

The dual signal generators can create standard waveform types and customized signals. The analyzer system consists of a signal analyzer, which provides real-time readings of RMS amplitude, frequency and interchannel phase for a stereo or two-channel input; a continuous-time analyzer based on a conventional distortion analyzer with a selection of filters and standard measure; and an FFT analyzer, which supports multiple detectors that can carry out further processing or calculations. The FFT also covers standard measurement results. A trace window, sweep analyzer, support for advanced test techniques, digital interface testing and test automation round out the unit's features.

For more information contact Prism in New Jersey at (973) 983-9577 or visit the company Web site at www. prismsound.com.

IFR's Analyzer Gains New Option

The 2399 portable spectrum analyzer from **IFR Systems** now has a Distance to Fault (DTF) option that helps users locate any faults responsible for return loss on a coaxial feed between a transmitter and antenna.

An enhanced Time Domain Reflectometer option and feature set have also been added to the portable unit.

The 2399 is designed for several applications, including mobile communication service workshops, base station installation and repair. The DTF option is designed to enable prompt cable and waveguide fault-finding.

A return loss bridge used with the 2399 can measure the return loss of signal feeder before the DTF locates it. The spectrum analyzer has a resident database that lets an operator specify the particular cable.

The unit analyzer covers a frequency range of 9 kHz to 2.9 GHz. Its processor and memory can store 1,000 screen traces and 2,000 operational states. Monitoring is performed on a large, color TFT LCD display. The marker system allows nine markers to be displayed at one time with a marker table showing the frequency and level of each marker.

For more information contact IFR in Kansas at (800) 835-2352 or visit the company Web site at www.ifrsys.com.

Wavetek Tool Brushes for Shorts

The **Wavetek** Meterman SF-10 Electronic Short Finder is a tool designed for electronics repair technicians who need to locate electrical shorts.

The SF-10 uses a patented wire brush feature to sweep printed circuit boards under test to find shorts. Many test points can be covered in a single sweep, eliminating the need to probe every point. After the sweep the SF-10's individual probe point is used to identify the specific component that needs repair.

For more information contact Wavetek in Washington state at (877) 596-2680 or visit the company Web site at www.metermantesttools.com.

Audemat Monitors Program Continuity

Audemat won a Radio World "Cool Stuff" Award at NAB2001 for its GoldenEagle multiple receiver monitoring system. The GoldenEagle can automatically monitor the quality and the continuity of 40 programs. It includes an embedded Web site (Linux OS) for remote communication.

Signal measurement can be performed in three ways: remote acquisition for immediately visualizing the evolution of a signal from a program; remote measurement for acquiring one to 10 values from the instantaneous measurement process; average measurement where instantaneous measurements are stored in the monitoring unit and hourly and daily average files are available. This enables statistical analysis and comparison on the signal evolution.

Users can listen to programs remotely via an IP network through standard streamed media players. The equipment can monitor the FM band spectrum, record minimum and maximum carriers levels and sound an alarm when the unit detects a new frequency. Scanning can be stored in a central PC.

3D representation tools are used to control spectrum evolution. Digital, analog and audio signal compatibility enable transmitting equipment and peripherals to be monitored when installing the equipment at a transmitter site.

For more information contact Audemat in Virginia at (866) AUDEMAT or visit the company Web site at www.audemat.com.

BROADCAST Equipment Exchange

"Broadcast Equipment Exchange" accepts no responsibility for the condition of the equipment listed or for the specifics of transactions made between buyers and sellers.

ACOUSTICS

Want to Sell

AMPLIFIERS

Want to Buy

RCA, Altec tube amplifiers & mixers in any condition, working or not. Larry Drago, WELI, POB 85, New Haven CT 06501. 203-230-5255.

ANTENNAS/ TOWERS/CABLES

Want to Sell

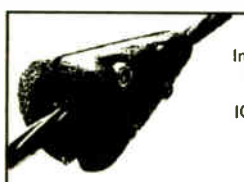
AM GROUND SYSTEMS: Reliable, On-time Installation, Quality Workmanship, Ground System Evaluation & Repair. www.amgroundsystems.com 1-877-766-2999.

Dielectric 3-5/8" motorized four port coaxial switch . Continental Communications, 314-664-4497. Email: contcomm@fiastl.net.

Andrew 1-5/8" air dielectric transmission cable, 200', $400. K Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

Cablewave 3 bay FM medium power, 92.1 mHz, $1500. K Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

CCA 10 bay antenna. Worked when removed from service in 3/01. Currently on ground, tuned to 99.1 mHz, $10,000/BO. Tommy Jenkins, Encore Broadcasting, 3303 N Midkiff, #115, Midland TX 79706. 915-520-9912.



ERI 6 bay FM antenna, 92.1 mHz, medium power, $1000. K Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

Rohn CC 24" face tower. (17) twenty foot sections (340'), includes beacon, sidelights, guy pull-offs, other hardware. Carlton Veirs, WTBG, POB 198, Brownsville TN 38012. 731-772-3700, 8AM to 5PM Central.

ERI G-5CPS-4 high power antenna. Four bay tuned to 98.5. Buyer pays all shipping costs, $7000. Max Turner, Susquehanna Radio, 6810 Shadeland Ave, Indianapolis IN 46220. 317-558-7302.

AUDIO PRODUCTION

Want to Sell

Complete radio station for $695! Just add mike & transmitter. Great for LP, college, web stations. Includes 5 channel BE mono console, (2) Russco StudioPro turntables with Pro Audio arms & Stanton cartridges, (2) Pioneer PMD502 6-pack CD changers, (1) Tapecaster 700P cart machine. Cash & carry! At this price I don't want to pack & ship. Bob Savage, WYSL, 5620 S. Lima Rd, Avon NY 14414. 716-346-3000.

AUDIO RESTORATION

AUTOMATION EQUIPMENT

Want to Sell

Enco DAD 32 system w/server, production workstation & on-air workstation which is touchscreen. Tommy Jenkins, Encore Broadcasting, 3303 N Midkiff, #115, Midland TX 79706. 915-520-9912.

CART MACHINES

Want to Sell

AudioCord DL players (3) in excellent condition, $250 each. Richard Plessinger, Oyster Radio, 35 Island Dr, #16, Eastpoint FL 32328-3264. 850-670-8450.

Audiocord DLPM single play cart player, $450. Mark Larsen, KBQR, Box 20335, Piedmont CA 94620. 510-465-6035.

Fidelipac CTR 123, like new stereo record & play, top of the line, has only 100 hours use, $490/BO. Jeff Ostler, TRAX/KTKK Radio, 2470 North Fairfield Rd, Layton UT 84041. 801-771-1820.

CD PLAYERS

Want to Sell

Audiometrics CD-10 professional CD players (2), one needs repairs, $800. George Arroyo, WQNQ, 1033 Semoran Blvd #253, Casselberry FL 32707. 407-830-0800 ext 110.

COMPLETE FACILITIES

CONSOLES

Want to Sell

Harris Stereo 80 8 mixer stereo console, $850 +shpg. Joseph Bahr, Islands FM, Box 6556, San Juan PR 00914. 787-728-0364.

Autogram IC-10, stereo, good condition, $1000. Andrew, KRKO, 425-304-1381 ext 102 or Andrew.skotdal@krko.com.

Electro-Voice EVT-5212 Tapco mixer, stereo 12 channel, like new, $350 +shpg. Gene Whittenberger, Whittenberger Studio, POB 396, Mexico IN 46958. 765-985-2224.

Harris Medalist-8, removed from service 10/01. Power supply & manual. Will deliver within 150 miles, $500/BO. Chuck Crouse, WLMI, 27 Fraley St, Kane PA 16735-0868. 814-837-9711.

Shure M267, 4 channel mixer, $325. Mark Larsen, KBQR, Box 20335, Piedmont CA 94620. 510-465-6035.

TOA RX-5-16, 16 channel stereo mixer, like new, $375 +shpg. Gene Whittenberger, Whittenberger Studio, POB 396, Mexico IN 46958. 765-985-2224.

Want to Buy

Looking for good, used stereo console. 10-18 channels, 20+ inputs. Prefer sliders. Call Randy Norris, WXTQ-FM, 300 Columbus Rd, Athens OH 45701. 740-593-6651 or email: randy@wxtq.com.

Western Electric 25A. Paying up to $7500 for this console & always buying WE mics, tubes, catalogs & turntables. Larry Drago, WELI, POB 85, New Haven CT 06501. 203-230-5255.

Western Electric 25-B. Will pay $7800 for this WE broadcast console in any condition. Also WE literature, tubes, manuals, radios, etc. Larry Drago, WELI, 495 Benham St, Hamden CT 06514. 203-248-8814.

LIMITERS/ AUDIO PROCESSING

Want to Sell

Orban 8000-A audio processor, $1500 +shpg. Joseph Bahr, Islands FM, Box 6556, San Juan PR 00914. 787-728-0364.

Orban XT-2. Joseph Bahr, Islands FM, Box 6556, San Juan PR 00914. 787-728-0364.

Alesis MEQ-230, 30 band EQ, like new, $175 +shpg. Gene Whittenberger, Whittenberger Studio, POB 396, Mexico IN 46958. 765-985-2224.

Alesis 3630 compressor-limiter, recording or broadcast, like new, $125. Gene Whittenberger, Whittenberger Studio, POB 396, Mexico IN 46958. 765-985-2224.

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.

Collins 26U-1 limiter for parts or just the meter. Tim Coffman, 858-571-5031.

UREI, Universal Audio, dbx, Collins, RCA, Gates. Tim Coffman, 858-571-5031.

MICROPHONES

Want to Sell

Audio Technica AT9400 uni/stereo condenser mic, $175. Mark Larsen, KBQR, Box 20335, Piedmont CA 94620. 510-465-6035.

Sennheizer 441 in box with papers, $300. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

Shure headset mic condenser with case, cables, $120. Mark Larsen, KBQR, Box 20335, Piedmont CA 94620. 510-465-6035.

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.

RCA 77DX/44BX. Will pay $1000 for these mics. Call anytime. Larry Drago, WELI, POB 85, New Haven CT 06501. 203-230-5255.

Neuman, RCA, Shure, AKG, Beyer, others 1950-1990. Tim Coffman, 858-571-5031.

RCA 77-44-74 etc, ribbon mics, on-air lights, console, manuals, tubes, etc. Highest prices paid. Larry Drago, WELI, 495 Benham St, Hamden CT 06514. 203-248-8814.

MISCELLANEOUS

Want to Sell

SCA RADIOS for sale. Any Quantity. Call: 212-244-1140.

Comrex Hot Line, good condition and Comrex Hot Rack, like new, $2600/both. Andrew, KRKO, 425-304-1381 ext 102 or Andrew.skotdal@krko.com.

Comrex Nexus Units (2), scratched cases, perfect operation, $1175 each. Andrew, KRKO, 425-304-1381 ext 102 or Andrew.skotdal@krko.com.

Two boxes (19 total) or new motors. Oriental motor, Japan S-301 motors, 7.5W 115V 1500/1800 rpm, $30/all. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

Kohler 75 KW generator, 3 phase, 240/208 diesel, 358 hours, x-per switch, mufflers, good condition, $7,500. Joe Schloss, KFCD, POB 260, Spencer IA 51301. 712-262-1240.

Want to Buy

Gates catalogs, any old radio catalogs, older than number 96. Leave phone number. Jeff Glass, 815-784-5219.

RCA on-air lights in any condition, working or not, will pay best prices for them. Larry Drago, WELI, POB 85, New Haven CT 06501. 203-230-5255.

Old Audio Eengineering magazines prior to 1953. 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.

RECEIVERS/ TRANSCEIVERS

Want to Sell

EAS receiver, brand new condition, $1000. K Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

Fairchild Dart 384 with DATS & SE DATS with cards & down converter (2), like new, $800 each. Richard Plessinger, Oyster Radio, 35 Island Dr, #16, Eastpoint FL 32328-3264. 850-670-8450.

Broadcast Tools DSC-20 channel changers for Starguide, never unwrapped, $125 ea. Andrew, KRKO, 425-304-1381 ext 102 or Andrew.skotdal@krko.com.

Broadcast Tools PSC/B to change DSC-20 for Starguide, never unwrapped, $195 ea. Andrew, KRKO, 425-304-1381 ext 102 or Andrew.skotdal@krko.com.

Broadcast Tools UI-4II adds logic or remote functions to equipment, never unwrapped, $65 ea. Andrew, KRKO, 425-304-1381 ext 102 or Andrew.skotdal@krko.com.

Broadcast Tools USC-16 universal satellite channel controller, never unwrapped, $150. Andrew, KRKO, 425-304-1381 ext 102 or Andrew.skotdal@krko.com.

Vertex FTH-7008 (4), 16 channel, 5 watt radio with IVC 29 charger, can program UHF, $75 each. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

Vertex VX-200, 6 channel UHF 450-470 chargers (2), 5 watt handheld, can program, $75 each. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

RECORDERS

Want to Sell

Revox PR99 2 track (1/2 track) low hours, $695; Tascam 34B 4 track (1/4 track) w/remote, low hours, $995. Rack mount ears on both, neither used in broadcast service. Bill Borrelli, Costa-Eagle Radio, 462 Merrimack St, Methuen MA 01844. 978-686-9966 x41.

Otari MX5050 BII, very good condition, $850; MX5050 BII, good condition, $650. Andrew, KRKO, 425-304-1381 ext 102 or Andrew.skotdal@krko.com.

Tanberg 15-21 Series 15 reels (2), uses 7" reels, like new, but needs belt, $50/both. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

Tascam ATR60-2T, top of the line 2 track with center track time code, like new, only 200 hours use, $1990. Jeff Ostler, TRAX/KTKK Radio, 2470 North Fairfield Rd, Layton UT 84041. 801-771-1820.

REMOTE & MICROWAVE

Want to Sell

Burk TC-8, 8 channel remote control, no relay panel, $1000 +shpg. Joseph Bahr, Islands FM, Box 6556, San Juan PR 00914. 787-728-0364.

Moseley PCL/505/C STL XTR on 950.00 mHz, BO. Joseph Bahr, Islands FM, Box 6556, San Juan PR 00914. 787-728-0364.

Comrex LX-7 frequency extender/encoder, $200. Mark Larsen, KBQR, Box 20335, Piedmont CA 94620. 510-465-6035.

Symetrix TI-104 telephone interface, 4 lines, 2 consoles, $500. George Arroyo, WQNQ, 1033 Semoran Blvd #253, Casselberry FL 32707. 407-830-0800 ext 110.

Melco Max24, operational phone PBX system. Accomodates 8 trunks & up to 24 extensions. Intercom, program on hold, paging. Uses standard touch-tone desk sets for extensions (not included). Power supply, CPU, documentation included. Perfect for smaller stations or associated businesses. Free to good home, no shipping, come and get it. Bob Savage, WYSL, 5620 S. Lima Rd, Avon NY 14414. 716-346-3000.

REPAIR SERVICES

SATELLITE EQUIPMENT

Want to Sell

Wegener DR-96 satellite receivers (2), very little use, $1000/both. K Diebel, KHMB, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

STATIONS

Want to Sell

DUE TO DEATH OF OUR FATHER, TWO GREAT RADIO STATIONS FOR SALE: North East California, great hunting and fishing, 5000 watt AM 570, Class C FM 100,000 watt, $250,000 or Best Offer, highly motivated! Phone 530-233-3570.

CONSULTANTS

DISTRIBUTOR DIRECTORY

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

SELLING OR BUYING....visit: www.broadcaststations4sale.com. We are now accepting new listings. We make it easy to sell your radio station.

STEREO GENERATORS

Want to Sell

Panasonic VP-8254P AM C-quam stereo generator, $75. Mike Stosich, Esoteric Sound, 4813 Wallbank Ave, Downers Grove IL 60515. 630-960-9137.

TAPES/CARTS/ REELS/CD's

Want to Buy

10.5" music reels, Drake Chenault, Con Tempo 300, Library reels, 1979-1990, also seasonal reels & cue sheets. Chuck Raub, 570-434-2782.

Marantz PMD-221 that are non-working, physically complete preferred, but basket cases will be considered. Leave message. Jeff Glass, 815-784-5219.

TEST EQUIPMENT

Want to Sell

Ampex 300E vacuum tube voltmeter, $30; Beta Scope non destructive thickness guage, $30; (4) HP 400D vacuum tube voltmeters, $40/all; NRI 12 vacuum tube voltmeter, $25; HP 400L vacuum tube voltmeter, $20; Sierra Electronics scope in metal box, $20; Standard electrical products Type LR-5 Adjust-A-Volt variable transformer, cable cut, $20; Supreme 574 electronic set tester in case w/manual, $40; Motorola TA-42 input & output terminals, T&R 2-25 amp fuses, 1-15 amp fuse, $30. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

TRANSMITTERS

Want to Sell

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

Harris-Gates BC-10H 10KW AM transmitter. Continental Communications. 314-664-4497. Email: contcomm@fiastl.net.

RCA BTF-20-E1. Continental Communications. 314-664-4497. Email: contcomm@fiastl.net.

RCA BTF-5-E1 5KW FM transmitter, single phase. Continental Communications. 314-664-4497. Email: contcomm@fiastl.net

CCA 1000-D 1.0 KW FM, w/out exciter, $3500 +shpg. Joseph Bahr, Islands FM, Box 6556, San Juan PR 00914. 787-728-0364.

Harris 10-H, 10KW w/out exciter, $8000 +shpg. Joseph Bahr, Islands FM, Box 6556, San Juan PR 00914. 787-728-0364.

Harris MX-15 FM exciter, good condition, $1500 +shpg/BO. Joseph Bahr, Islands FM, Box 6556, San Juan PR 00914. 787-728-0364.

Continental 314R-1 AM xmtr, 1 kilowatt, tuned to 1600 kHz, located in Chicago IL, $5000. George Arroyo, WQNQ, 1033 Semoran Blvd #253, Casselberry FL 32707. 407-830-0800 ext 110.

Cunningham CM 30-50 rack mount presunrise transmitter. Adjusts 0-50 watts, measures 19" wide x 12" deep x 8.75" high. 15 lbs, FCC approved, 3 tubes, 1 transistor, new/complete with instruction book, $750. James Cunningham, KTGS, RT 2 Box 113B, Stonewall OK 74871. 580-285-4496.

Harris MW-5 AM 5 kilowatts xmtr tuned to 1140 kHz, presently on the air in Orlando FL, $10,000. George Arroyo, WQNQ, 1033 Semoran Blvd #253, Casselberry FL 32707. 407-830-0800 ext 110.

Radio World

Harris MW-5A, missing plate transformer, good for parts, tuned to 1290 kHz, located in West Palm Beach FL, $1000. George Arroyo, WQNQ, 1033 Semoran Blvd #253, Casselberry FL 32707. 407-830-0800 ext 110.

Harris SX-1 AM xmtr, 1 kilowatt, solid state, tuned to 1190 kHz, located in West Palm Beach FL, $6000. George Arroyo, WQNQ, 1033 Semoran Blvd #253, Casselberry FL 32707. 407-830-0800 ext 110.

Want to Buy

BE, Harris, any exciter, physically complete but in poor electrical condition. Leave message. Jeff Glass, 815-784-5219.

TUBES

Want to Sell

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

TUBES, Eimac, Svetlana
Phone: 905-844-5772
Fax: 905-844-6263
ams@hard-to-find.net
www.hard-to-find.net

TURNTABLES

Want to Sell

Technics SP-15 studio grade turntable, good condition, $275. Andrew, KRKO, 425-304-1381 ext 102 or Andrew.skotdal@krko.com.

EMPLOYMENT

POSITIONS WANTED

Brilliant personality, great voice & tight board! Will relocate. Rhianna, 405-440-0595.

Rookie seeks on-air, production, and/or producer position. Willing to relocate. Experience with OKC's #1 news/talk radio station. Jen, 405-773-6169.

Friendly, industrious, FCC commercial-1st Class w/radar/amateur, extra radio licensed, CE, assist CE, seeking FT, PT, contract work, AM/FM, cable, TV, within 75 mile radius of metro NYC area. Mitchell Rakoff, 81-12 Roosevelt Ave #702, Jackson Heights NY 11372. 718-969-5224 or mitchellrakoff@yahoo.com.

Jason M. here! Rookie radio disc jockey trained & ready to rock. On-air, production, copywriting. Oklahoma area. Jason, 405-703-0150.

Serious, funny, smart, dumb, cool & a geek. Specializing in copy writing. Interested in production, sports, interviews & on-air. Willing to travel, Lequane, 405-773-9747 or 405-706-8306.

Denise the "Hillbilly Headbanger" fresh out of school and ready to work as on-air jock or newscaster! Willing to relocate, so call 405-275-9069 or email: djdsweet@aol.com.

I'm Kelly and a recent broadcasting school grad and I'm ready to work. On-air, operations or sales. 918-832-1789.

Interested in On-Air, news and/or production positions. Excellent newswriting & production skills. Will relocate. Sheri, 405-602-0112 (B/U and UC preferred).

Radio graduate ready for all opportunities. Over 9 years mobile DJ experience. Willing to relocate. Matt, 918-439-4202.

Ready to prove myself as an entry-level announcer. Skilled in areas of newscasting, production, promotions, and on-air. Contact Scott at 405-720-7420 or scooterdj400@home.com.

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: _____
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_____
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Price: _____

WTS ❑ WTB ❑ Category: _____
Make: _____ Model: _____
Brief Description: _____
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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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Radio World assumes no liability for inaccuracy.

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44	ATI	www.atiguys.com
8	Audio Precision	www.audioprecision.com
56	Audioarts/Wheatstone	www.wheatstone.com
55	Auditronics/Wheatstone	www.auditronics.com
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21	MediaTouch	www.imediatouch.com
45	Nautel	www.nautel.com
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9	Omnia, a Telos Company	www.omniaaudio.com
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11	Radio Systems	www.radiosystems.com
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15	Sierra Automated Systems	www.sasaudio.com
48	Silicon Valley Power	www.svpa.com
6	Sine Systems	www.sinesystems.com
48	Studio Technology	www.studiotechnology.com
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◆READER'S FORUM◆

Codecs revisited

I read Art Constantine's observations (July 18, *Reader's Forum*) about Mel Lambert's earlier column on audio compression.

I would remind Mr. Constantine that the APT WorldNet Rio codec has been designed for dedicated circuits and *not* for ISDN, as stated in the product specification.

Second, his observation about not being a big hit with the transmission budget is an interesting one. I can't believe that he is implying that his business development plan is based on the principle of "cheap is good."

Surely Mr. Constantine doesn't need to be reminded of several laws of physics and acoustics.

Nobody is contesting the fact that "properly designed MPEG codecs" can produce great sound, on one or two passes.

The point Mel Lambert is making is that, due to the masking properties of MPEG Layer II and MP3, any additional or repeated passes of MPEG coding fundamentally affects and rapidly degrades the audio. This is a recurring problem for broadcasters to deal with, especially now with the advent of Layer II for DAB emission.

This final stage of MPEG coding in a DAB infrastructure may well be the straw that breaks the camel's back if care in the use of coding in any previous stages has not been circumspect. And this does not even get into the delay problems associated with Layer II/Layer III, an even bigger problem in a number of broadcasting applications.

Finally, the attack on Mel Lambert's objectivity for claiming to like the apt-X algorithm and the enhanced 20- and 24-bit versions is at best churlish. If he had written in a similar vein for all things Musicam, would Mr. Constantine have taken time to submit his observations?

Jon McClintock
Commercial Director
Audio Processing Technology
Belfast, Northern Ireland, U.K.

Maycom winner

Thank you, Radio World and Bradley Broadcast Sales, for the wonderful Maycom Handheld Recorder that we won in your Silver Sweepstakes. It is one of those things we at AlbumZone never had, nor thought we could afford, wish or ask for.

We will be pleased to use the recorder to better serve our worldwide audience, and hope that you will visit our Web site at *www.albumzone.net*.

Your paper is better than ever, and always eagerly anticipated. Kudos on your up-to-the-minute coverage of 9/11 and the WTC tragedy. You have succeeded in boiling down a chaotic situation into the essence of what radio is all about, and it shows what pros you are.

Rich Phoenix
Presenter
AlbumZone
North Plainfield, N.J.

You Know You're a DJ When ...

Instead of an opinion about a news topic of the day, we thought we'd take a break in this issue and share the following with you. This list is excerpted with permission from audiolake.com, *a resource for radio job searching.*

You know you're a DJ when:

- You turn the radio up excitedly at the sound of "dead-air" on the competitor's station.
- You can post the song, run down the hall, go to the bathroom and be back in 2:40 for the segue.
- Eighty percent of your wardrobe has a station logo on it.
- You work in an analog studio and you haven't bought Q-Tips in over three years.
- You still refer to CDs as "records."
- An extra hour-and-a-half of sleep is considered a day off.
- You call a weekend off a vacation.
- Dinner? Let's see what the receptionist has left in the fridge.
- Or the only interaction between you and someone else at dinnertime is, "Thank you, please pull to the second window."
- You can smoke a cigarette in three minutes or less.
- You answer your home phone with the station call letters.
- A salesperson has ever taken credit for your paycheck.
- You've sliced your finger with razor blades, and cleaned out the cut with isopropyl alcohol and an extra-long cotton swab (only applies to those of us who remember reels and carts).
- You have ever dreamt of a song running out and not being able to find the control-room door.
- You've muttered the words, "Yea, I'll try to get that on for ya."
- People who ride in your car exclaim, "How in the world can you listen to the radio that loud?"
- You consider having to wear an ironed shirt, "dressing up."
- Going to a club and not getting paid seems like a waste of time.
- You're thinking about starting a mobile DJ service because people call you to ask, "Do you know of anyone who can play at my wedding?"
- You have at least three unopened CDs, two T-shirts, 22 stickers, and five cups in your car.
- You have about 500 unlabeled aircheck cassettes in a cardboard box in your closet.
- "Cueing," "segueing," "walking on," "loose," "back-timing," "raise," "lower," "EAS" and "thanks for listening" are everyday parts of your vocabulary.
- You have at least 19 pictures of you with famous people whom you haven't seen since.
- You wish you could have been on "Name That Tune," because you would have won a million bucks.
- You were a half an hour late for an appearance and blamed it on the directions you received from the salesperson.
- You've had five No. 8 callers in a row.
- Your favorite pastime is conferencing three listeners on the same line without them knowing it.

— RW

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I had reason to purchase a microphone stand for my studio. It didn't need to be a $500 "Cadillac" issue, just something to get the job done.

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Gary knows radio from underground coax to that light on top of the tower. He is a true pro who know radio and what we need to make our studios look and sound great. Frankly, I had been expecting an aggressive salesperson looking out primarily out for his or her own interests, as too many of us are used to.

People in radio rely on experienced people within our trade to help them out. From his experience, Gary can assure that we're ordering the proper equipment for the job the *first* time. And not necessarily by emptying our bank accounts!

I treasure personal integrity above all else. Thanks, RW and BSW!

Shel Swartz
President
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