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Restructure the FCC?
Ideas abound for reorganizing the industry's regulator.

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Me and My Amprobe
Buc Fitch ponders his friendship with an ancient Triplett current measurement unit.

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Radio World

$2.50 The Newspaper for Radio Managers and Engineers December 1, 2004

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▼ The Aphex Compellor 320D; the Marantz PMD570 solid-state recorder; signal splitting tips for remotes; and the latest hardware.

In This Issue

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Small-Town Owners Hope for New FMs

by Randy J. Stine

WASHINGTON Bidding against broadcasting heavyweights like Citadel, Clear Channel and Radio One, small radio broadcasters seemed determined to gain a fair share of the new 288 frequencies to be awarded by the FCC during Auction No. 37 in November.

Small broadcasters interviewed for this story said they spent money on both technical and legal advisors to guide them through the commission auction process. Most visited local banks to line up financing to make the minimum bid requirements, which ranged from $1,500 to $200,000 for the applicants we contacted.

See AUCTION, page 7 ▶

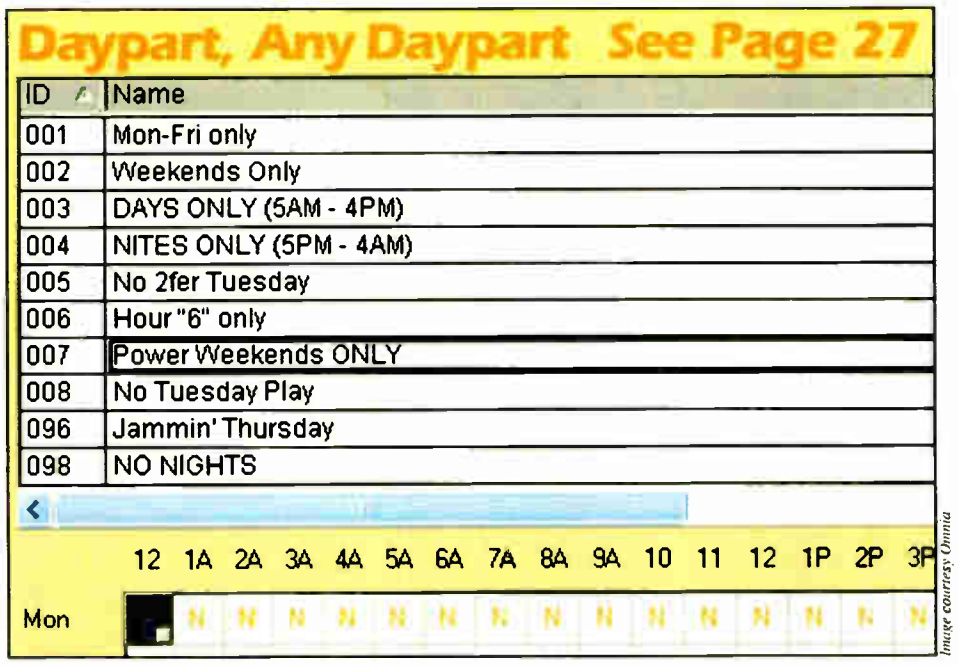

Image courtesy Omnia

Mandatory Recording Disputed

Commenters Argue the Proposed Requirement To Record and Archive Programming

This is the first in a series excerpting public comments filed with the FCC on its proposal to require broadcasters to record and retain programming for some specified time, such as 60 to 90 days. The commission proposed this requirement to increase the effectiveness of its enforcement restrictions on obscene, indecent and profane programming.

United States Conference of Catholic Bishops:

USCCB supports the commission's proposed rule to require broadcasters to maintain archives of programs aired by the broadcast licensees to enable the public to acquire evidence that indecent material has been aired. The current procedure for indecency complaints,

See RECORDING, page 8 ▶

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World Radio History

◆ NEWSWATCH ◆

NAB to FCC: Stations *Are* Local

WASHINGTON NAB opposes the FCC's broadcast localism inquiry in which the agency seeks comments on concerns and new obligations raised by media critics and public interest groups. The trade organization points out in comments filed with the commission that the proposals veer away from the deregulatory approach the agency has taken towards broadcasting in the past three decades.

NAB says the localism notice "demonstrates a lack of appreciation for the current economic and financial circumstances surrounding broadcasting." Stations face expanding competition from the Internet, satellite radio and TV, cable, video sales and rentals; this competition forces broadcasters to serve their local communities, it stated.

Given this, NAB believes, imposing a minimum number of hours of political programming obligations on broadcasters in not justified. The organization also sees little connection to support inquiries regarding voice-tracking and national playlists, "since local control over operations and programming is a bedrock principle of all radio stations, regardless of their ownership structure."

Digital technology will expand stations' ability to expand local programming through multicasting, believes NAB.

NPR Centralizes Tech Departments

WASHINGTON As part of a move to combine two departments, NPR veteran David Argentieri has been named senior director of operations and engineering. At the same time, Bob Nock has retired.

"This centralization of the operations and audio engineering departments will provide better one-stop authority over NPR's technical production resources," stated NPR Vice President Mike Starling.

He told Radio World, "The combined operations and engineering department will handle all technical support logistics for our program operations. Previously, studio and staffing support functions were handled in different departments. Now it's a single unit."

NPR implemented the centralization with Argentieri's appointment, announced the same day 33-year veteran Bob Nock retired. Nock's retirement caused NPR to reconsider its operating structure.

How does this change the way things are done at NPR?

"It provides a single point of contact for technical support requests, as well as centralized responsibility for costs associated with specific program activity," Starling said. "This will provide NPR with better identification, tracking and control over all technical support costs associated with discrete program activities."

Argentieri joined NPR in 1985 after technical stints at WTOP(AM) and ABC News, and served as broadcast recording technician for 10 years, with responsibility for presidential pools, conventions and inaugurations. He later was appointed NPR's first technical director for news operations in 1995 and its first news operations supervisor in 1998, before being appointed its first director of operations in 2001.

Florida Pirate Fine Upheld

PENSACOLA, Fla. Not only did Pensacola resident Ward Dean operate a radio station without authorization, he refused to let agents inspect the facility, according to the FCC, which fined Dean $17,000. Responding to a complaint in 2003 that a station was operating illegally on 103.7 MHz, FCC field agents used

See NEWSWATCH, page 5 ▶

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And with Wheatstone's extensive digital background and reputation you can be assured that the D-16 is a *great* console!

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DIGITAL NEWS

XM Claims 80% Market Share

Satellite Companies Now at 3.2 Million Subscribers; Financial Losses Discussed

by Leslie Stimson

WASHINGTON XM President/CEO Hugh Panero is feeling pretty good about the coming quarter. Subscriber momentum, new programming and products like the Roady2, Delphi SkyFi2 and the MyFi have the company well prepared as it enters the holiday selling season for electronics products, he said.

"We're entering our eighth holiday season as a management team," he said in announcing the company's third-quarter financial results.

The satcaster added 415,671 subscribers in the quarter to reach 2,516,023 subscribers as of Sept. 30. That represents 80 percent of the market share for all satellite radio subscribers, Panero said.

The Delphi MyFi personal, portable XM2GO satellite radio includes a memory mode that allows the listener to store five hours or more of XM content, even when it is not in use.

"Two out of three subscribers chose XM during the quarter," he said. The company expects to exceed 3.1 million by the end of the year. Sirius recently said it had passed 700,000 subscribers after the conclusion of its quarter.

XM's subscription churn rate remains steady at 1.2 percent, executives said. Retail sales remain evenly split between OEM and aftermarket.

The company intends to release year-end subscriber numbers at CES in January.

XM costs, losses drop ...

XM is still losing money; but says it is steadily narrowing those losses. For the third quarter, XM reported a net loss of $118 million as compared to $133.5 million for the same period a year ago.

The satcaster also is slowly reducing its costs to acquire each subscriber. Such costs for Q3 were $89 per subscriber. XM says the $89 figure is an improvement of $38, or 30 percent, compared to the $127 for total subscriber costs reported in the third quarter 2003.

For third quarter 2004, XM reported quarterly revenue of $65.4 million, more than doubling the $26.9 million reported in the third quarter of 2003. Revenue for Q3 2004 also represented a 23 percent increase compared to revenue of $53 million reported in the second quarter 2004.

... but break-even delayed

It will take XM longer to reach the break-even point in cash flow. The company now believes its income will match expenses in 2006, not 2005, because of the cost to acquire Major League Baseball, Opie & Anthony and Bob Edwards.

Sirius has similar cost challenges thanks to content including the NFL and Howard Stern. But Panero predicts this is the tail end of either satellite radio company paying for high-ticket talent.

You "won't see much more of that on the content side," said Panero. He said XM would look for opportunities but be careful not to "get sucked into paying a lot of stock for someone who's doing a 10-minute a-week voiceover."

XM planned an increase in its fixed expenses for the end of this year into next, to $41 million, related to changes needed for new programming such as baseball. That compares to $32 million in'03. The sum represents costs related to such expenses as operations, satellites, R&D and marketing.

XM is using "third-party resolution procedures" according to executives, to get the remaining 20 percent it believes it is owed from its insurer to compensate for the solar panel problem of its Boeing satellites.

Meanwhile, Sirius Satellite Radio in the third quarter increased subscribers 38 percent and revenue 44 percent from the preceding quarter, and still expects to reach 1 million subscribers by the end of the year. But its losses increased.

Sirius passed 700,000 subscribers shortly after the quarter ended. It ended the quarter with 662,289, having added a net of about 182,000 in the quarter — 207,000 additions and 25,000 deactivations, with an average monthly churn of 1.5 percent. President/CEO Joe Clayton said the company made "excellent" progress in the quarter.

The company noted it would begin carrying Howard Stern one year from January, and that Ford has plans to include Sirius as a factory option in numerous models in 2006 and '07 cars.

Revenue in Q3 was $19.1 million, compared to $4.3 million at this period a year ago. But the cost in programming and content alone was $18.9 million in the latest quarter.

Overall its adjusted loss from operations increased by $48.1 million to $125.7 million thanks to the cost of getting subscribers and content. Its subscriber acquisition cost per gross activation was $229, compared to $234 in the three months prior.

The company said it had $523.2 million cash on hand.

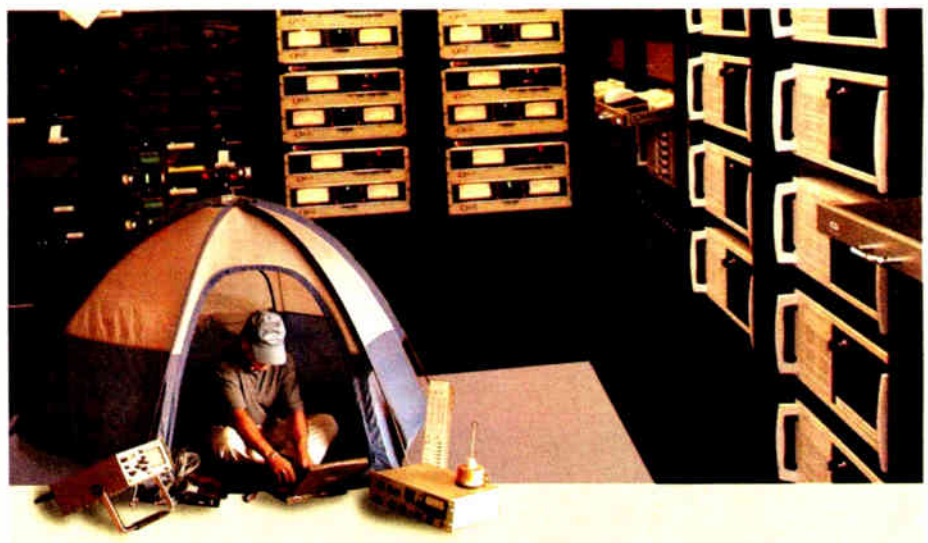
XM also clarified its role in Canadian Satellite Radio, a joint venture with Toronto businessman John Bitove to bring the XM service to Canada. XM Chairman Gary Parsons says XM is a minority shareholder limited to 30 percent ownership by Canadian law.

According to Parsons, CSI (and not XM) is responsible for fundraising and building out its repeater network should the company be awarded a license by the Canadian government. Canada's version of the FCC began hearings in early November to hear from the three satellite radio applicants.

"GM and Honda of Canada supported us in hearings and indicated they're ready to roll out product aggressively" if satellite radio is approved for that country, said Parsons who did not want to predict how many subscribers it could add with Canadian expansion.

The other applicants besides XM are Sirius and CHUM, which is proposing a terrestrial-based services limited to 50 channels in large cities. Observers say Canada could potentially approve all three applications, the two satellite applications and one terrestrial service.

— Paul McLane contributed to this report.



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World Radio History

Engineers, Ready For Their Closeup

I've been trying for years to convince broadcast companies to send us news about their engineers. It seems that effort is paying off.

At Radio World we have always received tons of announcements about groups or stations hiring general managers and sales managers, and also quite a few about air talent. The folks who think up press releases know that we in the trade press, as well as reporters in the wider business world, want to know about those job changes.

But rare was the announcement of a promotion or hire of an engineer; and that's a shame, given that excellence in broadcast engineering is as important to the success of our radio business as sales or any other skill.

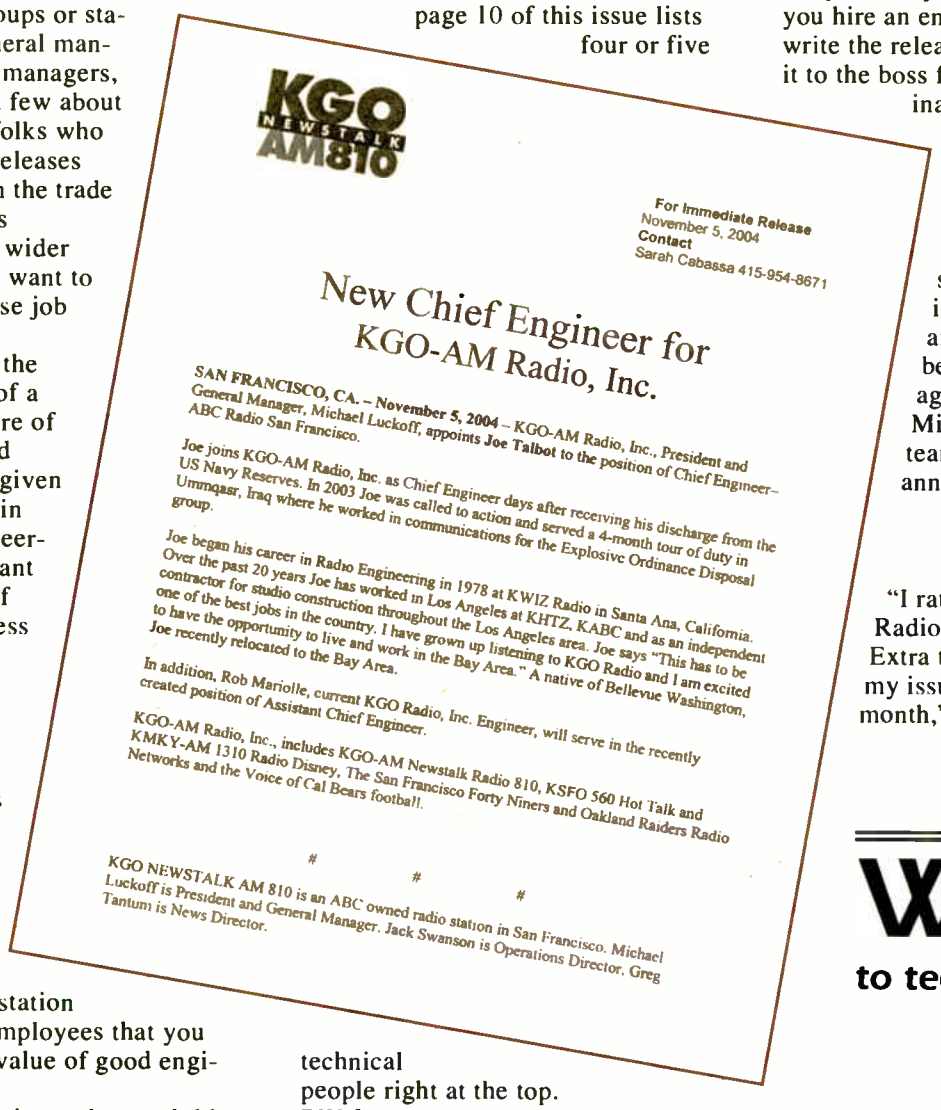
Why not tell the rest of the world about your company's commitment to technical excellence? Why not demonstrate to your investors, your station board or your employees that you understand the value of good engineering?

A few companies understand this; Susquehanna is a good example through its industry ads celebrating its employees and promoting the company as a place to work. But I've nagged the PR folks at other radio companies, and I've reminded many DOEs too; of all people, the directors of engineering should be pushing their corporate technical people right at the top.

RW for years has been the only publication that would report this kind of thing. Look for other publications to imitate us more in the future, as they already have with versions of our "Who's Buying What" column and our significant commitments to white papers, opinions, letters and Guest Commentaries.

folks to tell us about their people. We *want* to know about your engineers: your hires, transfers, promotions, company awards, retirements.

Finally I see some results. For instance, our *People News* column on page 10 of this issue lists four or five



KGO NEWSTALK AM810

For Immediate Release
November 5, 2004
Contact
Sarah Cabassa 415-954-8671

New Chief Engineer for KGO-AM Radio, Inc.

SAN FRANCISCO, CA. – November 5, 2004 – KGO-AM Radio, Inc., President and General Manager, Michael Luckoff, appoints Joe Talbot to the position of Chief Engineer–ABC Radio San Francisco.

Joe joins KGO-AM Radio, Inc. as Chief Engineer days after receiving his discharge from the US Navy Reserves. In 2003 Joe was called to action and served a 4-month tour of duty in Ummqasr, Iraq where he worked in communications for the Explosive Ordinance Disposal group.

Joe began his career in Radio Engineering in 1978 at KWIZ Radio in Santa Ana, California. Over the past 20 years Joe has worked in Los Angeles at KHTZ, KABC and as an independent contractor for studio construction throughout the Los Angeles area. Joe says "This has to be one of the best jobs in the country. I have grown up listening to KGO Radio and I am excited to have the opportunity to live and work in the Bay Area." A native of Bellevue Washington, Joe recently relocated to the Bay Area.

In addition, Rob Mariolle, current KGO Radio, Inc. Engineer, will serve in the recently created position of Assistant Chief Engineer.

KGO-AM Radio, Inc., includes KGO-AM Newstalk Radio 810, KSFO 560 Hot Talk and KMKY-AM 1310 Radio Disney, The San Francisco Forty Niners and Oakland Raiders Radio Networks and the Voice of Cal Bears football.

# # #

KGO NEWSTALK AM 810 is an ABC owned radio station in San Francisco. Michael Luckoff is President and General Manager. Jack Swanson is Operations Director. Greg Tantum is News Director.

Next, I want you to cut this page out and show it to your corporate or station HR, PR and management folks. This release — a real announcement, received here in November — is a template they can use the next time you hire an engineer. Even better, write the release yourself, and submit it to the boss for approval and dissemination.

Why does the accompanying press release work? Because it recognizes the chief engineer as a key member of the station team; because it is short and to the point; and — no small thing — because the general manager is part of it. I salute Mickey Luckoff and his team for handling the announcement in this way.

★ ★ ★

"I rather liked the copy of Radio World Engineering Extra that arrived along with my issue of Radio World this month," a reader writes.

"What bothers me is that I worry it may detract from the engineering content of Radio World, and what is so wonderful about Radio World is that it has such a wide variety of different kinds of articles in it. It would be a shame to see many of the more technical articles being removed to go into a separate edition."

Actually the problem was widespread on our first issue; due to a production and printing problem, several pages including the cover were lighter and less sharp than planned. Look for us to fix that in the next issue.

Please let me know your thoughts and reactions to our exciting addition to Radio World.

From the Editor

Paul J. McLane

Don't fret, Scott. My goal as editor of both publications is to maintain the diversity and engineering content of RW. We don't plan to undercut one with the other.

This new publication is intended primarily for long-form articles and deeply technical matter that we *don't* now publish because of space concerns or because of the broader interests of the readers.

Another reader writes, "While I enjoyed the first copy of RW Engineering Extra, it was difficult to read. The paper and printing need to be improved. It should at least be equal to the Radio World edition. Maybe I just got a bad copy."

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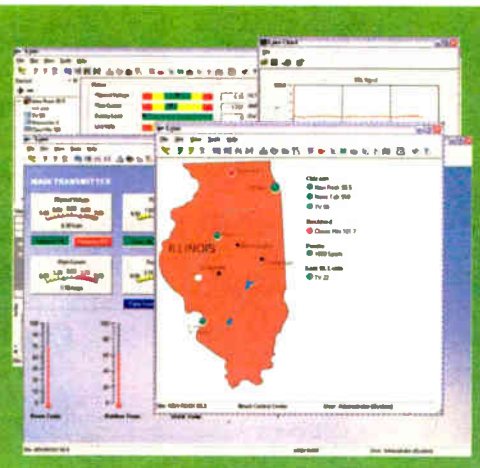

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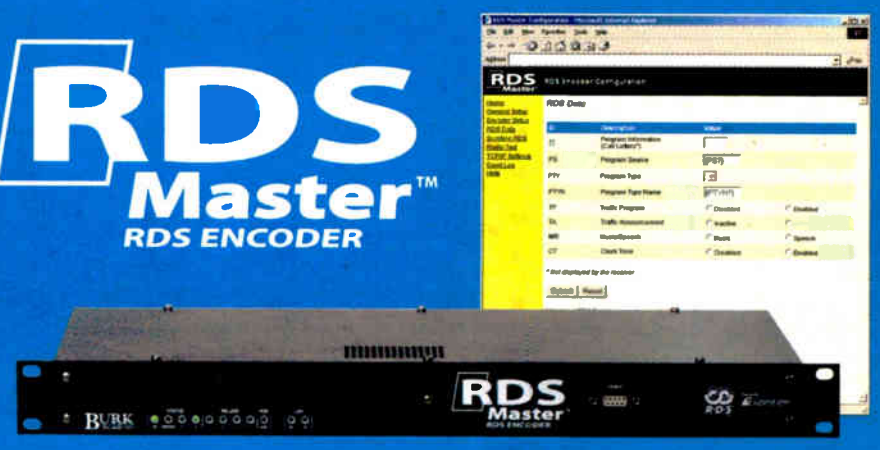

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World Radio History

Mexico Plans a Digital Choice

by Gabriel Sosa Plata

MEXICO CITY A group of engineers — from the Mexican equivalent of the NAB and broadcaster Radio Centro Group — are conducting lab and field tests of IBOC and Eureka-147 digital radio technologies.

Mexican engineers are analyzing the obtained data before submitting a recommendation to the government as to which system the country should implement. The Mexican government plans to choose a system in 2005.

The FM tests were conducted in February and March. Although much information was gathered, data concerning the range of Eureka-147 was still missing. "It will be necessary to test the system with more powerful equipment," said one industry source on the condition of remaining anonymous.

Participants are considering doing further Eureka-147 tests and also adding an AM IBOC test to the mix.

Technicians installed an HD Radio AM system at XEN-690 in Mexico City on Aug. 31. From left, Hector Martinez, transmitter plant supervisor for Radio Centro Group (GRC); Gil Housewright, service technician for Broadcast Electronics; Federico Ortiz López of GRC; Javier Cercado Quezada of GRC; Eduardo Stevens, director of engineering for GRC; and John Schneider, Latin America sales manager for BE.

Field tests

Participants completed field tests using a van equipped with antennas, video cameras, loudspeakers, headphones, spectrum analysis devices and digital radio receptors.

To test the Eureka-147 signals, engineers used Blaupunkt Woodstock DAB52, Technics STGT1000 and TerraTec DRBox1 tuners, as well as a Compaq iPAQ handheld computer fitted with a DAB Etheractive card.

For the IBOC tests, engineers also used Blaupunkt Woodstock DAB52, TerraTec DRBox1 and Technics tuners capable of decoding digital audio and program-associated data.

The IBOC transmissions used Broadcast Electronics FMi Series equipment installed at Radio Centro Group stations Alfa Radio and Stereo Joya. Both stations have transmitters located on Cerro del Chiquihuite, a mountain north of Mexico City.

For Eureka-147, the L-band transmissions also originated from Cerro del Chiquihuite, in this case using a 25 W Harris transmitter on 1467.618 MHz to 1469.262 MHz. Programming came from Radio Centro Group stations La Z, Stereo Joya, Universal Stereo, Alfa 91.3 and Stereo 97.7.

Citywide coverage

The mobile test unit visited points throughout Mexico City and its surrounding districts: the city's historic center, Chapultepec, Santa Fé, Coyoacán, Mixcoac, Xochimilco and La Chamapa, among others.

Participants tested reception at various times and distances in order to assess signal coverage for both systems under a variety of conditions.

"The work was very intense and exhausting, but we had to do it in this manner because the equipment was given to us on loan and governmental permission to conduct the tests came with deadlines," the source said.

Using the tests, participants compared the reception of the digital receivers signals to reception with analog FM receivers.

During both stationary and mobile tests, the range of the transmissions, the threshold of the received signals, immunity to interference and sound data were measured, along with other parameters.

All the transmissions were recorded to DAT at the same audio level without equalization along with technical data for diagnostic analysis and laboratory tests. Participants also made a video recording of the tests.

More tests

Engineers are now considering additional tests with a more powerful Eureka-147 transmitter and of an AM IBOC system.

"The result of these tests will contribute a great deal to the development of HD Radio, as Mexico City has more radio stations than almost any other city in the word, has zones of high population concentration and extremely high buildings," the source said.

Permission from the Ministry of Communications and Transport for digital test transmissions expired in June, but the Digital Technologies Broadcasting Committee, which is evaluating DAB technologies, expected the ministry to authorize additional tests if needed to help determine what digital radio system Mexico should adopt.

◆ NEWSWATCH ◆

▶ NEWSWATCH, continued from page 2

direction-finding techniques that led them to Dean's residence.

He wouldn't let them in, nor would he confirm or deny operating the station, according to the Enforcement Bureau. The field agents said the station stopped transmitting on that frequency after they warned Dean.

When he was fined the $17,000, Dean argued he had not been provided due process because he didn't have a chance to defend himself. He said agents trespassed on his property and did not have a warrant. Dean also argued that there was no evidence he was operating the equipment.

The FCC said Dean's allegations were unsubstantiated, that even if Dean did not directly control the transmitter, he knew or should have known there was an operation on his premises.

The agents left the house when it became clear Dean would not let them conduct an inspection, so they did not trespass and did not need a warrant, said the agency, which upheld the fine.

VOA Tells World About '04 U.S. Elections

WASHINGTON VOA said it experienced "unprecedented demand" for news of the presidential election from its audiences. It aired U.S. election coverage on radio, TV and the Internet in English and 43 other languages.

VOA Director David Jackson stated, "This year, we had more requests for coverage, particularly on television, than ever."

On radio, VOA Persian, Urdu, Kurdish, Spanish, Swahili and Amharic dedicated or expanded shows to provide election coverage, while other radio services aired coverage in their regular programs. VOA English radio and TV broadcast updates.

Internet surfers had access to election coverage at *www.voanews.com*.

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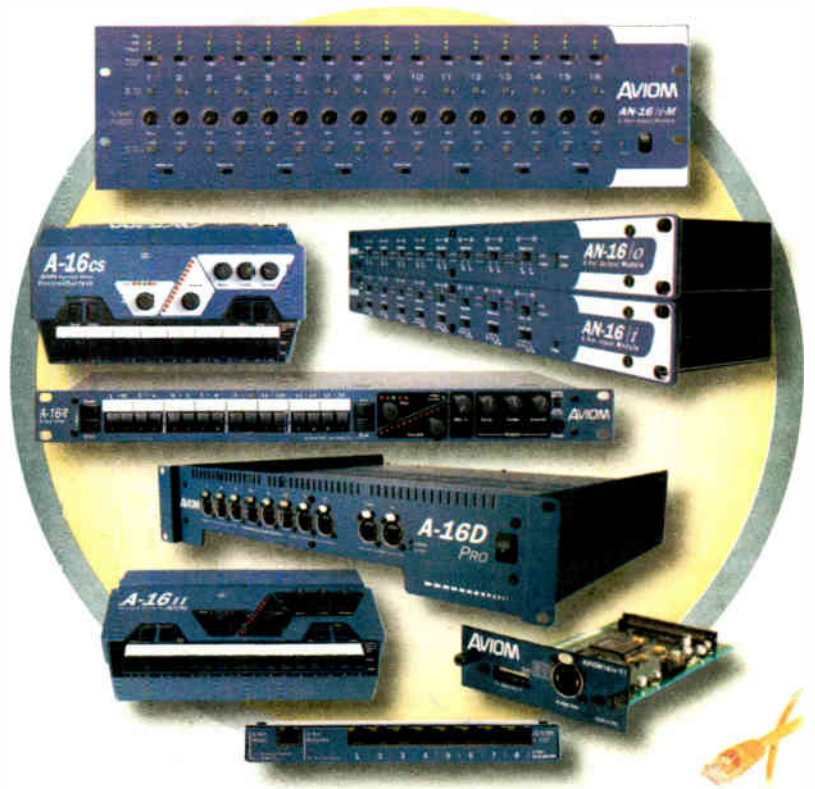

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World Radio History

CBC Enters Year 2 for DRM Tests

by James Careless

SACKVILLE, New Brunswick For some broadcasters, Digital Radio Mondiale, the international digital radio system meant to replace analog shortwave, AM and long-wave broadcasts, is entering its second year of testing in Canada.

Since June of 2003, the international transmission facility of the Canadian Broadcasting Corp. at Sackville has been broadcasting 70 kW DRM signals in the 7, 9 and 11 MHz bands as part of its regular service.

"We started testing DRM about three years ago," said Jacques Bouliane, senior manager of business development for CBC Transmission, which manages CBC radio and TV transmission resources.

Regular service

The tests went well, Bouliane said, "which is probably why the BBC World Service asked us to start relaying their service to the Americas in DRM in early 2003. However, it was not until June last year that our DRM transmission service went from experimental to regular service."

Established in 1938 as a domestic transmission site for CBA(AM) in Moncton, New Brunswick, Sackville is now home to Radio Canada International, the Canadian international shortwave radio service.

In addition, the broad reach of the nine transmitters and various antennas at Sackville has made it a favorite relay choice for the BBC, China Radio International and other shortwave broadcasters targeting North and South American listeners.

Sackville's antennas are radiating daily DRM broadcasts for the BBC, CRI, Deutsche Welle, Radio Nederland Wereldomroep, RCI and Radio Sweden International.

"As well, we air some weekly transmissions from Belgium and weekly programs produced by the National Association of Shortwave Broadcasters," Bouliane said.

'Specialist units'

To generate its DRM broadcasts, the CBC modified a 250 kW Thales transmitter by connecting a DRM exciter.

"This gives us about 70 kW of transmitter power in the DRM mode," Bouliane said.

To generate its DRM broadcasts, the CBC modified a 250 kW Thales transmitter by connecting a DRM exciter.

Once the DRM signal is generated, Sackville's internal switching station routes it to the appropriate antenna. From there, the DRM signals head out into the atmosphere, much like a conventional shortwave signal.

In comparison to analog shortwave, the performance of DRM is not easy to quantify, especially given the low number of receivers in the North American market.

"These are, by and large, specialist units, where the monitor captures the DRM signal using a conventional high-end radio, then ports the signal to a PC for decoding and playback," Bouliane said.

Enough DRM receivers are tuned to Sackville to give a sense of the propagation characteristics of the digital transmissions, he said.

"In general, DRM signals propagate about as well as analog shortwave signals do," said Bouliane. "The difference is in how they react at the receiver end."

Because DRM signals are digital, the radio either receives enough data for the signal to be decoded or the unit does not. There is no blend to analog as there is with IBOC.

But CBC engineers believe they have learned enough about the propagation quirks of DRM to work with the new medium.

"If you want to deliver a mono FM-quality signal at 21 to 24 kbps, then you sacrifice distance," said Bouliane. "But if you reduce the bit rate to about 17 kbps, which gives you good AM quality, then you can reach overseas. Basically, lowering the bit rate gives you a more robust signal; so the more distance you want to cover, the lower the bit rate you want to send."

Conversion challenges

Given the growing interest in DRM among the world's broadcasters, CBC is looking ahead to convert Sackville to the digital standard.

"We know that transmitters up to 15 years old can be modified easily to transmit DRM," said Bouliane. "Meanwhile, those built in the 1950s and '60s — of which we own a few — can also be modified, but require more work."

The antenna arrays will not need any adjustments; they can accept either analog or digital signals.

Still, Bouliane does not foresee Sackville converting to DRM-only broadcasts for another 10 to 15 years. The problem is not transmission technology, but the lack of DRM receivers, he believes.

"Even when consumer DRM receivers become available, it will take years for people to replace their analog sets with DRM models," he said.

By that time, Bouliane said he expects consumers to be using radios capable of receiving IBOC, Eureka-147, digital satellite and DRM signals.

"Meanwhile, DRM will make it possible to cover entire continents with good audio over the air while allowing mobile reception; much as satellite radio does now, but for free," Bouliane said.

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◆ NEWSWATCH ◆

Day Sequerra to Produce HD Radio Reference Tuner

HORSHAM, Pa. Day Sequerra will begin production of several models of its HD Broadcast Reference tuner in December.

Day Sequerra is a subsidiary of ATI-Audio Technologies Inc. The tuner will begin shipping to dealers after its introduction during the upcoming Consumer Electronics Show.

President David Day said, "This is the first new design from the company that produced the FM Reference tuner."

The HD Broadcast Reference has a modular design that can receive and distribute up to 10 audio and video signal sources including HD Radio AM and FM broadcasts, HDTV, analog FM broadcasts, analog AM and TV.

The company plans other broadcast modules to include satellite radio and streaming Internet audio.

The model most likely to appeal to radio will be the M1-HDFM, retailing for $2,999 with the appropriate audio output module. A full price list is expected in January.

Harris Closes Encoda Purchase

MELBOURNE, Fla. Harris Corp. has closed its purchase of Encoda Systems Holdings Inc. In a deal worth $340 million, Harris acquires a line of traffic, billing and promotion scheduling products, as well as automation systems.

Encoda has 700 employees, and is made up of what used to be Enterprise Software, Columbine JDS Systems and Drake Automation. Encoda has customers in 34 countries and revenue for the 12 months ended June 30 of $124 million.

Previously, Encoda was owned by an investment group that included Thomas H. Lee Partners, Blackstone Capital Partners, Spire Capital Partners and Evercore Capital Partners, among others.

World Radio History

Auction

▶ Continued from page 1

The online auction, which began Nov. 3 and was to last for days and possibly weeks, provided broadcasters the chance to scoop up new FM frequencies for a lot less than it would cost to buy existing radio stations.

Holladay Broadcasting in Monroe, La., rounded up $65,000 for its qualifying minimum bids on FM frequencies in Tallulah, La., and Redwood, Miss. The company owns two AM and three FM stations in Monroe.

A long wait

"I have been frustrated because it took so long to get to this point," said Robert Holladay, president of Holladay Broadcasting, noting that most new FM allocations have been frozen since 1997.

Holladay was leery of the complexity of the online bidding process and worried that a mistake could cost him a winning bid, although the FCC held a mock bidding trial the week prior to official bidding opening.

EAGLE COMMUNICATIONS

"I'm not so sure that we are on equal ground anymore when it comes to the allocation process," Holladay said. "They have put more emphasis on money than actually serving a community."

Some other broadcasters shared that sentiment.

"The FCC sends a message from the standpoint of localism and how we need to be local and serve our communities; and this process is completely the opposite. It put the emphasis on money and less about what the winning bidders will put on the air," said Gary Shorman, president and chief executive officer of Eagle Communications Inc., based in Hays, Kan., which owns 21 radio stations in Kansas, Nebraska and Missouri.

Shorman said, "Small companies like ours focus more on local programming than do larger broadcasters, who are just looking to add another stick on a map."

Eagle Communications paid about $250,000 in qualifying bids to participate in the auction for five FM frequencies that could fit into existing clusters.

As part of their bidding strategy, small broadcasters had to consider what a new frequency in a small market could mean to their listening share.

"Potential cash flow is everything. In broadcasting it really doesn't matter how much money you're making, it depends on how much money you're keeping," said Paul Gardner, president of Elko Broadcasting Co., based in Elko, Nev.

"Since we are potentially facing new competition we will probably bid higher to protect our current cash flow."

Elko Broadcasting owns KLKO(FM) and KELK(AM) in Elko, which is approximately 450 miles north of Las Vegas. The company expected to bid on three new frequencies.

"Finding money was a little hard. Not too many investors want to tie up their money and know that they might not even get a station in the end," Gardner said.

Kim Love, president of Lovcom Inc., which owns four stations in Sheridan, Wyo., said he could not take the chance on passing on several nearby frequencies in case the bidding was much lower than expected.

> **This is the less expensive way to go about owning a radio station.**
>
> **— Gary Voss, Hooterville Broadcasting**

Broadcasters had to meet minimum bid requirements to participate in the FM auction, which was usually about 5 percent of the projected value of a frequency. The money was refundable if the bidder was not successful.

"In case something sells very, very cheaply ... you would wish you had participated." Love said.

Lovcom expected to bid on one frequency in Lovell, Wyo., where the minimum bid was $70,000.

Small broadcasters interviewed for this story said that, if successful, they would plan to add facilities quickly and get their new stations on the air.

"There would be no reason to wait. We just feel that this is the less expensive way to go about owning a radio station," said Gary Voss, a partner in Hooterville Broadcasting, a startup group hoping to obtain a CP for a frequency in Watseka, Ill.

Voss estimated the company spent "several thousand dollars" on coverage maps and lawyer fees.

"I expect a lot of people are looking to obtain frequencies to use them as a wedge against other broadcasters or to buy other things. There just are not existing stations around to buy," Voss said.

World Radio History

Recording

▶ Continued from page 1

which puts the initial burden on listeners and viewers to obtain a transcript from the broadcaster of the program at issue, but does not require the broadcaster to provide it when requested by the listener or viewer, inhibits the appropriate enforcement of indecency rules.

Absent a transcript or tape, the commission is forced to make its initial decision based on a listener's or viewer's memory alone, a situation unfair to the complainant, the broadcaster and the commission. ...

USCCB also supports the commission's proposal, in this Notice, that program archives rules be developed so that citizens will have much-needed information with which to file petitions to deny, and file thorough comments in future and current proceedings before the commission. To succeed, petitions to deny a license renewal must "contain specific allegations of fact sufficient to show that ... a grant of the application is prima facie inconsistent with (the public interest)." ...

always had access to their own programming records). ...

USCCB applauds the commission's recognition that more tools, such as citizens' access to program records, are needed to assist it in "enforce(ing) ... other types of complaints based on program content." However laudable these efforts are, the commission must take the next necessary step by defining what "program content" will satisfy the statutory requirement that broadcasters serve the public interest.

The commission must move decisively and open for public comment a rulemaking to establish clear, enforceable requirements that broadcasters determine the needs and interests of their communities of license, air at least a minimum amount of public affairs, news and independently produced programs which meet those needs and interests, and report to the public their actions.

National Association of Broadcasters:

NAB observes that the commission is clearly able to enforce its indecency rules effectively without the proposed recording requirement, especially giv-

There are simply no grounds for the commission to justify its astoundingly overbroad and punitive proposal, which will force thousands of broadcasters to record and retain tens of millions of hours of programming.

— NAB

Since the commission eliminated much of the documentation formerly required of broadcast renewal applicants ... the public must rely instead on time-consuming and elaborate viewer (or listener) logs of programs or on broadcasters' vague quarterly program/issues lists. The commission itself has recognized that licensees can easily defeat petitions to deny based on the quarterly lists by providing information they did not include on those lists. ...

With access to actual program records, the public may make their case against renewal on a more even footing with licensees (who have

en, in Chairman (Michael) Powell's words, the FCC's recent "sharpen(ing)" of its "enforcement blade." In any event, the commission dismisses only about *1 percent* of all indecency complaints filed for failure to provide sufficient information (such as a tape, transcript or excerpt of the challenged programming), so the imposition on broadcasters of a program recording requirement would not aid the FCC's enforcement processes in any material way.

By any standards, the commission's proposal to require all broadcasters in the country — regardless of their size and resources and their past record in complying with the indecency rules — to record all their programming and to retain those recordings, perhaps for months, is extraordinarily overbroad and fundamentally unfair. In 2002, 2003 and 2004 combined, only *one* television station received a notice of apparent liability ... for forfeiture for airing indecent programming.

Over that same period, merely a *small fraction of 1 percent* of all radio stations in the U.S. received a NAL for indecency. An exceptionally small number of broadcast programs are ever the subject of indecency complaints (let alone NALs), as the vast majority of complaints filed at the commission concern literally a handful of programs.

The commission must take the next necessary step by defining what 'program content' will satisfy the statutory requirement.

— U.S. Conference of Catholic Bishops

There are simply no grounds for the commission to justify its astoundingly overbroad and punitive proposal, which will force thousands of broadcasters to record and retain *tens of millions of hours* of programming. Not only does the commission's proposal fail to serve any reasonable regulatory purpose, as the vast majority of stations upon which the requirements would be imposed already fully comply with the indecency rules, it would also fail any reasonable cost/benefit analysis.

The equipment and personnel costs involved in the recording and retention of (at a minimum) tens of millions of hours of programming will not be insignificant across the radio and television industries as a whole. These costs and burdens, moreover, will fall in a disproportionately heavy manner on smaller market and non-commercial stations, especially television stations that multicast.

For stations on fixed capital budgets, recording requirements could force them to expend scarce resources now available for programming or other purposes, even though most stations have never received an indecency complaint, let alone a forfeiture. In addition to the equipment and personnel costs, the commission's proposal would entail the completely redundant recording by thousands of broadcast stations of the exact same television and radio network programming, syndicated programming and musical programming, virtually none of which will ever be the subject of an indecency complaint.

Just as the commission in 1977 declined to adopt a more narrow taping requirement, the commission should conclude in this proceeding that the benefits of an even broader recording mandate do not outweigh the costs imposed.

Station Resource Group and the National Federation of Community Broadcasters:

The (Notice of Proposed Rule Making) is silent on the critical issue of whether the recorded programs would have to be kept in a station's public file, or otherwise be made available to the public, but even if retained programs were not made part of the public file, the proposed rule would subject NCE stations to an unprece-

dented potential for governmental intrusion into program content.

Has an NCE station arguably broadcast a "view" on a subject of public importance or interest? Aired a statement that supports or opposes a political candidate? Advocated a position on a matter of pending legislation? Aired a program possibly lacking in objectivity and balance? Broadcast a program injurious to the reputation of a public official?

The proposed rule would provide a new basis for investigating all these questions. If a station's programming had to be retained for 60 to 90 days, such records would undoubtedly be subject to subpoena or other legislative, judicial or regulatory scrutiny.

The FCC, Congress, CPB and public officials would be able to subject programming on NCE stations to a level of governmental interference that would make the former "Fairness Doctrine" seem benign by comparison.

The proposed requirements would fall, like regulatory rain, on the just and the unjust alike. The rule would apply to all broadcasters, regardless of their ability to afford such burdens, or the likelihood that they will violate indecency rules. These burdens are particularly severe for NCE stations, including new LPFM stations, for whom the costs of recording and storing copies of programs cannot be recovered as a business expense.

Because NCE stations operate on limited budgets, and have a limited ability to expand revenues to satisfy new capital and administrative expenses, the proposed rule would impose a significant hardship for many stations.

More than 550 comments may be found in MB Docket 04-232.

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- perform unattended remote broadcasts
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World Radio History

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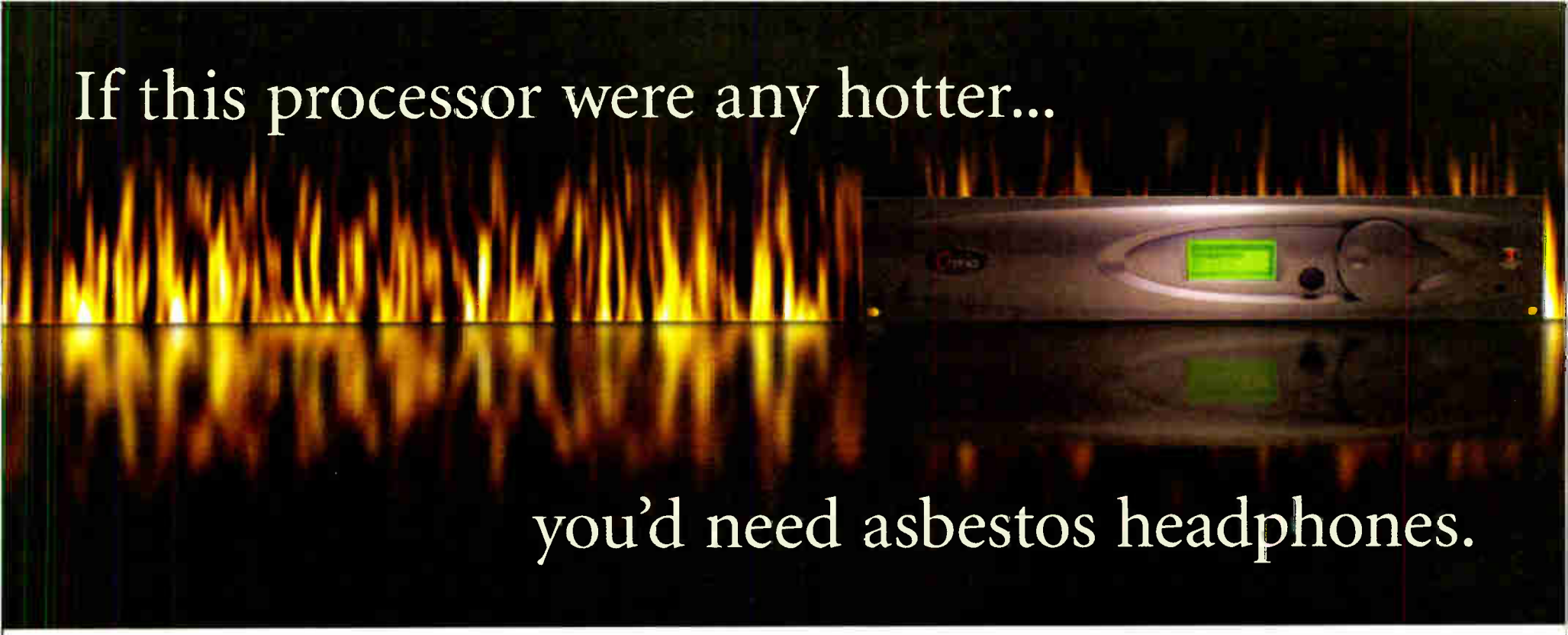

you'd need asbestos headphones.

The new Omnia-3fm *Turbo* gives you features you might not find even in processors that cost a lot more. Here's a small sample of what you'll get:

- Adjustable, oversampled three-band limiter and three-band Automatic Gain Control section for smooth, clean sound that's as loud as you want it to be.
- Omnia Bass Management System provides up to 12 db of bass boost using specially designed, time-aligned algorithms for the loudest, cleanest low end ever.
- Remote control your way: standard serial and optional modem and Ethernet connectivity let you tweak your sound from anywhere, any time.
- Famous Omnia non-aliasing, distortion-controlled composite clipper helps you achieve the clean, loud sound you've been dreaming of.
- Full-featured I/O with analog, AES/EBU and composite ins and outs.
- A double handful of format-specific presets to get you up and running quickly.

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Announcing Omnia-3fm *Turbo.*

There's a reason we call it "Turbo." This new Omnia has more than enough DSP muscle to grab and hold button-happy listeners, and burn your brand into their memory. Omnia-3fm Turbo's 3 new bands of AGC, 3 bands of precision limiting, and distortion-cancelled clipping stage work in harmony to deliver bold, thumping low end, crystal-clear highs and the warm, natural, open feeling for which Omnia is famous.

Clients rave:

"We raced Omnia-3fm Turbo against the Orban 2300 and DSP-X, and the Omnia was the loudest, cleanest and best box by far. This processor is incredible! It's like hearing the original Omnia again for the first time."
— Mike Oberg, WGMO-FM

"We installed two Omnia-3s... our competitors have noticed the change in the audio quality, and they are wondering what our stations have that they don't!"
— Allen Osborne Maldonado, Cocatel, Honduras

"We installed the Omnia-3 on KQAK-FM and noticed an immediate difference - so did our listeners! We sound louder, crisper and better than ever before.
— Keith Shipman. KQAK-FM

The new Omnia-3fm Turbo has a US MSRP of $3,995.00. But for a limited time, you can get it for **only $2,995.00.** Call your Omnia dealer for details.

Want to really stomp your competition? Get an Omnia-6EX, the six-band, dual-path processor with twin processing paths for your standard FM and HD Radio™ signals.

For AM audio that peels paint off the wall, you want the flamethrowing Omnia-5EX HC-AM, with simultaneous processing for conventional AM and HD Radio™ broadcasts.

Put the power of Omnia in your Windows® PC! Omnia A/X works seamlessly with Real, Windows Media, MP3 streaming encoders and audio production software to make your streaming audio sound fantastic.

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World Radio History

Tell us about your job change or new hire. We're particularly interested in hearing news about radio engineers and managers. Send news and photos via e-mail to radioworld@imaspub.com or mail to Radio World People News, P.O. Box 1214, Falls Church, VA 22041.

Bonneville Broadcasting named **Dave Garner** VP of technical operations for its group of stations. His previous title at the company had been chief engineer of its D.C. Division.

James Kelly

James Kelly, longtime producer for **Crawford Broadcasting**'s Chicago cluster and production director of WPWX(FM) for the last two years, moved into the company's engineering department as a studio engineer.

Former radio engineer **Al Kenyon** was named head of the broadcast technical services division of consulting engineering firm **Denny & Associates**. He most recently had been a senior VP for Clear Channel.

Al Kenyon

Audio-Technica promoted **Steve Savanyu** to market manager, installed sound, broadcast and theater. He joined the company in 2000, and most recently was marketing manager for training and seminars.

NPR veteran **David Argentieri** was named senior director of operations and engineering. He joined NPR in 1985, and served as broadcast recording technician, technical director for news operations and news operations supervisor before becoming director of operations in 2001. (See page 2.)

Harman International's **Lexicon Pro** appointed **Randy Neiman** market manager, recording and broadcast. Neiman worked in management positions for Mackie Designs and Alesis Studio Electronics and most recently served as product manager for Gibson Labs.

Molly Wythes was named senior VP and managing director of the Marketing Business Development-Advertiser team for **Clear Channel Katz Advantage**. She had been VP and marketing manager for Katz Dimensions.

Katey Kohn was named director of marketing for **Infinity Broadcasting**'s WFAN(AM) Sports Radio. She had held the same position for Infinity's WSCR(AM) The Score. ... **Tim Sabean** was named VP of active rock programming for the company. He continues to serve as VP of programming for Infinity's Philadelphia stations WYSP(FM), WPHT(AM), WIP(AM), KYW(AM) and WOGL(FM), as well as operations manager for WYSP.

Premiere Radio Networks appointed **Hosea Belcher** to senior VP of marketing and creative services. He replaced Marty Raab, who left to pursue other interests. Belcher had been senior VP of marketing for Artisan Entertainment.

Clarke Brown

Jefferson-Pilot President **Clarke Brown** will be the next honoree at the Bayliss Radio Roast, sponsored by the John Bayliss Broadcast Foundation. The event will be held March 16, 2005 in New York.

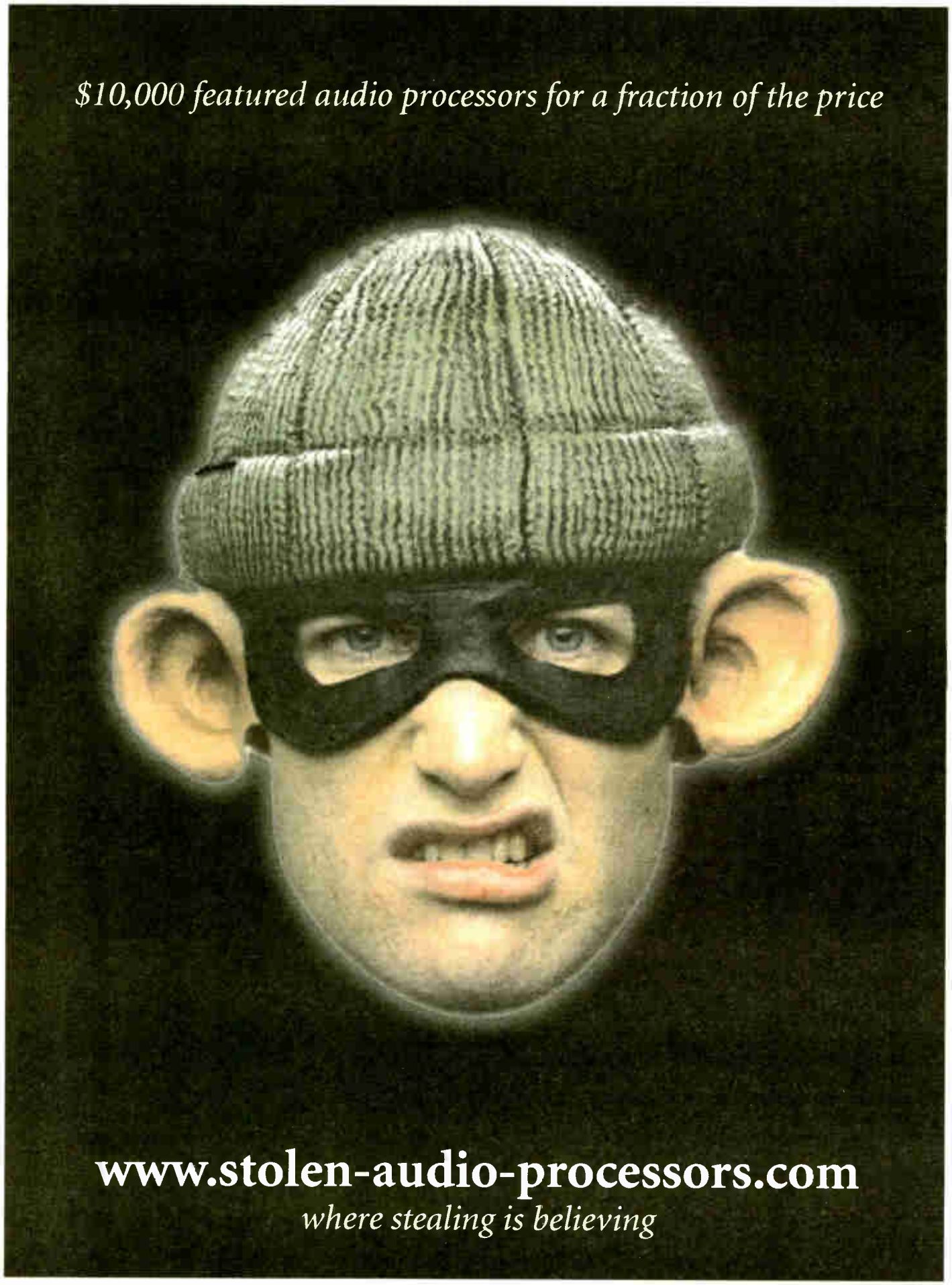
ABC Inc. named **John Gallagher** president and general manager of WLS(AM) and Radio Disney WRDZ(AM) in Chicago. He had been director of sales for WJR(AM) in Detroit.

Middle Atlantic Products named **Bill Poling** as director of sales, Southeast region. Prior to joining the company, he worked on data enclosure systems for Rittal Corp.

ETA Systems appointed **Joe Desmond and Associates** as the company's Northern California representative. JDA established an office and warehouse in Rohnert Park, Calif., north of San Francisco.

Leslie Moonves, co-president and co-chief operating officer of Viacom, and also CBS chairman, was elected to **Westwood One**'s board of directors. ... Westwood One also appointed **Joe Montione** to senior director of affiliate sales. He had been national director of marketing and distribution at All Comedy Radio. ... **David Hillman** was promoted to Westwood One senior VP and general counsel. He joined the company in 2000 as VP of labor relations and associate general counsel.

Salem Communications appointed **Mike Moranto** manager of its Atlanta cluster. He had been VP and director of Media Leading the Way, the international ministry of Dr. Michael Youssef in Atlanta.



World Radio History

Commander G3

Modular Stereo POTS • ISDN • GSM Codec

Introducing the new Tieline Commander G3

At Tieline, we've taken a fresh approach to audio codec design. Now you can customize your audio codec to suit your exact needs for remote broadcasts and STLs. You only pay for what you need and we're the first to be compatible with most major ISDN and POTS codecs in your rack.

Think of the new Commander G3 as a codec foundation with two expansion slots which accept your choice of POTS, ISDN and GSM modules. You simply buy what you need.

For example, if you need a mono 15kHz POTS codec, simply buy the Commander G3 with a POTS module for one low price. Need 15kHz Stereo or dual mono over POTS? Just add another POTS module.

If you're looking for a mono/stereo ISDN codec without POTS, you can buy a Commander G3 with an ISDN module only. It comes with G.711, G.722, and Mpeg Layer 2. Tieline's "Music" algorithm also delivers an astounding 15kHz stereo over a single ISDN B channel! You can always add a POTS or wireless GSM module later if you need.

Need a stereo ISDN STL with automatic failover to 15kHz mono POTS? Buy the Commander G3 with POTS and ISDN modules plus Tieline's new Freedom Failover software kit.

Plug in the GSM module and deliver up to 7.5 kHz over GSM networks and up to 15 kHz over HSCSD wireless networks.

Control your remote talent's mic input gain from the studio and send simultaneous audio, serial data and relay activation in either direction

We've even created digital matrix router software which enables you to cue audio off air, create a local audio intercom, and talkback to the studio all without interrupting your broadcast.

The new Tieline Commander G3 is simply the world's most powerful, flexible and customizable codec. It's even compatible with your Comrex** Vector, Matrix, Blue and Musicam Liberty POTS codecs.

Every Tieline codec comes with a two year warranty plus the support of an experienced engineering team with more than 25 years in the broadcast industry right here in Indianapolis. That's why hundreds of stations, major radio groups and networks across America use Tieline to deliver audio every single day.

Hurry, free demonstration Commander G3's are limited. Call you favorite broadcast dealer or call us at 800-750-7950 to book your free demo.

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World Radio History

Workbench

They Work Hard So You Don't Have To

by John Bisset

Dale Heidner of KGVW and KCMM in Belgrade, Mont., read our *Workbench* advice on checking capacitors. Dale adds a simple and alternative method he wanted to share.

Fig. 1: Flaps cover and protect locks ... but provide a haven for stinging insects

Take your Fluke 77 DMM meter and set it to the DC range. Measure your DC supply voltage. For example, let's say the DC supply is supposed to be +15 VDC. You measure +15VDC on your Fluke. Now set the Fluke 77 to the AC position and read your AC voltage.

Usually, Dale likes to see a ripple voltage of about 0.005 VAC on his Fluke 77. When Dale checked his Heathkit power supply in the 300VDC mode, he measured a ripple voltage of 0.007 VAC.

Try it! The technique will save you from lugging your 'scope up to a mountain site to check the power supply in your STL receiver.

Dale Heidner, W7NAV, can be reached at *dheidner@in-tch.com*.

★ ★ ★

I received two notes from engineers regarding the wasps and the rubber ice-flaps used to "weatherproof" outdoor padlocks.

The first was a warning from Randy Kerbawy, engineering Manager for Southern Communications in Beckley, W.Va. Randy writes that the rubber flaps covering padlocks is also a great place for wasps and other critters to hide.

Randy wears the battle scars from at least one wasp attack, surprising the varmint as he reached under the flap to open a lock. As colder weather approaches, the problem is particularly bad.

We mentioned one solution, spraying some wasp killer under the flap that should discourage the visitors. Although the rubber ice shields are helpful, beware! Randy Kerbawy can be reached at *engineering@103cir.com*.

Fig. 1A: One engineer uses these friendly Bubbles to fight such wasps.

★ ★ ★

Who would ever believe that there would be angry wasps in as pretty a city as San Francisco? Lou Schneider is on the engineering staff for Bonneville's San Francisco Radio Group, KOIT(AM-FM), KDFC(FM) and KZBR(FM). He's found that Dow Bathroom Cleaner With Scrubbing Bubbles is the most effective way to deal with angry wasps.

The version in the aerosol can works best. Just spray it in their vicinity, and as soon as the Scrubbing Bubbles touch their wings it foams up and they drop like a stone. If you want to follow up with regular wasp spray, the Bubbles will keep them disabled while the insecticide finishes them off. Or you can just step on them. Squish.

You might wonder how Lou made this discovery. About 20 years ago, Lou disturbed a large nest inside a transmitter room; an angry swarm formed between Lou and the exit. In his haste, Lou grabbed the wrong

See VENTS, page 14 ▶

Fig. 2: Electronic devices have a home in the SCOTTeVest.

ONE product, TWO solutions!

It's *AUTOSWITCH*, an automatic audio switcher!

AutoSwitch eliminates that annoying "digital echo" in DJ headphones by switching the headphones from Air to Local audio when the mic is on.

It's also an automatic silence sensor, and can switch your audio to a backup source if the main source fails.

Now in stock at all Henry dealers.

NEW!

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We Build Solutions....(two in one box!)

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World Radio History

The routing switcher gets a new twist.

(About five twists per inch, actually.)

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

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

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

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

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

Are you still using PC sound cards?

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

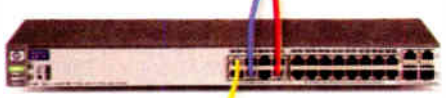
Livewire

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

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

Put your preamps where your mics are.

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



Put your snake on a diet.

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

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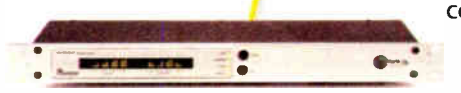
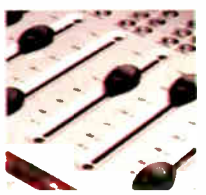


Would you like some control with that?

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



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World Radio History

Vents

▶ Continued from page 12

spray can, and was pleasantly surprised with the result. The Scrubbing Bubbles worked like a champ and he escaped without getting stung. Since then, Lou keeps a couple of cans at his transmitter sites.

Lou Schneider can be reached at *lschneider@koit.com.*

★ ★ ★

As the holiday's approach, the folks at SCOTTeVest Inc. have introduced several products to include in your holiday gift guide. The company offers what it calls Technology-Enabled Clothing, which permits wires from electronic devices to be routed through a patent-pending Personal Area Network.

Although they're a favorite of the "technical geek" crowd, travelers also like these thanks to features such as pockets galore, up to 44.

Now, in addition to being able to carry and connect devices, you can charge them with the solar-powered SeV. So get charging.

★ ★ ★

Marcus Damberger is with KBIM(TV) in Roswell, N.M. He was checking out *Workbench* columns archived at RW Online and appreciated the air conditioning suggestions we've offered. Reading those inspired Marcus to ask about a solution to a problem readers might have come across.

Marcus writes that New Mexico is "translator land," second only to Utah.

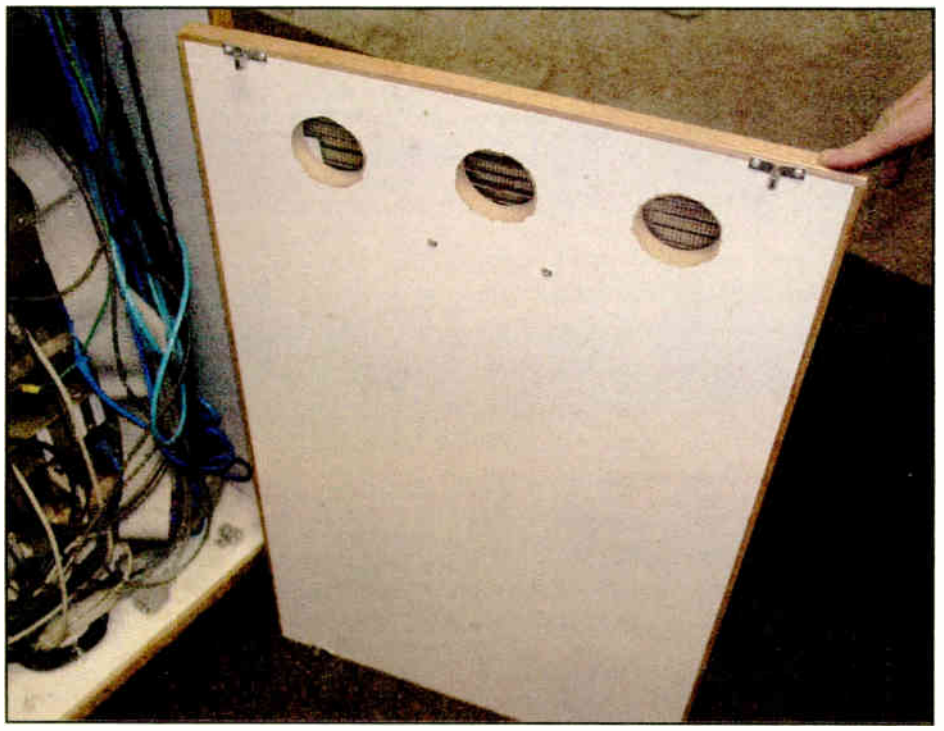

Fig. 3: Ventilation holes are drilled in removable panels ...

While maintaining sites, he has come across frozen air conditioner condensation coils — specifically in window units that tend to be used where access is hard and the HVAC repairman can't easily get to the top of the mountain. Often a spare window unit will be available on site to replace one that might fail.

Marcus' question is whether any readers have come across a probe of some kind that could detect the freezing of the coils and shut off the A/C until the ice melts. Marcus adds, "Something like the Waterbug, but only for freezing?" He refers to the Waterbug brand water protection device.

I'm not aware of anything; but perhaps mounting a Burk/Gentner temperature probe up against the coil, tie it to the remote control, alarm it, then use something like a Henry Super Relay to interface to the remote control for turning the A/C off and on.

E-mail suggestions to me at *john.bisset@dielectric.spx.com.* Published submissions qualify for SBE recertification credit.

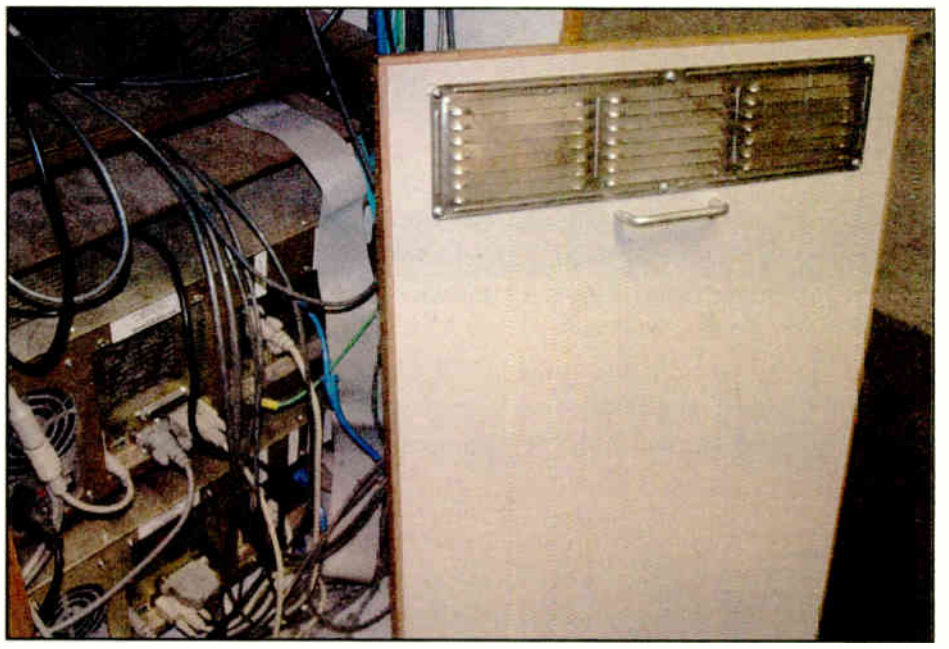

Fig. 4: ... and inexpensive grilles are added to provide ventilation.

Marcus Damberger can be reached at KBIM(TV), *mdamberger@kbimtv.com.*

★ ★ ★

One of an engineer's biggest challenges is using older console furniture in a state-of-the-art studio.

Rich Hill, engineering manager for Citadel's Harrisburg, Pa., cluster, was faced with this dilemma while planning a facility. Although the existing furniture would suffice until the move, heat generated by rack-mounted computers and other equipment mounted in the vertical rack space could be a problem.

You've probably seen stations where the only choice for ventilation was to leave the finishing panels off the backs of the cabinetry. Rich had a better idea. He drilled three large holes in the cabinet's removable panels and covered the holes with ventilation panels that cost under $1 each.

Since Rich showed me his handiwork, he's planning to add small muffin fans to circulate air through the rack equipment, further improving ventilation.

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

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

WE GIVE YOU BISSET

Name: John Bisset

Occupation: Northeast regional sales manager for Dielectric Communications

Experience: 34 years in the industry. SBE Certification; presenter of NAB Transmitter Workshop; speaker at numerous conventions; contributor to NAB Radio Handbook

Mentors: Lamar Newcomb, Ray Gill, Steve Dana, John Cunningham, Charlie Wright, John Mullaney Sr. and Jr., Mitch Montgomery, Morgan Burrow, Jim Weitzman, Alan Pencleton, Morris Blum, Milford Smith, Tom Giglio, Scott Beeler.

Favorite memories: Early days of AM improvement; demonstrating the Splatter Monitor to the FCC with fellow Delta employee Tom Wright; development of *Workbench* into RW's most popular feature.

Quote to live by: "Few things are more persistent and intimidating than our fears and our worries ... especially when we face them in our own strength." — Swindoll

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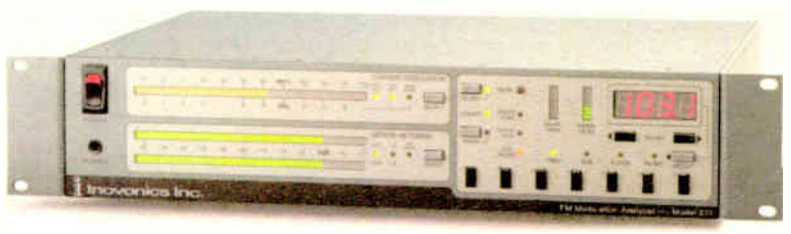

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World Radio History

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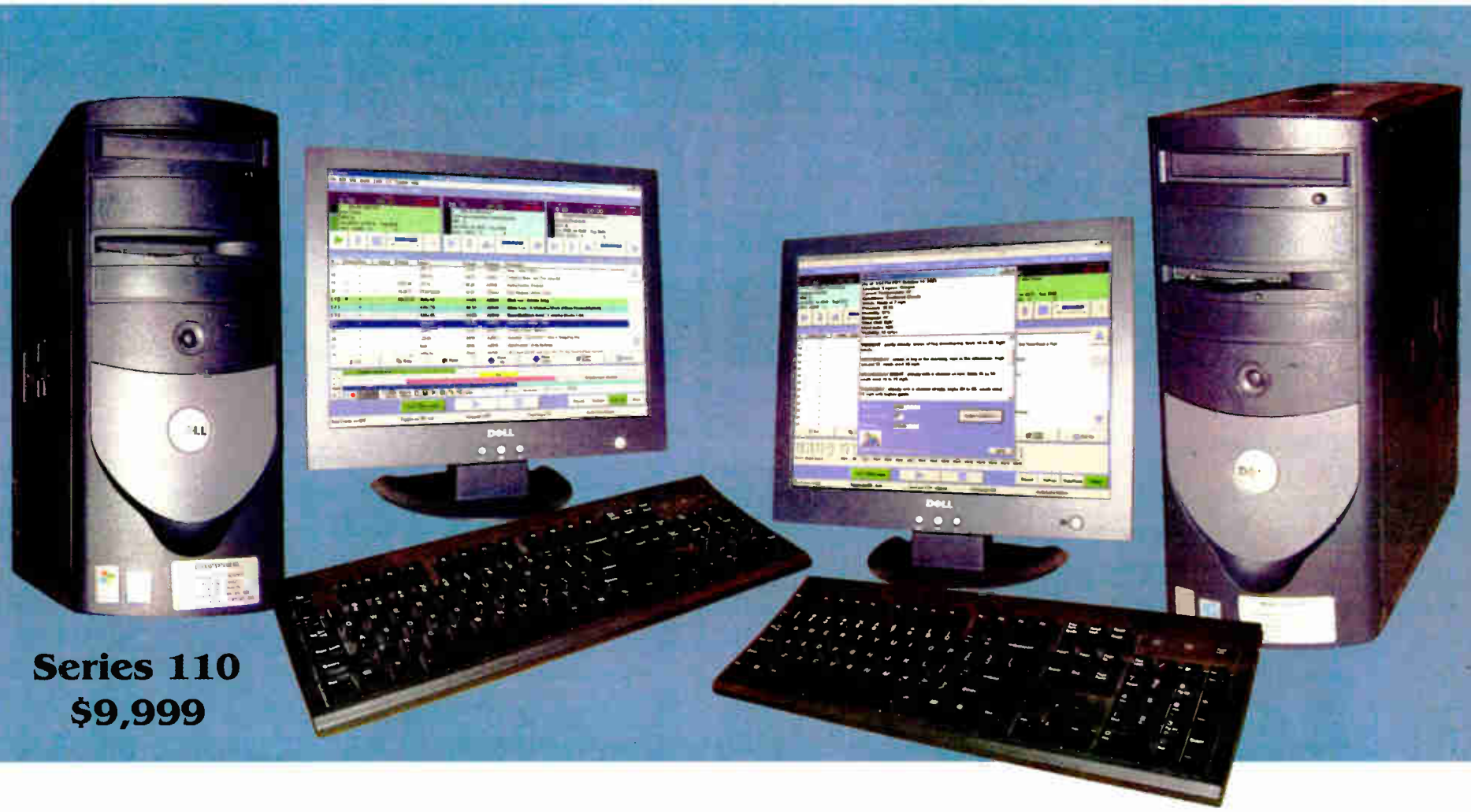

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World Radio History

HD Radio News

Frerichs on Surround

Page 18

Radio World | Covering Radio's Digital Transition | December 1, 2004

RF Upgrades Hit HD Radio

HD Radio Vendors Unveil New Products; Data, Surround Aspects Receive Attention

by Leslie Stimson

New products to serve the nascent HD Radio market are rolling out as 2004 comes to a close.

Photo by Leslie Stimson

BE's Tim Bealor shows off the inside of the new 50 kW AM transmitter, the 4MX 50 AM.

Broadcast Electronics and Harris separately introduced digital exciter platforms at the recent NAB Radio Show, the latest new HD Radio products, and first RF upgrades, to hit the market. BE also unveiled its first high-power AM transmitter, designed for analog AM, HD Radio or Digital Radio Mondiale use.

BE also displayed upgrades to its data management software. And Harris and BE displayed how their RF products could be used should the commission authorize broadcasters to split their digital signal into more than one channel.

Audemat-Aztec, a new Ibiquity licensee, showed a prototype mobile coverage test unit for HD Radio.

On the receive side, some manufacturers are hoping surround sound technology entices consumers to buy HD Radios in the future. More manufacturers showed surround sound demos meant to complement HD Radio at this show compared to the spring gathering. Several variants on this concept have been proposed, each put forward by a supplier teamed with a technology developer. At the show were demonstrations by Harris/Neural Audio, Telos/Fraunhofer and Orban/Coding Technologies.

One dramatic change implemented by manufacturers and technology developer Ibiquity Digital is a new digital exciter platform that Ibiquity Digital calls Exgine; it gives stations a DSP-based exciter option and the ability to encode audio and data at the studio, rather than at the transmitter site, to conserve bandwidth required for transport through an STL.

The Exgine system has two elements, an "exporter" and an "importer."

The exporter allows stations to locate HDC audio coding and Program-Associated Data functions formerly associated with the exciter at the transmitter site to the studio instead, making them more accessible.

The importer software runs on a PC at the transmitter site and manages all of the data, whether PAD, third-party data or supplemental channels. It multiplexes the data, plus the encoded HDC information from the digital IBOC signal, and feeds that information as one bitstream to an HD Radio exciter.

Harris' Rich Redmond and Tom Jones flank a Mini-HD transmitter and the new Flexstar Importer/Exporter.

BE has upgraded its XPi 10 HD Radio signal generator to work with the Exgine architecture. The system includes a plug-in circuit card for the FXi digital FM exciter located at the transmitter.

"The new plug-in card, for us, becomes a modification to the exciter, so that now, instead of using the low-voltage signal we use here, for demonstration purposes, you take the coded audio and create the IBOC carriers in the exciter," said Tim Bealor, BE vice president of RF systems.

"What that does for us, we can take these two boxes as they exist in the field, we can change the software in one card for the FSi, the IBOC signal generator, move it back to the studio and it functionally becomes the XPi, or the exporter. (For) the exciter, all we need to do is change the plug-in card and that becomes the Exgine exciter. It's a $2,500 to $3,000 upgrade, and no new boxes are involved in this (RF) part of it."

BE also debuted its first high-power AM transmitter, with a patent-pending Fourier modulation scheme called 4M Modulation and switch-mode power supplies that it says make the unit efficient and light — less than 700 pounds.

Importer/exporter debuts

Harris debuted its version of the Exgine upgrade, two new products in the Flexstar line of HD Radio products. The software for the HDI-100 importer and HDE-100 exporter hardware units can be upgraded in the field and are compatible with the Dexstar HD Radio exciter.

"The primary function of the HDI-100 today is (to support) supplemental audio," at a throughput rate of 32 kilobits per second, said Dave Agnew, Harris senior FM applications engineer. "Future applications will be implemented through software upgrades in the hardware."

In designing its Exgine capabilities, Harris asked customers what features they needed. Tom Jones, director of radio transmission products for Harris Broadcast, said the capability of the importer to handle supplemental audio won the most support.

He said enhancements beyond supplemental audio — data such as traffic and weather audio bulletins — are software upgrades the customer can invest in "on your own timeframe and on things you choose to invest in."

Rich Redmond, director of broadcast systems, said, "There's been a demand for an a la carte approach, of 'I want to pay for the things I need, and I want the ability to upgrade when I see a business model'" for other applications.

Both BE and Harris said they're ramping up operationally to meet increased demand for HD Radio products.

"We have enough orders for systems that need to be delivered ... by the end of the year that we are having to juggle our

See IBOC, page 18 ▶

World Radio History

More Stations are Choosing BE HD Radio Solutions

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The HD Radio Scoreboard is compiled monthly by Radio World using information supplied by iBiquity Digital Corp. and other sources. The data shown reflect best information as of Nov. 9, 2004. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.

CPB Finalizes $9 Million in IBOC Grants

The Corporation for Public Broadcasting recently announced grants to help 133 public stations buy equipment to transition to digital radio. This was the third round of matching grants for IBOC gear, bringing the total to 285 stations. Grants are contingent upon actual costs and contract negotiations. Asterisk indicates rural and/or minority stations. Info is from CPB:

Alaska
KBBI(AM)* (Homer)
KBRW(FM)* (Barrow)
KCUK(FM)* (Chevak)
KDLG(FM)* (Dillingham)
KHNS(FM)* (Haines)
KIYU(AM)* (Galena)
KNSA(AM)* (Unalakleet)
KOTZ(AM)* (Kotzebue)
KSDP(AM)* (Sand Point)
KSKO(AM)* (McGrath)
KTNA(FM)* (Talkeetna)
KUAC(FM)* (Fairbanks)
KUHB(FM)* (St. Paul)
KZPA(AM)* (Fort Yukon)

Arkansas
KUAF(FM)* (Fayettesville)
KUAR(FM) (Little Rock)

Arizona
KBAQ(FM) (Phoenix)
KJZZ(FM) (Phoenix)
KXCI(FM) (Tucson)

California
KBBF(FM)* (Santa Rosa)
KCRU(FM) (Oxnard)
KKTO(FM) (Tahoe City)
KVCR(FM) (San Bernadino)
KXJS(FM) (Sacramento)

Colorado
KGNU(AM) (Boulder)
KPRH(FM) (Centennial)
KPRN(FM) (Centennial)
KSJD(FM)* (Cortez)
KSUT(FM)* (Ignacio)
KUTE(FM)* (Ignacio)

Connecticut
WEDW(FM) (Stamford)
WNPR(FM) (Norwich)
WPKT(FM) (Meriden)
WRLI(FM) (Southampton)

Florida
WFIT(FM) (Melbourne)
WMFE(FM) (Orlando)
WUFT(FM) (Gainesville)
WUWF(FM) (Pensacola)

Iowa
KCCK(FM) (Cedar Rapids)
KOJI(FM)* (Sioux City)
KWIT(FM)* (Sioux City)

Idaho
KBSX(FM)* (Boise)

Illinois
WUIS(FM)* (Pittsfield)

Indiana
WBOI(FM) (Fort Wayne)
WFYI(FM) (Indianapolis)

Kansas
KAEZ(FM)* (Garden City)
KANH(FM) (Lawrence)
KANV(FM) (Lawrence)
KANZ(FM)* (Garden City)
KHCC(FM)* (Hutchinson)
KHCD(FM)* (Hutchinson)
KHCT(FM)* (Hutchinson)
KMUW(FM) (Witchita)
KRPS(FM)* (Pittsburg)
KTOT(FM)* (Garden City)
KTXP(FM)* (Garden City)
KZAN(FM)* (Garden City)
KZNA(FM)* (Garden City)

Kentucky
WFPK(FM) (Louisville)
WFPL(FM) (Louisville)
WKMS(FM)* (Murray)
WUOL(FM) (Louisville)

Massachusetts
WICN(FM) (Worcester)

Maine
WMEA(FM) (Portland)
WMED(FM)* (Calais)
WMEF(FM)* (Fort Kent)
WMEM(FM)* (Presque Isle)
WMEP(FM)* (Camden)
WMEW(FM)* (Waterville)

Michigan
WGVU(FM) (Grand Rapids)

Minnesota
KCCD(FM)* (Moorhead)
KCCM(FM)* (Moorhead)
KLSE(FM)*(Decorah)
KZSE(FM)* (Rochester)
WSCD(FM)* (Houghton)
WSCN(FM)* (Cloquet)

Montana
KGPR(FM)* (Great Falls)

North Carolina
WDAV(FM) (Davidson)
WHQR(FM) (Wilmington)
WNCW(FM) (Spindale)

New Jersey
WBJB(FM) (Lincroft)
WNJB(FM) (Bridgeton)
WNJM(FM) (Manahawkin)
WNJN(FM) (Atlantic City)
WNJP(FM) (Sussex)
WNJS(FM) (Berlin)
WNJT(FM) (Trenton)

New York
WAER(FM) (Syracuse)

Ohio
WCPN(FM) (Cleveland)

Pennsylvania
WDIY(FM) (Allentown)
WITF(FM) (Harrisburg)
WPSU(FM)* (Kane)
WQED(FM) (Pittsburgh)
WRTL(FM) (Ephrata)

Puerto Rico
WIPR(AM)* (Hato Rey)
WIPR(FM)* (Hato Rey)

Tennessee
WPLN(AM) (Cookeville)
WUTC(FM) (Chattanooga)

Texas
KETR(FM)* (Commerce)
KOHM(FM)* (Lubbock)
KTEP(FM)* (El Paso)
KTSU(FM)* (Houston)
KUHF(FM) (Houston)

Utah
KBYU(FM) (Provo)
KRCL(FM) (Salt Lake City)
KUER(FM) (Salt Lake City)
KZMU(FM)* (Moab)

Virginia
WHRO(FM) (Norfolk)
WHRV(FM) (Norfolk)

Washington
KLWS(FM)* (Moses Lake)
KNWR(FM)* (Ellensburg)

Wisconsin
WHAD(FM) (Delafield)
WHID(FM) (Green Bay)
WLSU(FM)* (LaCrosse)
WORT(FM) (Madison)
WPNE(FM) (Green Bay)
WUEC(FM) (Eau Claire)
WUWM(FM) (Milwaukee)
WVSS(FM) (Menomonie)

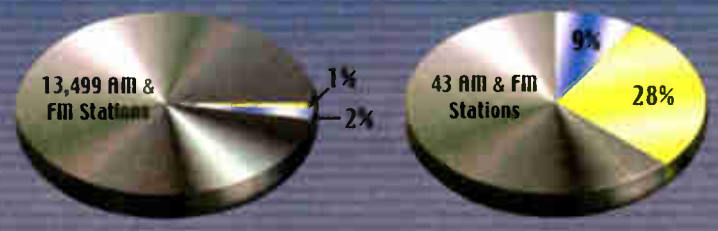
Wyoming
KBUW(FM)* (Buffalo)
KDUW(FM)* (Douglas)
KSUW(FM)* (Sheridan)
KUWA(FM)* (Afton)
KUWC(FM)* (Casper)
KUWD(FM)* (Sundance)
KUWG(FM)* (Gillette)
KUWJ(FM)* (Jackson)
KUWN(FM)* (Newcastle)
KUWP(FM)* (Powell)
KUWR(FM)* (Laramie)
KUWT(FM)* (Thermopolis)
KUWX(FM)* (Pinedale)
KUWZ(FM)* (Rock Springs)

The Bottom Line

Total Licensed	On the Air
414	152

Last Month

Total Licensed	On the Air
401	142



World Radio History

GUEST COMMENTARY

HDC Surround Will Drive HD Radio

Coding Technologies, Philips, Fraunhofer and Agere Collaborate on MPEG Standard for Parametric Surround

by David Frerichs

This is one in a series of commentaries from companies adapting their surround sound technology to radio. Frerichs is vice president and U.S. general manager of Coding Technologies, which has teamed with Orban/CRL on a 5.1 surround sound system.

"Digital radio is coming to the United States, but will the consumer care?"

This phrase is fixed in the minds and sometimes on the lips of many station owners, radio manufacturers and others in the industry.

In the AM world, HD Radio provides such a clear quality advantage that the answer is a resounding "yes." Not tied to the tiny world of standard AM and not bound by the lack of adoption for AM stereo, HD Radio transforms AM stations into a high-quality conduit for all sorts of programming that was previously limited to FM.

But what about FM HD Radio? The touted differentiator, quality, isn't as easy to notice here.

Coding Technologies is the brains behind the superior performance of Ibiquity Digital's HDC codec used in its HD Radio technology, and there definitely is a real difference. However, most consumers would be hard pressed to hear it as they drive to work in the morning.

If HD Radio is to succeed on FM, it needs to have a hook. That hook is the same as the one that will drive AM HD Radio: unique content.

Distinctive content possible

Unique content can take multiple forms. Telematics data services have gained much attention, but this is a new business concept that will take stations a while to master.

Just notice how, even today, few stations put artist and title information into the RDS channel, and that should be a relative no-brainer. The unique content that will drive HD Radio will come in the form of distinctive audio programming.

So-called "Tomorrow Radio" style multiple program broadcasting for HD Radio is compelling. In this system, HD Radio signals can be subdivided into multiple audio programs.

Since HD Radio has 96 kbps of bandwidth on FM, and the HDC codec can maintain a high quality of performance even as the bit rate drops (note the AM capability), a single HD Radio broadcast easily can contain two or more audio programs. These extra channels would be sent in the Supplemental Audio Program, opening the door to niche markets that could otherwise not be effectively reached via radio broadcast.

However, to prevent monopolization of the airwaves and to prevent a repeat of the "same-old, same-old" from being sent over the HD Radio SAP channels, the FCC is taking time to craft regulation for this type of broadcast. This delay leaves a gap that urgently needs to be filled.

In comes surround sound to fill it.

Surround sound has captured the attention of consumers through the rise of DVD. As more DVD players are being installed in cars, surround sound in the car is becoming a check-box item.

David Frerichs of Coding Technologies

Consumers want surround and will view it as a compelling reason to move to HD Radio, even before SAP content becomes available. There are a number of competing solutions vying to be the method for surround on HD Radio.

Any successful surround sound technology for HD Radio needs to have the following features: backward compatibility with existing radios, good for both single-program and multi-program stations and scalable from "pseudo surround" to true surround, impact on radio stations. It must also be built with industry collaboration. Only one solution, HDC Surround, fits all of these requirements.

HDC Surround from Coding Technologies is the combination of the existing HDC codec and the forthcoming MPEG Parametric Surround. The latter is an enabling technology that allows the encoding of multichannel audio based on the normally coded stereo signal with low additional bit rate. Instead of coding each channel discretely, MPEG Parametric Surround extracts information at encode time on the difference between the stereo mix and the 5.1 channel signal.

This extra information is sent along with the encoded stereo to be interpreted by the decoder. The more bits that are allocated to the Parametric Surround, the more accurate is the end result to the original 5.1 mix. This technique reduces the 5.1 channel overhead from 150 percent to 15 percent.

First demonstrated through a collaboration of Coding Technologies and Orban at the NAB Radio Show this fall, HDC Surround can achieve a single-stream 5.1 surround sound broadcast in a single HD Radio Main Audio Program.

When heard on an existing stereo-only HD Radio, the stereo sounds great. When heard in full HDC Surround, the results are incredible. While no commercial radios with HDC Surround are available today, this demonstration shows that technology is not the barrier to adoption of HDC Surround.

Upgrade, not throw out

The demo at the NAB Radio Show used an 80 kbps stereo core with 16 kbps of surround for a true surround experience. But the surround information in HDC Surround can be scaled up as high as 24 kbps or as low as 1kbps. This low-bit-rate capability means that stations

See SURROUND, page 19 ▶

IBOC

▶ Continued from page 17

priorities in order to keep things moving," said Bealor. That includes working overtime and asking suppliers of raw materials to improve their delivery schedules to BE. The company is hiring engineers for building product and for field installations, he said.

Harris, fresh from a reorganization into five business units earlier in the year, also reported an uptick in orders.

Redmond credits the company's experience with the DTV transition for helping it increase factory production on the radio side.

The reorganization also has smoothed the product and development process, said Debra Huttenburg, the new vice president and general manager of the Radio Broadcast Systems Business Unit.

A new regime

In the past, competition between TV and radio for engineering resources at Harris meant sometimes sacrificing time spent developing one product over another, according to Huttenburg and other Harris executives. Now, she said, radio business employees are focused on radio. "Everything is under our control."

Jones said the reorganization has "re-energized the radio team. We have an entire team now on just (radio).

"We really went to sleep for about two years. During that time our competitors made some advances. For us internally, the trick is how to catch up."

He cited the team working on the Flexstar HD Radio exciter, due out this spring, as an example of the radio-centric focus. The Dexstar, he said, took about four times as long to develop as the current Flexstar exciter project.

More products oriented toward IBOC also are emerging outside of RF circles.

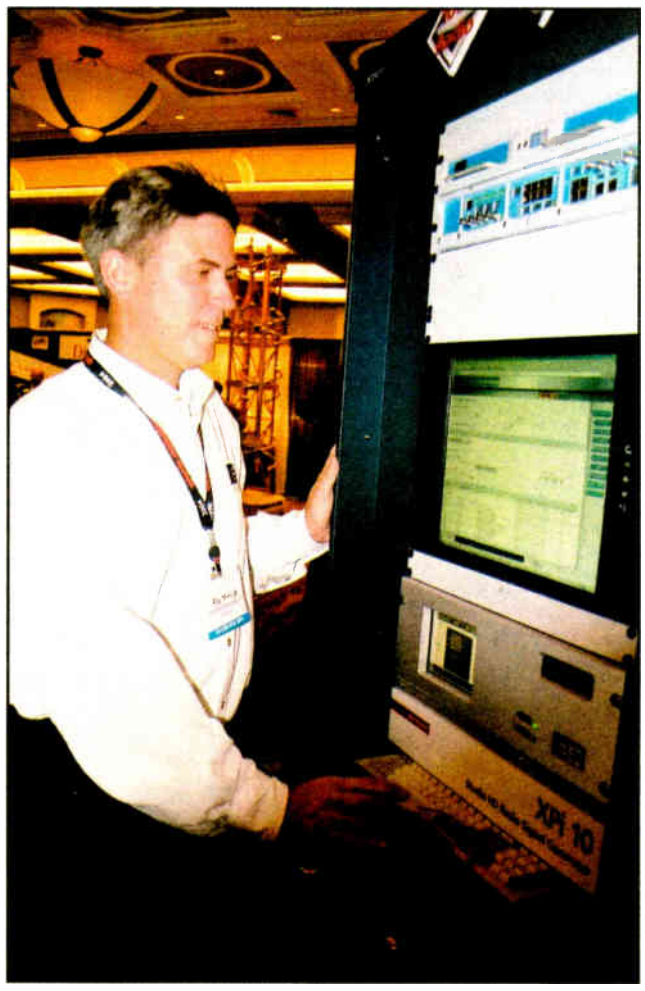
Audemat-Aztec displayed a prototype mobile IBOC monitor. Sophie-Lion Poulain, operations and communications manager said Audemat-Aztec has requests from customers for a mobile RF field strength meter to measure coverage and analyze quality of the digital signal. It hopes to have units available for the spring NAB show.

Three out of four 5.1 surround systems being adapted to HD Radio were demonstrated: Neural Audio/Harris; Telos/Fraunhofer and Orban/Coding Technologies. Ibiquity says a fourth 5.1 surround format, Circle Surround from SRS Labs, is compatible with the HD Radio system.

BE participated in testing of the Fraunhofer and Circle Surround formats this summer. BE played a systems integrator role in the demos at the Telos and Orban booths. In those exhibits, the 5.1 surround sound was sent through a BE FXi digital FM exciter and FSi 10 HD Radio signal generator as part of the demo.

Harris exclusively distributes Neural Audio products to the broadcast market. It showed the Neustar codec pre-conditioner, which the companies say allows the codec to work more efficiently. Another part of Neustar that can be purchased separately is the Harris 5225, which allows broadcasters to take 5.1 source material and send it into a stereo-compatible two-track mix.

"Most broadcasters, even if they want to do 5.1, who's going to buy 5.1 audio consoles and routers and processors to send discrete 5.1 to the transmitter?" asked Redmond rhetorically. "Instead of having to do it all discretely in six channels, three stereo pairs, it encodes it along the AES stream in stereo ... so, if I'm listening in stereo, it's not an issue. I can demod it, and it's compatible with Dolby Pro Logic and products like that."



Using Radio Data Dimensions data management software, BE's Ray Miklius shows how to drop in a text message that can appear on receivers whether the station is using RBDS on its analog signal or HD Radio for its digital signal. The message also can appear on the station's Web site.

World Radio History

Surround

▶ Continued from page 18

today can start with full surround on a single program and retain the pseudo-surround effects similar to the other solutions if they move to multiple program broadcasts.

Coding Technologies is working with Orban to ensure that HDC Surround systems can be deployed into today's digital radio stations without requiring a complete overhaul. The last thing stations want to do is throw out all their existing equipment just to upgrade to 5.1 audio.

This reality has been the primary driver of pseudo-surround technologies like matrix audio and watermark audio. While admittedly easier to deploy, their results are not the best and cannot scale up to provide a true surround experience.

Due to the stereo-mixdown nature of HDC Surround, stations can be HDC Surround-enabled through additions to the existing stereo chain, not a replacement of the entire system. In the end, stations and equipment manufacturers need to decide whether they want the quick fix of a solution limited to matrix and watermark, or a long-lasting solution like HDC Surround which can also leverage the digital nature of HD Radio for maximum benefit.

Pseudo-surround technologies like matrix audio and watermark audio, admittedly easier to deploy, cannot scale up to provide a true surround experience.

Since the NAB Radio Show, MPEG has moved forward on the standardization of Parametric Surround. Where there were once two competing solutions, Coding Technologies and Philips have committed to work together with Fraunhofer and Agere to create a single MPEG standard for Parametric Surround.

Instead of keeping their solutions proprietary, the best minds in audio coding are cooperating to ensure that the performance and flexibility of MPEG Parametric Surround are unmatched. When this technology is added to the power of HDC already in HD Radio, the resulting HDC Surround is a future-proof solution that provides maximum benefit to broadcasters and consumers.

Reach the author via e-mail to info@codingtechnologies.com.

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

NEWS WATCH

WFCR First in Western Mass to Go IBOC

AMHERST, Mass. WFCR(FM), Public Radio for Western New England, has begun IBOC operation. In a ceremony Nov. 10, longtime donors Joseph and Dorothy Gavin of Amherst, Mass., turned on the HD Radio transmitter atop Mount Lincoln in Pelham.

The Gavins are early lead donors to WFCR's capital campaign for a new facility. Joseph Gavin worked for many years as an engineer at Grumman Corporation, where he oversaw the design, testing and manufacture of a dozen Apollo lunar modules. Dorothy Gavin is an alumna of the University of Massachusetts, licensee of WCFR.

WFCR General Manager Martin Miller said, "Digital technology promises to significantly increase the quality and scope of program services the station offers to its listeners. For now, we will be broadcasting our normal programming in digital, but, in the future, we will be able to provide data in addition to sound, or broadcast a second program stream on our assigned frequency."

NTIA, FCC Spectrum Leaders Meet to Coordinate Efforts

WASHINGTON FCC Chairman Michael Powell and Assistant Secretary of Commerce for Communications and Information Michael Gallagher met to coordinate the spectrum policy efforts of the commission and the National Telecommunications and Information Administration.

The FCC oversees use of non-government spectrum; NTIA handles government spectrum.

Powell said the FCC and NTIA were working closely on issues "that are important to the continued development of new and enhanced spectrum-based services for businesses, consumers and the military and other federal users."

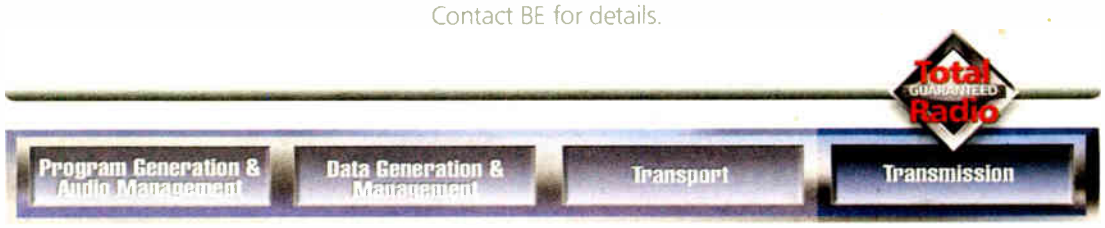
Gallagher said NTIA and FCC policies support advanced wireless services, next-generation networks, ultrawideband and most recently, broadband over power lines.

"We have made more spectrum — both licensed and unlicensed — available for new purposes than ever before, while continuing to protect critical government systems from harmful interference."

No, We Didn't Put AM Transmission On A Low Carb Diet.

But We Did Pack A Ton of AM Power into a 650 lb Package!

Designed for the demands of both analog and digital transmission, the new **4MX 50** — based on BE's patent-pending 4M Modulation ' — packs unparalleled 89% typical efficiency into a small footprint with a price to match. All 32 power amplifiers, each with their own power supply, are hot-pluggable and can be removed and replaced while the transmitter remains on the air. Dual, low-voltage power supplies allow full operation with no loss of power or service even if one should go off line. Local operation, diagnosis and status are performed on a 15" XGA graphical user interface and remotely via IP. Power levels from 50 kW down to 250 W meet all your power level needs, day and night. Contact BE for details.



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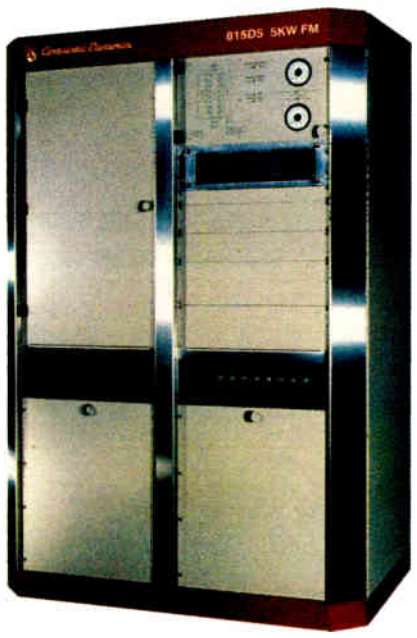
World Radio History

THE NAB RADIO SHOW®

On these pages is a sampling of products shown at the fall NAB Radio Show. More products appeared in the Nov. 17 issue.

Suppliers: Got a new product we missed? Let us know at radioworld@imaspub.com for coverage in a future issue.

Ship Date Approaches for New Continental FM



DRS Broadcast Technology Inc. said it is now in production on its new Continental 815D5 solid-state 5 kW FM transmitter. It is expected to ship after the New Year.

It consists of 16 hot-swappable driver/PA modules plus a spare. Features include analog 250-degree meters and quiet fan operation. Ceramic printed circuit boards for RF combining and splitting, VSWR protection and automatic foldback, rollout PA/combiner section, front-panel LED status indicators, broadband output, Automatic Power Control and AC Power Recycle are standard. Single-phase AC power is required.

Also, 10 kW and 20 kW transmitters using the 815D5 technology are in development.

Info: (214) 381-7161 in Texas or www.drs-bt.com.

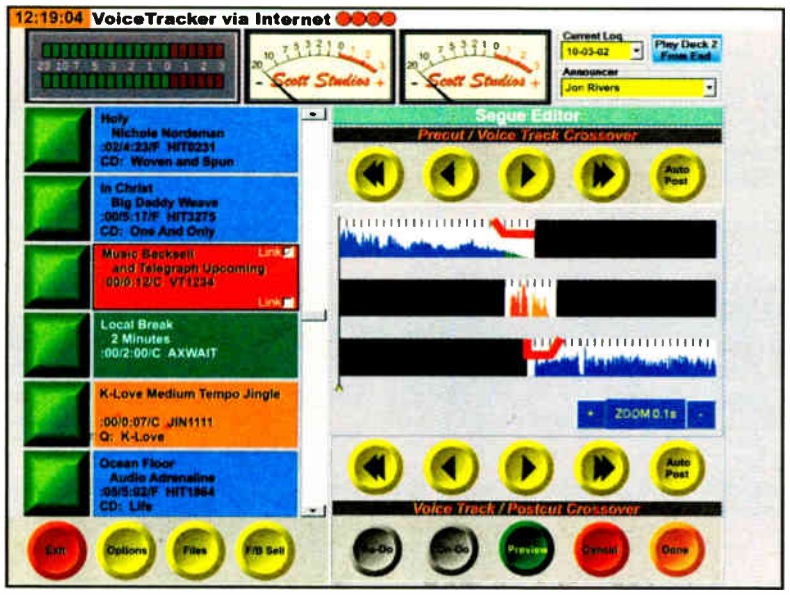
Scott Merges With dMarc, Offers VTVI Software

dMarc Broadcasting acquired Scott Studios and Computer Concepts, as well as broadcast data services of dMarc Networks. dMarc said it plans to expand Scott's digital systems, while integrating its own data and media technologies "to assist in advertising accountability, inefficiencies, unsold inventory and advertising ROI."

Scott also offers integrated data systems, including program auxiliary data of HD Radio and RDS.

Additionally, Scott Studios made available for free its VTVI Voice Tracker software for freelance jocks or announcers with home studios.

When a station creates the next day's music schedule, the VTVI server at the station puts that log on the studio computer. Every voice track in your shift triggers surrounding songs or spots to be telescoped and compressed, and the tail or head is transferred to your computer. The operator can record once the log can be viewed.



If a stop set is scheduled, but traffic or the spot is not yet complete, VTVI substitutes a two-minute dummy cut in your headphones to help with timing. The real spot plays at air time.

An Auto-Post feature times the voice track up to the vocal. If a host talks too long and steps on an intro, VTVI auto-delays the song's start at air time to prevent the problem.

The Voice Tracker software also sends e-mails, or notifies pagers or SMS cell phones when logs are ready. It also can remind the operator as deadlines approach, and alert station staff if tracks have not arrived. "Evergreen" tracks can be recorded that automatically fill in if a fresh set is not done in time.

Info: (972) 620-2211 in Texas or www.scottstudios.com.

Moseley Adds Six-Channel Option

The Moseley Starlink SL9003Q is a four-channel digital audio studio transmitter link. A new six-channel option for those broadcasters wishing to implement HD Radio solutions piqued interest at the booth in San Diego.

The company also showed its Lanlink LAN extender, which uses spread-spectrum 900 MHz frequencies to bring a local-area network Internet connection and two RS-232 data circuits from a studio to a transmitter site. The Lanlink specifications suggest a range of up to 30 miles. The unit will connect to an existing 950 MHz link with a duplexer, which allows simultaneous transmission of the 950 MHz signal and the spread-spectrum signal. The Lanlink enables the connection of RDS data, browser-based equipment, remote mirrored servers and remote controls, while providing a connection to the station LAN for Internet and e-mail convenience at the transmitter site.

Info: (805) 968-9621in California or www.moseleysb.com.

Orban Emphasizes Surround

Orban was a popular stop for those interested in surround sound. Orban and its technology partner Coding Technologies demonstrated HDC surround 5.1 audio for HD Radio. It allows a station broadcasting an HD Radio signal to send discrete 5.1 surround sound audio, like that heard through a home theater unit. The signal is received in stereo by standard receivers and in 5.1 by suitably equipped receivers.

This technology is designed so stations would need to make only minimal changes in their infrastructure from stereo to 5.1 surround.

Orban also is shipping its Opticodec PC, the first standards-based MPEG-4 AAC/aacPlus, AAC/HE AAC, ISMA-compliant and SHOUTcast/Icecast-compatible encoder software for high-quality streaming audio at low bit rates.

After 13 years, Orban also discontinued production of the Optimod 8200. The Optimod Model 8300 is its replacement and is shipping.

Info: (510) 351-3500 in California or www.orban.com.

Musicam USA Points to the 'Stars'

Musicam USA showed its line of hardware and software systems for getting remote audio back to the studio. The hardware options included the NetStar and RoadStar system, which both transmit a bi-directional low-delay AAC coded digital stereo signal over an ISDN or IP connection. Both codecs offer remote-control capability from any Web browser.

The RoadStar has a four channel stereo mixer, with 48-volt phantom power on each input, and an AES/EBU digital input. The software solutions included AudioTX Communicator, used to send bidirectional audio over an IP connection, and Audio TX Capture. This program saves audio on a hard drive or routes it through a station LAN, which means audio submissions can be processed and routed without operator intervention.

Info: (732) 739-5600 in New Jersey or http://musicamusa.com.

Energy-Onix Ready For Program Retention

Energy-Onix demonstrated a solution to the proposed FCC program recording rules. The Documentor records audio on two independent channels simultaneously, on two hard drives for redundancy. The logger will record audio from those two channels for 90 days before erasing the file; or save it permanently, which would require hands-on management of storage. If audio needs to be played back, the excerpts can be accessed by month, day, hour and minute.

The Documentor can be expanded to 12 additional audio channels.

The company also demonstrated its Roadcaster frequency agile VHF/UHF remote pickup unit, and the Telelink STL, which uses an IP connection to transmit program audio online.

Info: (888) 324-6649 in New York or www.energy-onix.com.

World Radio History

Nautel Exhibits Adaptive Pre-Correction Technology

Nautel presented at the HD Radio workshop a video showing the adaptive pre-correction capabilities of its M50 direct-to-channel digital FM exciter.

The company says the high amplifier linearity required for HD Radio can be affected drastically by changes in the transmitter system, which can occur if there is a change in VSWR; an adjustment in the output power of the transmitter; a change in amplifier temperature; or aging and failures of RF amplifiers. Such events can result in deviations to the HD Radio mask, poor sound quality or interference with other stations.

The M50 monitors the output of the company's Virtuoso transmitters and responds to changes by "pre-correcting" the RF signal, which Nautel's primary research engineer says is a departure from alternative techniques for ensuring spectral integrity "because broadcasters don't have to install a bulky, expensive filter to keep their signals within the mask."

Additionally, Maestro exciters do have to be matched to specific transmitters. The company's digital adaptive pre-correction enables the maintenance of linearity. The video shown at the HD Radio workshop that details this process can be seen on Nautel's Web page.

Info: (207) 947-8200 in Maine or www.nautel.com.

Dielectric FlexLine Available In Air or Foam

Dielectric Communications promoted its FlexLine flexible dielectric coaxial cable products. Among recent sales was an unusual 1,350-foot reel of 5-inch air dielectric cable to the French-speaking network of Television Quatre Saisons in Quebec as part of a transmission system including filters, antennas and line. The line for TQS was provided as a single continuous run.

Dielectric said it was the sole supplier for this transmission system, and shipped the large cable to a remote site located at Mt. Carmel.

FlexLine foam cable complements an air dielectric line introduced in 2003 and cables. Low-loss (FLF) type is used for primary feeders, while superflexible (FLS) foam type is used for jumper assemblies. Both have copper inner conductors, a closed-cell foamed polyethylene insulator, oxygen-free copper corrugated outer conductor and polyethylene jackets. Sizes include 1/2, 7/8, 1-1/4 and 1-5/8 inches for FLF cable and 1/4, 3/8, 1/2, and 7/8 inches for FLS.

The company also received the 2003 Technology Award from the Society of Broadcast Engineers for its TUV Dualband antenna.

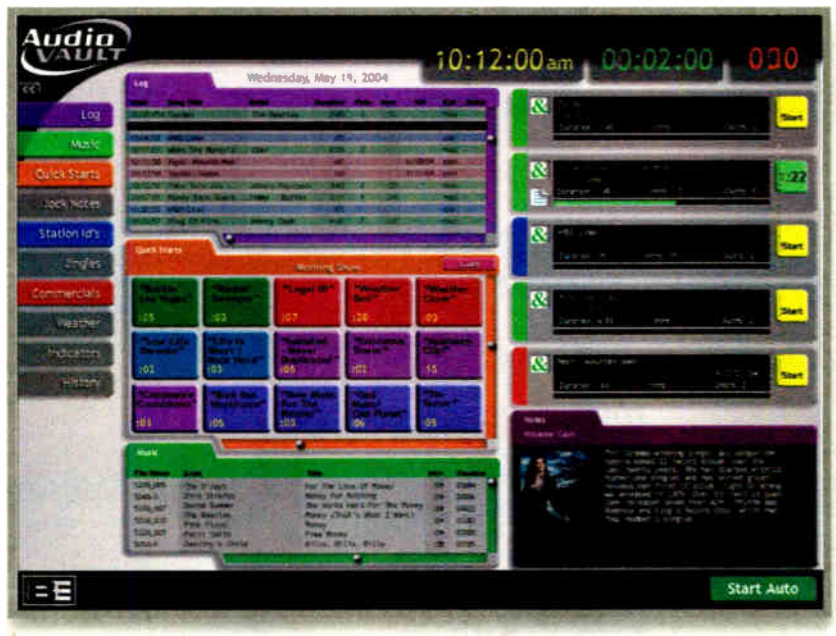
Info: (207) 655-4555 in Maine or www.dielectric.com.

Superior Electric PT1 Protects Critical Gear

Superior Electric demonstrated its Stabiline series of transient voltage surge suppressors. The PT1 Series are connected in parallel to a main or branch electrical service panel (120 to 600 volts) that services the circuit where the equipment to be protected will be installed. The units have Form "C" dry contacts for connection to a remote alarm system.

The company also showed the TVSS DIN rail surge suppressor, which can be connected inside a control panel for a protected device, giving another layer of protection against transient spikes.

Info: (800) 787-3532 in Connecticut or www.superiorelectric.com.



AudioVAULT
Big Bang for Small Bucks.

No, we didn't change our price list... AudioVAULT has always been an economical, modular solution for small- and mid-sized stations requiring the right balance to meet programming, operational and budget requirements. Support of multiple studios and stations, as well as true IP networking, are only some of the reasons AudioVAULT is also the first choice for major markets. The latest version of reliable, flexible AudioVAULT provides individualized user interfaces, and integrates with RDS and HD Radio data, including secondary audio services, such as Tomorrow Radio. AudioVAULT can improve your productivity and profit, backed 24/7 by a company you know you can trust. Contact BE today for a custom quotation... and be prepared to spend less for more.

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Bext Shows FX 1000, XL 1000

Bext Corp. showed two products that would appeal to engineers and managers looking for redundancy in their permanent or temporary transmission chain.

The FX 1000 amp is suitable for installations that have a tendency toward power fluctuations, with robust, built-in surge and power spike protection, the company said.

Bext also showed its XL 1000 stand-alone 1 kW FM transmitter. The XL 1000 is a frequency agile unit that is remote controllable and portable.

Info: (619) 239-8462 in California or www.bext.com.

Logitek Emphasizes DSP

Visitors to Logitek's booth saw the company's range of digital audio solutions. On display was the Numix Console, Audio Engine Router and SharcAttack digital processing card.

The SharcAttack DSP processing card is compatible with the company's LoneSharc DSP card, and adds equalization, audio compression, limiting and up to 30 seconds of audio delay for further processing or as a profanity delay.

The Numix console system connects to the Audio Engine, which processes and routes the audio. The Numix is a control surface, which allows for stored setups for different operators and dayparts and program configurations. Those configurations can be selected directly from the control surface or by an IP connection.

Info: (800) 231-5870 in Texas or www.logitekaudio.com.

AEQ Digital Console Is Shipping

Visitors to AEQ's San Diego booth saw the BC 2000 Digital Console. The BC 2000 Digital is now shipping, with the first unit going to KEDT(FM-TV) in Houston.

The unit consists of a control and monitoring surface, an expansion module that can allow for simultaneous control of nine separate configurations of up to 10 inputs, a rack for audio processing and control cards, external power supply and master controller module. The console can be configured through its dedicated panels or through software. It is an extension of the company's E@sy Family enhanced automation system

The company also displayed its Swing portable ISDN audio codec. AEQ included the capability to connect to American and European standard ISDN connections, a digital telephone hybrid with frequency extension for simultaneous connection (for backup or primary connections where an ISDN line isn't available) a three-input mixer and a connection for the E@sy architecture automation control system.

Info: (954) 581-7999 in Florida or www.aeqbroadcast.com.

Prophet Showcases NexGen 101 Modules, DigiLogger

Prophet Systems says its NexGen 101 software, based on NexGen automation software, is suitable for running a radio station. NexGen 101 is a series of add-on modules, designed to be purchased "a la carte" as a station grows or budget allows.

The core license software enables the user to process a log, and run a station in automated or live assist modes. It is required on NexGen 101 workstations, and features capabilities for basic audio element production, day of the week clock templates and audio backup/load utilities.

With NexGen 101 installed, audio can be added through methods such as the directory load utility. Daily playlist logs are created from the Nexgen 101 clocks, which can be customized for each day of the week. Logs are generated based on the parameters that have been set up in the clocks, but also can be generated manually.

Should program retention become mandatory, Prophet's DigiLogger audio logging and archiving software enables a station to retain audio using compressed or non-compressed formats including MP3, MPEG 1 Layer 2 and WMA. Sixteen audio sources per workstation can be recorded simultaneously.

Features include multiple bit rate storage per recording channel; remote access via Web page; and the ability to access logged data to pinpoint a specific break, bit or spot for review from an Internet-ready computer.

Info: (877) 774-1010 in Nebraska or visit www.prophetsys.com.

ComQuest Introduces Personal Music Test

Music testing company ComQuest introduced the Personal Music Test. The firm says it gives PDs more

accurate and immediate results than do traditional methods of testing songs in target markets.

"By enabling more intimate, one-on-one touch screen testing at listeners' convenience in centrally located facilities, PMT eliminates much of the bias and influence of conventional, crowded auditorium tests where music is played on a loudspeaker to determine audience likes and dislikes," it stated.

The company says PMT closely simulates the actual listening environment. Listeners can rate songs according to real-world terminology ("love it," "hate it") vs. a number range. Other advantages the company cites are randomized song order to prevent order bias, and required minimal lengths of tracks that must be heard before scores can be accepted. Results are made available online in real time and on CD within 24 hours.

Other features include virtual perceptual questions, so the station can ask specific questions based on previous responses or demographics; and a streaming Webcam that lets PDs see who is taking the test.

Info: (619) 659-3600 in California or www.comquestmusictesting.com.

Media Monitors Adds Print

The Media Monitors division of RCS is now offering newspaper monitoring as an addition to its AirCheck online radio monitoring service.

In what might be called advanced spyware for the radio sales manager, Media Monitors introduced the new version of Aircheck. It has the capability to measure newspaper ad size, page number and location. The company says it gives radio sales managers real-time, same-day data on which to base decisions when suggesting a reprogramming of advertising dollars.

Stations including Clear Channel's Power 105 in New York, along with chains like Entercom, Radio One, Emmis and Greater Media use airplay data provided by Media Monitors, the company said.

Info: (800) 67-MEDIA in New York or www.mediamonitors.com.

Armstrong Has Broadcast FM Antenna

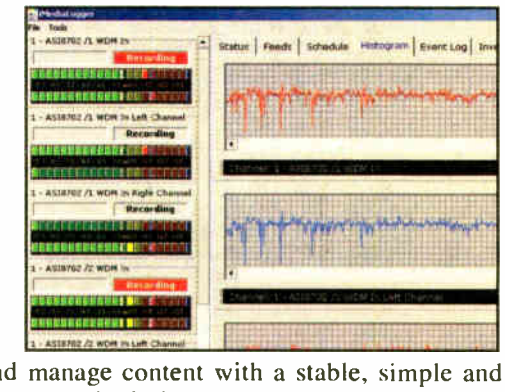
Armstrong Transmitter Corp. displayed a portable vertical broadband FM antenna suitable for an emergency installation for disaster backup. The unit had its origins as part of a military contract. Armstrong engineers adapted it for civilian use, with a capacity of 2 kW per bay.

Using the Armstrong FM1000LCD or FM2000B, engineers have an off-the-shelf solution when a transmitter and antenna system goes down. All of the system components can be shipped by air if necessary.

Armstrong also displayed its X1000B AM transmitter, winner of a 2004 Radio World "Cool Stuff" Award.

Info: (315) 673-1269 in New York or www.armstrongtx.com.

OMT Adds Features to iMediaLogger



OMT has added features to its iMediaLogger in version 2.5.

They include a better graphical-user interface; configurable Web server for access through corporate firewalls and Internet routing devices; the ability to split stereo devices into left and right; and greater compatibility with recorded files and third-party audio editors.

The company also says the logger has better functionality and performance.

"The need for stations to record and manage content with a stable, simple and affordable solution is important to meet today's indecency standards," stated President/CEO Scott Farr. Current clients are eligible for a free update.

iMediaLogger is a software-based audio logging, skimming, content archiving and storage system. It uses non-proprietary architecture. Stations can use third-party hardware and a Microsoft Direct Sound-compatible audio card.

Info: (204) 786-3994 in Manitoba or www.omt.net.

World Radio History

SUPPLY SIDE

CPI-Eimac Division

"Supply Side" is a series about radio broadcast suppliers you don't know, and facts you don't know about companies you do. This Q&A is with John Allan, vice president of marketing for CPI-Eimac Division.

What does your company do?

Communications & Power Industries is the leader in developing and manufacturing vacuum electron devices for communications, defense, medical, industrial and scientific applications. We have been a key player in the communications market for over half a century, originally as Varian and Eimac.

As the inventor of the klystron, and as the world's leading manufacturer of traveling wave tubes (TWTs), high-power satellite uplink amplifiers (HPAs), inductive output tubes (IOTs) and the Eimac power grid tubes, CPI is at the heart of both satellite transmissions and terrestrial broadcasting.

CPI is acquiring Econco Broadcast Service. What is the business rationale for this?

The acquisition has been completed, making them the newest of CPI's six operating units. Econco is the acknowledged leader in rebuilding power grid tubes, and are a natural complement to the Eimac division, the leader in manufacturing new tubes.

Together, these organizations provide excellent products and unparalleled support to the broadcast community. In addition, we now have a more robust engineering capability to offer as a resource to broadcasters. CPI is strongly committed to the broadcast industry, and we see this move as benefiting broadcasters, Econco, Eimac and CPI.

In what areas do you see future growth in radio? Is this a mature market?

We are seeing growth right now as a result of the IBOC rollout in the U.S. While HD radio transmits at low average power levels that are done with solid state, the combined output with analog included requires higher-power transmitters, which is what power grid tubes do really well.

There has been a surge in new 25 kW transmitters in the U.S. as broadcasters accommodate the higher level requirements or simply use the opportunity to update their equipment.

Beyond this surge is a spares demand which will continue for many years in what can generally be considered a mature market within the U.S., and Eimac and Econco are well positioned to serve this market. Outside the U.S. there are opportunities driven by the new DRM requirements, especially for shortwave transmitters.

For a global company such as CPI, a mature radio broadcast market in the U.S. does not necessarily limit opportunities for growth.

We know that technical support to broadcasters is almost as important as the quality of our products. Eimac and Econco have expert applications engineers available a phone call or e-mail away, and that is part of our commitment to this industry.

Info

Company: Communications & Power Industries Inc.

Headquarters: Palo Alto, Calif.

CEO: Joe Caldarelli

Ownership: The Cypress Group L.L.C.

Phone:
Eimac: (800) 414-8823
Econco: (800) 532-6626

Web: www.cpii.com

MARKET PLACE

RF Connectors Has Cat-5 Tester

The RFA-4218-20 is a cable tester for Cat-5 and Cat-5e cable assemblies.

It is made by RF Connectors and has two RJ-45 inputs; it is used to test straight and crossover RJ-45 UTP, STP, EIA/10Base-T, 100Base-T, EIA/TIA 568A/568B, FDDI, ATM, TP-PMD and Token Ring cables.

The LED display indicates shorts, reversed or crossed pairs, open wires and mis-wires. The unit will identify the cable type automatically.

For information call (800) 233-1728 in California or visit www.rfindustries.com.

World Radio History

The Official Comrex STAC Instant Gratification Kit:

1. Call your favorite Comrex reseller and order STAC
2. Cut out photo of STAC
3. Practice using STAC by pressing buttons on picture
4. Be completely ready to go when your real STAC arrives

Toll Free: 800-237-1776 • www.comrex.com • e-mail: info@comrex.com
19 Pine Road, Devens, MA 01434 USA • Tel: 978-784-1776 • Fax: 978-784-1717

World Radio History

INSTANT GRATIFICATION

What are YOU talking about? A call-in on local politics? An interview with the winning quarterback from his hotel? An eyewitness with late-breaking news? A dedication to the one someone loves? Congratulating the ninth caller on winning concert tickets?

Introducing STAC (Studio Telephone Access Center) from Comrex. STAC puts you in quick control of your talk-shows, call-ins and phoners with great sound, ease of operation and scalable configuration. Incorporating a pair of Comrex high-performance digital hybrids with automatic level control, STAC provides the most natural sounding telephone audio – even when conferencing multiple callers.

Consisting of an incredibly intuitive console and a compact rack-mounting mainframe (which houses the hybrids, multiline controller and all telephone/audio connections), STAC is truly a turnkey solution. The expandable STAC system is available in six (STAC 6) and twelve (STAC 12) line versions. Call screening and control are available from any networked computer — using a standard web browser with the included STAC IP, your talent can host their shows from anywhere there is an Internet connection.

STAC the deck in your favor — order STAC today.

STAC
STUDIO TELEPHONE ACCESS CENTER

STAC shown actual size

Got Calls? Put Comrex On The Line.

COMREX

World Radio History

TECH TIPS

Me and My Trusty Amprobe

by Charles S. Fitch

We who labor in broadcast engineering consider test gear and techniques as tools in our toolbox.

Whenever we are faced with a troubleshooting problem or maintenance challenge, we choose the most suitable tool and gather the necessary data. On the electric supply side, our most useful test tool is the Amprobe handheld current measurement unit.

(Once again we come to a case where the dominant manufacturer's brand name for a device often is used incorrectly as a generic name. Think Coke, Kleenex and Xerox; we have seen where Wiremold is thought of as any surface raceway for wire.

(The Amprobe series of handheld current measurement units has become the amprobe, an industry moniker for this device. Although some use the word as a common noun, Amprobe actually is a registered brand name that dates to the 1940s and is owned by Advanced Test Products in Florida. The company received its first patent for a clamp-on inductive ammeter in 1950. So from here on out, what some might call an amprobe will be referred to as the handheld current measurement unit or HHCMU.)

The handheld current measurement unit provides us with an accurate, unobtrusive measurement of current flow pass a point in the electrical system.

The HHCMU is, in reality, a current transformer.

The jaws of juice

To take a measurement, the "jaws" of the HHCMU are squeezed open and placed around a conductor (the primary of our transformer) through which the current flows. Once these jaws — the secondary of our transformer — are closed and the core plates are meshed, a transformer is created, such that a small, proportionate flow of current is engendered in the secondary. This current flow is an accurate analog of what is normally the larger flow in the conductor.

This is pretty much how an electric kilowatt-hour meter that uses current transformers measures your electric consumption. A small-current analog of what your system consumes is sent to a small-current electric meter. An accurate multiplying factor is applied to the recorded value; the utility bills you for that use.

In the handheld current measurement unit, through a calibrated metering resistance, the current is read on the unit's small-value ammeter, on which an appropriate scale has been provided.

In my real toolbox is my trusty and faithful Triplett brand unit from the 1970s, "The Grabber." Dropped, walloped and generally abused, it is still accurate and reliable, probably due to its simplicity.

Although Tripletts and their ilk have improved and enhanced their products over these last three decades, the concept remains the same.

Taking current measurements in this manner is convenient because we do not have to "cut into" the circuit as we do when we insert a direct reading ammeter. It's sort of like the convenience of taking an X-ray of the lungs, when the alternative is to tear open the chest to take a look.

The author takes a current measurement in a 1200-amp, 480-volt distribution cabinet.

Over the years, the readout of the handheld current measurement test unit has been a simple DC milliammeter with proper meter scales. The majority of HHCMUs available for purchase have additional multimeter features using that same milliammeter as readout. Also, it is not unusual for these devices to be enhanced to sample not only the traditional AC current in amps but also DC amps.

Recent HHCMU models have digital readouts and onboard microprocessor control, conversion and evaluation circuits. With separate test leads, they measure AC and DC volts, DC resistance and other useful parameters such as capacitance. This last is useful when troubleshooting motor starter capacitors. With a substitute special test lead probe, my most recent purchase even measures temperature.

The digital microprocessor enhancement allows readings to be stored in memory for recall or comparison later, as well as dynamic integration such that a choice of RMS, peak or harmonic current flow can be read and remembered.

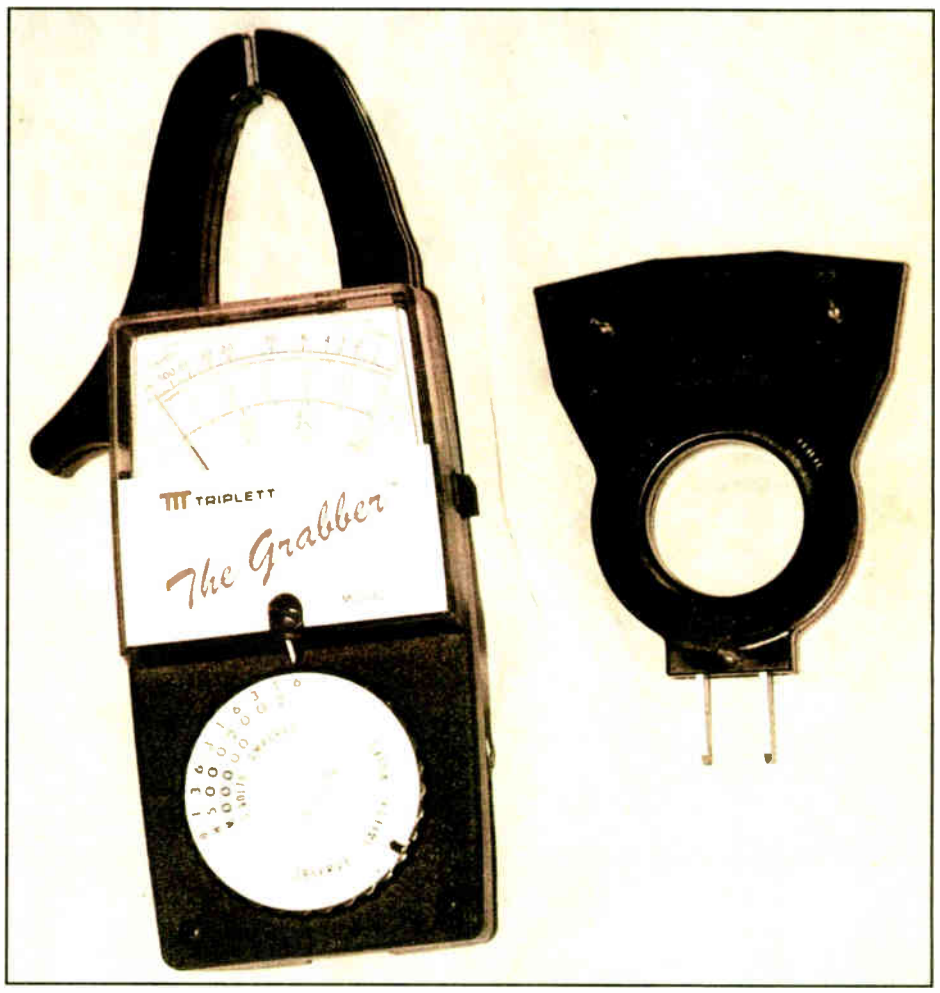
Where and when would an HHCMU be useful in your radio station?

Around the station

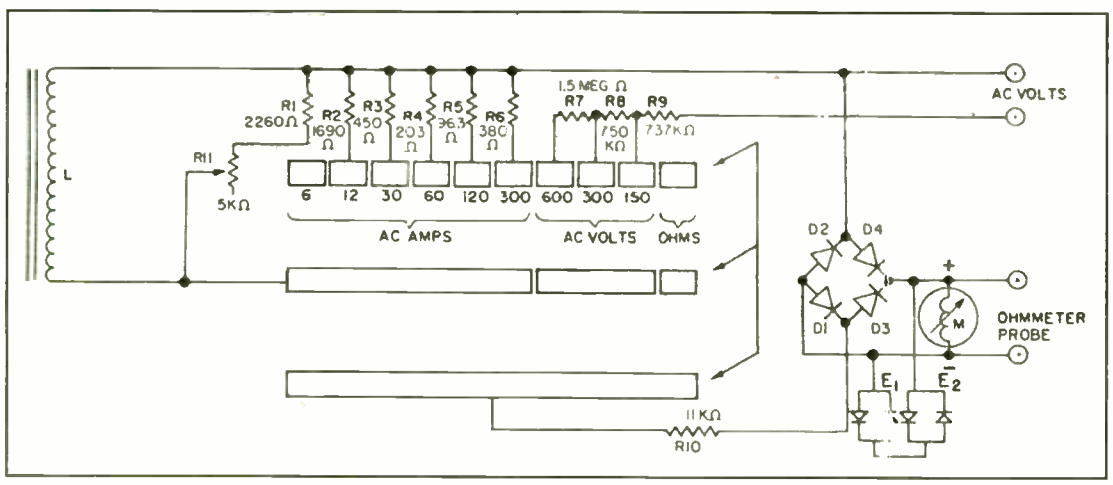
Recently I measured the actual current flow on the power conductors to a FM transmitter. The owners thought the electric consumption was much too high compared to the numbers given to the station prior to purchase. The numbers I took were typical of *overall* consumption of this model rig. The efficiency percentage that had been given to the station was for RF power generation alone and did not include exciter, IPA, blower, controls, etc. What had looked like good overall power consumption actually was very bad PA efficiency. These numbers settled the argument.

A station with studios in an old house was suffering from poor computer operation. An HHCMU check of branch conductors exiting the main panel showed tremendous harmonic current on the computer supply line, with incumbent voltage drop to the data processing equipment. Running separate oversized supply conductors to the "computer islands" to handle this high current was the fix.

Some sort of intermittent current peak was causing unpredictable breaker trips to take the HVAC down overnight in a studio. By placing the recording handheld current measurement unit on the input to each individual unit on the circuit, one after the other, I found the culprit. The HHCMU "remembered" the highest current peak on the wire up to the trip; this isolated the fault.



The author's ancient, trusty Triplett Model 30 HHCMU with the matching current multiplier. The latter allows currents of less than 1 ampere flowing into line-powered appliances to be measured such as line current for just the filaments running in a Marti RPU transmitter.



Schematic of the Model 30

A piece of rack gear inexplicably was tripping its onboard 3-amp circuit breaker (CB). Letting it run on the bench with the HHCMU configured as above but downstream of the CB, we found that the unit was not drawing a 3-amp peak and that it was the CB that was defective.

Follow the directions that come with your handheld current measurement unit carefully. With correct use, a major benefit is that one can avoid close encounters of the electric kind inside hazardous equipment, because you do not have to make *direct* electrical connection with an operating circuit point when measuring current.

The HHCMU can save you substantial time in troubleshooting and provide extensive, useful and valuable information to enhance the electrical efficiency and reliability of your station.

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

Reach him via e-mail to fitchpe@comcast.net.

World Radio History

'Play This Only at Dusk on Tuesdays'

Tools for Differentiating Your Dayparts May Be Available Throughout Your Air Chain

by Tom Vernon

The increased workload that comes with consolidation seems to have taken its toll on creative applications of dayparting, and this is one area where stations can differentiate themselves in a market.

While some argue there is less competition thanks to consolidation, radio as a medium competes for listeners with the Internet, satellite radio and iPod devices. Maintaining the largest audience possible remains a key factor for success.

No matter what type of format a station has, the needs of listeners are in a regular state of flux. Listeners usually have different needs for music and news throughout the day, and varying expectations for what they want to hear on weekdays and weekends. The art and science of dayparting is how a station tailors its sound in order to maximize its audience and meet their expectations 24/7/365.

While the technology to daypart processors has been available for years, it does not appear to be widely used, at least not domestically.

How a manager dayparts a station's programming depends primarily on the format and the competitive situation in the market.

"When creating a station's sound, it's important to make it match the listener's lifestyle," programming consultant Mike McVay, president of McVay Media, said. "For example, a CHR/top 40 station might want to make mention of school letting out in late afternoon, and pitch itself more to the teen/college audience during evening hours."

Regardless of the format, McVay notes that dayparting music should be a creative process.

"In many instances, programming is no longer an art. When a PD is programming several stations, selecting the music often becomes one more thing to check off a to-do list, and it is reduced to putting song A into slot B."

Creative dayparting can begin with something as simple as looking out the window.

"After several days of rain," McVay said, "I scheduled Billy Joel's 'River of Dreams' and 'Black Water' by the Doobie Brothers for morning drive in a Charleston, W.Va., station. It gave the morning team one more thing to talk about."

Another creative activity for drive time involves electronically removing the lyrics from songs, and making up your own locally-relevant replacements. Adding a new intro or bridge also can make a unique product, he said. At one time, several stations in a market often had their own versions of hit songs, although the practice is not as common now.

Scheduling

Music rotation was once a tedious and time-consuming task. Software such as Selector from RCS has made the task of dayparting songs easier for PDs, said Tom Zarecki, head of PR for Selector and RCS products.

"Back in the 1970s and '80s, most stations used a system with index cards for each record. Cards were marked up with information such as the name of the song picker, best play times such as 'night play only' or 'Twofer Tuesday use only,' along with the date last played."

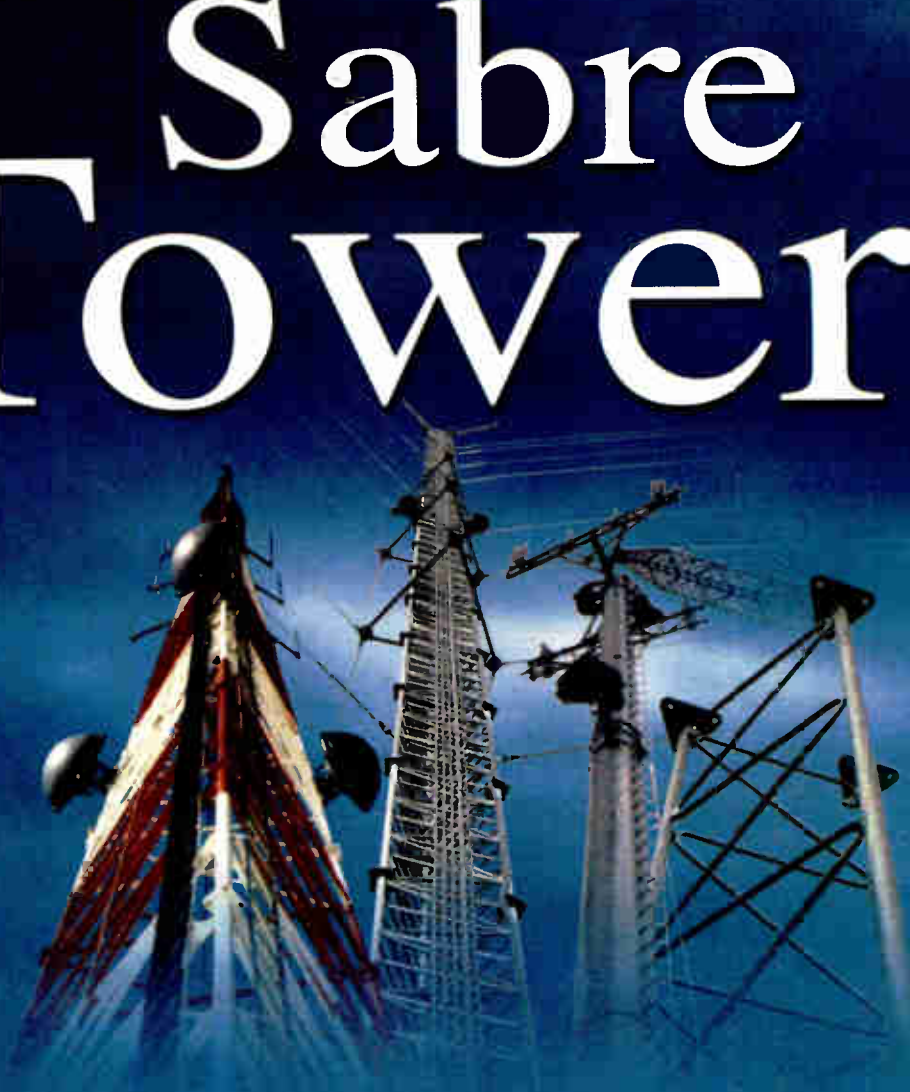
He said Selector eliminates confusing code marks on index card along with manual record-keeping, and reduces song scheduling to a logical set of codes and grids including dayparting. The PD's rotation rules are honored consistently, and the

TECHNOLOGY FOR MANAGERS

scheduling process takes a fraction of the time of the file card method. The music log can be further customized by a person once

See DAYPART, page 28 ▶

Sabre Towers



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World Radio History

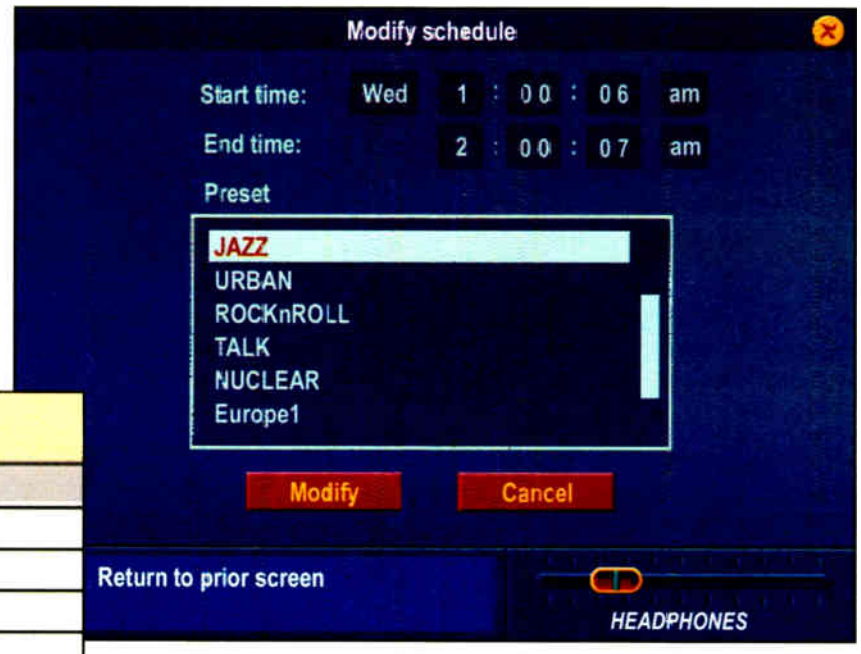
Daypart

▶ Continued from page 27

the schedule was generated on the computer.

Zarecki said scheduling software is flexible enough to accommodate a virtually unlimited number of daypart grids, but the real advantage is the impact on the bottom line.

"A station's music schedule, with the best balance and variety, provides the audience with an optimal listening experience, which leads to better ratings."



Daypart grids in Selector allow users to fine-tune song plays into specific days and hours. This is the Modify Schedule page.

Daypart Grids

ID	Name
001	Mon-Fri only
002	Weekends Only
003	DAYS ONLY (5AM - 4PM)
004	NITES ONLY (5PM - 4AM)
005	No 2fer Tuesday
006	Hour "6" only
007	Power Weekends ONLY

Many on-air processors have a daypart function that allows your station's sound to be tailored to different dayparts. This is the schedule modification page from an Omnia unit.

Parts of the chain

Although dayparting usually is accomplished in the music scheduler, it can be done in automation software.

For example, Dave Scott, president of Scott Studios Corp., said, "A live jock normally can make any addition, deletion or substitution he chooses. However, automation can either prohibit or require a password for any of the above."

Other automation options noted by Scott include locking in power songs so no changes are possible, but allowing swaps in lesser categories.

Dayparting the station's audio processor is a practice that had its origins in the early 1980s, when a few pioneering engineers connected their stations' audio processors to computers or relay boxes to change the settings by daypart. As microcontrollers with clock/memory chips became more available, most processor manufacturers made dayparting a built-in function of the box.

The intent of many early efforts was to sound softer and reduce listener fatigue during midday hours when there were more women listening, and be loud and aggressive during drive time and overnights.

While the technology to daypart processors has been available for years, it does not appear to be widely used, at least not domestically.

"About 15 to 20 percent of our U.S. customers use the dayparting function of their Omnia processors," said Frank Foti, president of Omnia Systems. He adds it is more readily used by state-run broadcasters in Europe. Foti said many of these operations run different types of programming to different transmitters at different times, so it is advantageous to change the technical side of the sound along with the programming.

In the United States, interest in processor dayparting seems to have peaked about 10 years ago, and slowly gone into decline.

"Some of the motivation may have fallen off with consolidation, fewer stations are in direct competition with each other now," Foti speculated. It may also be that this knowledge wasn't passed along from a previous generation of programmers and engineers.

Bob Orban, vice president and chief engineer for CRL/Orban, listed some instances when dayparting the processor is important.

"Public radio stations that program classical, jazz and news/talk during different parts of the day could definitely benefit from this practice." He added, "AM stations may want to push the processing harder during the evening hours to compensate for nighttime propagation conditions."

Case by case

When it comes to dayparting processors at stations with the same format all day, Orban feels that the situation becomes murky.

"There is a lot of anecdotal evidence, but no hard research data to support whether the practice really works." He speculates that if a station's ratings suggest a drop in female listeners at some part of the day, however, it might be worth dialing down the high end a bit to try to reduce listener fatigue.

Orban too has seen a decline in the practice of dayparting processors. This lack of interest may just be a function of the increased workload typical at many consolidated stations.

"If I had 12 hours of work to do in an 8-hour day, tweaking the processor for different dayparts probably wouldn't be at the top of my list," Orban said.

Another dayparting practice is to boost average loudness during morning-drive variety talk shows on music stations. One major-market engineer said he uses this approach on three of his FMs.

"With lots of phone calls, maintaining a higher average modulation for the talk segments makes these shows easier to listen to in cars during the noisy morning drive time.

"After 10 a.m., music reigns and processing is backed off, then cranked back up a bit 7 p.m. to midnight for CHR and alternative."

At Infinity's WBCN(FM) in Boston, Chief Engineer Bill Bracken uses the dayparting feature of his Omnia processor to create three distinct sounds for the station.

Throughout most of the day, WBCN has a modern rock format, and the processor is set in a fairly typical fashion for this type of music. From 6 to 11 a.m., the station broadcasts "The Howard Stern Show."

"On the processor's rock setting, the satellite hiss was unbearable," Bracken said. "We tried a talk setting, and there was still too much hiss, so we dialed down the extreme high end a bit, and that worked."

WBCN also carries New England Patriots football, and uses one of the Omnia talk presets with a bit more bass when the games are broadcast.

Tom Vernon is a multimedia consultant in Philadelphia. E-mail him at TLVernon@blazenet.net *or call (717) 367-5595.*

Processing and Listener Fatigue

The art of audio processing involves tradeoffs. One of the most critical is between loudness and listener fatigue. Making your signal stand out from the noise and other stations on the dial is key to success.

Pushing the processing hard increases modulation density and can make a station literally jump off the dial. But this increased loudness comes with a price. All processors introduce artifacts into the audio as a byproduct of their work. The closer a processor is pushed to its maximum limits, the more noticeable the artifacts. These sonic anomalies range from subtle to obvious. It is the subtle artifacts that can be the most troublesome in the long run.

Listener fatigue occurs when these subtle artifacts disturb listeners to the point that they tune out the offending station in search of another. One of the most annoying is distortion of the high frequencies.

While there is little in the way of quantitative data to document the effects of listener fatigue, there is plenty of anecdotal evidence. One truism seems to be that women are more sensitive to subtle forms of high-frequency distortion than men.

Stations targeting a more female audience in middays may take advantage of the dayparting feature of their processors so the high end is dialed down a bit. During overnights and/or drive time when being loud is more important, a daypart-capable processor can switch settings automatically for a more aggressive sound.

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World Radio History

More Ideas on FCC Restructuring

There's No Shortage of Suggestions On How to Retool the Commission

by Skip Pizzi

In the Nov. 17 issue we looked at one fairly radical proposal for changing the nature of the FCC. Now let's consider some less dramatic but equally interesting alternatives for commission revision.

The first approach has been espoused chiefly by James C. Miller III, a veteran of the executive branch, having led both the Office of Management and Budget and the Federal Trade Commission at various points in his long career of government service. He now is chairman of the consulting firm CapAnalysis.

Miller feels that government regulation can be divided into two primary types: economic and social. He observes that the FCC currently engages in both types of regulation, and says this should change.

He and others assert that the FCC exercises considerable economic control, given that its jurisdiction affects multiple billions of dollars in assets and annual commerce, and he believes this was never a power that the commission was intended to have. Further, Miller thinks this level of power actually constrains the FCC from exercising its rightful duties, and that a smaller, less economically influential body would better serve the U.S. communication industry's true regulatory needs.

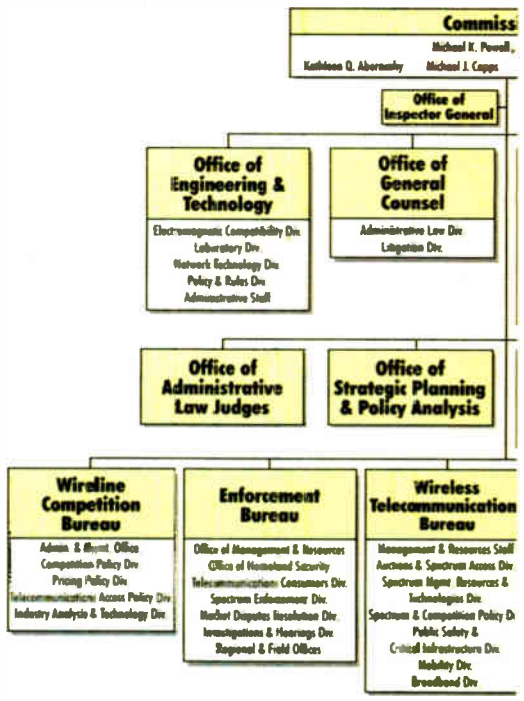
So Miller's prescription for change calls for the FCC to cease its economic influence and perform only social regulation. This would redirect the agency to pure policy-making as initially chartered, and allow it to perform that role more freely and without the encumbrance of economic considerations. It also would eliminate the FCC's ability to exercise what Miller characterizes as the power of taxation over an industry, which he feels is inappropriate.

As part of this process, Miller proposes that spectrum management would no longer be administered via a licensing process, but instead treated as real property. Initial grants of new spectrum via sale or auction could be handled by another branch of government — such as the General Services Administration or the OMB, as Dick Wylie recommended during his tenure as FCC chairman — and transfer of existing rights to spectrum usage would proceed in an open marketplace. Enforcement and prosecution of regulatory violations would remain under the FCC in Miller's view, as part of the agency's continuing social jurisdiction.

The Big Picture

Photo: Gary Hayes, BBC

by Skip Pizzi



Miller believes that the FCC also could be made more efficient by subjecting it to oversight by the U.S. Office of Information and Regulatory Affairs, which exercises a review of cost-effectiveness of other federal regulatory bodies, but not the FCC. (None of the so-called independent agencies of the federal government, described in the previous column, are subject to such review under current law.)

Evolution not revolution

Perhaps the most realistic approach to FCC reform is one in which smaller and more focused internal changes are adopted. This is a view held by numerous observers, including former commissioners, although not all agree on the particular components of such change.

For example, in recent presentations, former FCC Commissioner Susan Ness

See FCC, page 31 ▶

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Maestro on the air at Entercom's WSPA-FM, Greenville-Spartanburg, South Carolina.

dMarc CEO Chad Steelberg says, "We've already added several top developers to the Maestro software team and added veteran technicians to the support department. dMarc and Scott Studios are absolutely, positively committed to doing everything possible to enhance Maestro's performance as one of radio's very best digital audio systems."

Chad Steelberg, CEO of dMarc

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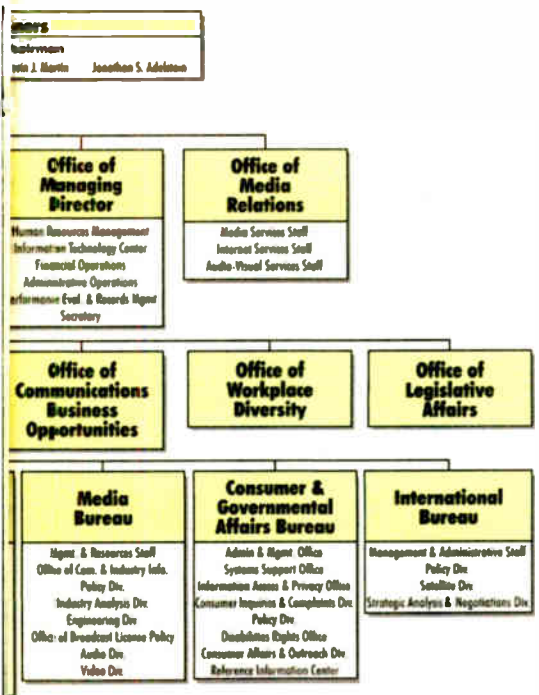
FCC

▶ Continued from page 30

reacts to some of the more radical reform proposals with strong countering arguments. Regarding the idea that the FCC should no longer be an independent agency, Ness believes that the communications industry today is less like the transportation industries — which have been so deregulated — and more like financial markets, which continue to be regulated by the SEC, an independent agency. She feels that allowing overt politicization of telecom regulation would be dangerous, particularly at a time of such strong polarization of the electorate.

Further, given the increasingly high stakes within the private sector of the economy under FCC jurisdiction, Ness asks if it is really desirable to have potential mood swings in the regulatory environment on a potentially quadrennial basis. She also is dubious of the depoliticized carve-out that Randolph May proposes for adjudication efforts, described last issue, feeling that it would be difficult to avoid the intrusion of politics into this area as well.

Ness believes that the current structure of five commissioners provides the proper balance between expediency and fairness, although she acknowledges that governance processes could be improved (e.g., why subject an already sitting commissioner to reconfirmation for an appointment as a new



chair of the commission?).

In contrast to how some have painted the FCC's recent record, Ness cites many examples of contemporary regulation that were developed quickly, have provided effective, needed results and remain unchallenged. She feels that adequate political accountability exists in current practice, and when exceptionally broad public policy issues come up, that congressional and/or judicial review is rightly invoked — e.g., media ownership and the analog TV shutoff.

Another possible outcome of reduced federal jurisdiction might be the establishment of increased state telecom regulation, Ness believes, which is likely not in broadcasters' interest — particularly in today's highly consolidated national marketplace.

Instead, Ness advocates internal restructuring of the commission, perhaps along functional lines rather than the current bureau-based organization. This could minimize the "stovepipe thinking" that often drives vertical decision making within each bureau, and it might also improve efficiencies across the commission by avoiding unnecessary duplications of effort.

The FCC's harshest critics also condemn its recent growth, and are particularly rankled by how much of it has taken place since the Telecom Act of 1996, allegedly a *deregulatory* statute. Ness and others counter that at least some of this expansion is justified nonetheless, given the explosive growth of new telecom markets, and the requirements for the FCC to address wholly new areas of regulation (e.g., recent action in the broadband-over-power-lines area).

If there was a Vegas line on this issue, it would probably favor the small changes proposed by Ness and other insiders over the more extreme changes being discussed. Yet something along the latter lines is not unheard of in Washington, and the FCC has

increasingly been a source of negative attention there recently. The arena of telecom regulation could be ripe for change, and it may be sweeping.

Skip Pizzi is contributing editor of Radio World.

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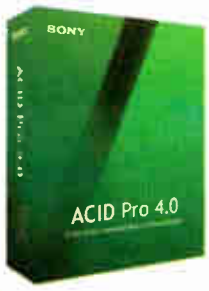

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PRODUCT EVALUATION

Marantz PMD570 Works Two Jobs

The Rackmount Solid-State Recorder Serves As Cassette/DAT/MD Replacement, PC-Based Workstation

by Carl Lindemann

The Marantz PMD570 rackmount solid-state recorder is a new breed of broadcast equipment. This standalone device operates as a hybrid between cassette/DAT/MD recorders and as a PC-based digital audio workstation. One way to look at the PMD570 is to see it as a DAW with a dedicated interface to emulate the simplicity and functionality of traditional recorders, but with potential for greater flexibility.

The unit is not a DAW replacement, but rather a significant enhancement to tape-based decks. It works well as a standalone, but the real proof-of-concept comes when integrated with computer-based production setups.

'More than a sidekick'

The PMD570 builds on the success of the PMD670 field recorder. The basic functions of the PMD570 are nearly identical, although it is repackaged into a 1 RU form factor.

Foremost, both models store audio data on affordable Compact Flash (CF) cards, leaving legacy magnetic media behind. That alone makes either unit an attractive upgrade for those still using analog cassettes or DAT recorders.

The PMD570, shown, functions like the PMD670 field recorder, but is packaged in 1 RU. Both models store audio data on Compact Flash cards.

Even when driven into overmodulation with an archived cassette recording turned up too high, the PMD570 rendered a nice, unclipped-sounding digital audio file.

The selection of recording formats including MP2, MP3, WAV and BWF open up a range of sample and bit rates suitable for most radio applications. The I/O between the units also is similar, with unbalanced RCA analog I/O, RCA SPDIF, a digital USB 1.1 connector and balanced XLR analog inputs.

For a news operation armed with PMD670 recorders, a rackmount version in the studio that can read the field recorder's track marks makes sense. Standardizing on the Marantz gear means that there is no need to plug anything in to the studio production setup, other than the removable CF card. EDLs recorded in the field can be read in the studio deck. For news operations gathering speedy sound bytes with end-to-end digital production, the PMD670 is your front end in the field, the PMD570 in the studio.

But the PMD570 is intended to be more than a sidekick to the field recorder. It adds important extras to the PMD670 so it serves as a next-generation cassette/DAT/MD recorder replacement. An RS-232C port enables complete PC computer control through a simple utility program. Also, the unit can be set to capture feeds automatically either by programming it for a specific time or to trigger recording whenever sound comes down the line.

With a large CF card and a low bit rate, an enormous amount of airtime can be logged. A 1 GB card recording at the highest MP3 compression setting (32 kbps mono) can capture nearly 71 hours.

A first look at the control panel of the PMD570 may be a bit confusing to the neophyte. It looks similar to the standard tape recorder interface, but with a few mysterious additions. While broadcast engineers will find working through the menu-driven interface easy in setting recording format and quality, air staff might find the task a bit challenging.

Fortunately, the PMD570 lets you program presets so it is easy to switch between inputs and recording formats. Instead of asking less technically sophisticated staff to figure out the bits and bytes of audio compression, they just snap the "rec level/select" knob to the proper preset to get going. Add the PC-based software controls (sorry, no Mac version yet) through the RS-232C and you have remote operation. A wired remote will be offered.

Recordings made through balanced XLR or unbalanced RCA inputs are as clean and crisp as the quality of the audio format chosen. Even when driven into overmodulation with an archived cassette recording turned up too high, the PMD570 rendered a nice, unclipped-sounding digital audio file. Basically, it lives up to the promise of creating computer-based audio without a computer.

Wish list

When I first heard about the PMD570, I didn't understand the idea of it. If you're doing digital recording in the studio, why not use a DAW?

But after seeing it in operation, I appreciate the appeal that this will have used in tandem with the matching field recorder, and as a standalone. It effectively bridges the gap between rackmount recorders developed in the analog era and our computer-based production.

That being said, I would suggest a few changes or upgrades to realize its potential fully.

First, it would make sense to add balanced XLR analog outs. That is, after all, standard on the decks PMD570 replaces. This is a moot point for those transferring audio digitally through the USB connection, as the analog outs are just used for monitoring anyway. In that case, why not upgrade the USB 1.1 connector from the field recorder into USB 2.0 or Firewire (IEEE-1394)?

When you start using large CF cards (first accessory — a larger card than the 64 meg included), moving large files over the slower USB standard is unnecessarily time-consuming. Given that the PMD570 supports FAT 32 to work with CF cards over 2 GB, having a fatter data pipe is appropriate.

The last item on the wish list to make the unit up-to-speed with current computer technology is to swap the RS-232C control interface for an Ethernet connector. If the PMD570 were an IP device, remote operation would be enormously expanded. Instead of having a single control from a single computer through a dedicated cable, a Web interface could access the unit throughout a facility — and beyond. Oh, and with a gigabit Ethernet interface, you also can toss out the USB 1.1 connector altogether.

The PMD570 marks a significant evolution in the rackmount recorder. Anyone in the market considering cassette/ DAT/MD units would do well to check this out.

Product Capsule: Marantz PMD570 Solid-State Recorder

Thumbs Up

- ✓Static RAM recorder; no moving parts, tape heads, etc.
- ✓Excellent audio quality
- ✓Ease of operation

Thumbs Down

- ✓Slow USB 1.1 connection

Price: $1,099

Contact: D&M Professional in Illinois at (866) 405-2154 or visit www.d-mpro.com.

World Radio History

PRODUCT EVALUATION

Aphex Compellor Adds Digital I/O

Model 320D Features a Dynamic Release Computer for Analysis of Audio Input Density

by Mark Greenhouse

The Compellor Model 320D dual-channel automatic level controller with analog and digital I/O continues Aphex Systems' audio processing lineage by adding digital I/O access to the analog Compellor 320A.

Featuring the familiar 320A faceplate, this two-channel mono/linked-stereo device provides transparent control of dynamic audio levels. Allow me to describe what is happening to the audio signal once inside the single rack-space unit.

Yes, I hear you. "Um, what is a dynamic release computer?" That is what I asked Marvin Caesar, president of Aphex Systems.

He said the DRC measures the incoming audio density, which he defined as peak-to-average ratio. A female voice, for example, which may have a 12-15 dB peak-to-average ratio, differs from a male voice, which might have only a 6 to 8 dB peak-to-average ratio. When viewing these signals on a peak reading meter, the peaks may read the same, but the male voice will be substantially louder due to its higher average level.

The DRC analyzes the density of the audio input, and if it is dense, DRC will provide a slower release time. If the audio is less dense, a faster release is assigned. This allows a variety of audio sources to be processed differently, but the resulting audio to have similar volume and dynamics.

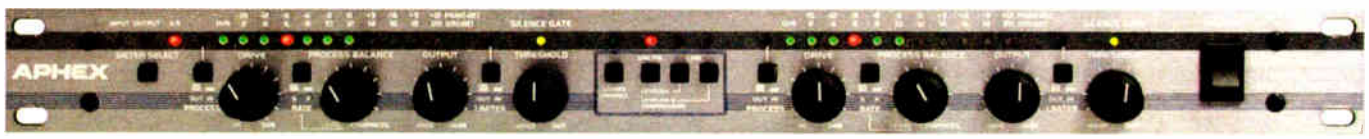
Imagine the difference in "density" of an epiglottal-thrusting disc jockey playing top 40 music and a public television talk show with both a male and female host. The 320D Compellor is an appropriate manager for both applications.

"Ok, now what's a dynamic verification gate?"

Glad you asked. Caesar gave me this example: In speech, there is usually a big spike on the consonants, then a soft area (or pause) and then another spike of similar intensity. In music, especially pop, there are regular spikes at both the kick and snare hits. A traditional compressor attacks the first spike, releases it and then attacks the next one, often interfering with the naturally played dynamics.

The DVG attacks the first spike, and freezes at that level for about one second, intuiting that another spike will be along shortly. This permits a more natural sounding form of level control and prevents audible "pumping" that engineers work so hard to avoid.

Now I suspect you presume you know what the 320D "silence gate" is. Nope, this gate does not affect the main audio path, but rather the gain control functions, causing the gain to either "freeze" at the last known level (which would be silence) or continue being controlled when audio resumed. If program stops for any reason, the DVG first freezes the VCA gain, then relinquishes all control after about 1.5 seconds of silence. The Compellor, by design, would then recover gain and the background noise floor would be brought up. To prevent this, the Silence Gate circuit keeps the VCA gain at the user-selected silence threshold until it is crossed by ensuing audio.



Greenhouse likes that the Compellor's audio is present at both analog and digital outputs, regardless of input source.

Instead of simply limiting or compressing audio signals, the Compellor interacts with them using three discrete gain controllers in combination: a frequency-discriminate leveler, a compressor and a limiter, working interactively. A leveler utilizes a high-compression ratio and a slow attack and release (20:1). A compressor utilizes a low-compression ratio and a fast attack and release (1.1:1 to 3:1 program dependent). A limiter uses a high-compression ratio and still faster attack and release (>30:1).

Additionally, the 320D includes a dynamic release computer, a dynamic verification gate and a silence gate to intelligently deliver a substantial amount of signal processing with the least noticeable processing effects.

Transparent sound

Yeah, that all reads well, but how does it sound? Simply put, it doesn't. By following Aphex's recommended parameter settings, the only effect I achieved was an increase in the "perceived" audio level. In an effort to stress the audio by using extreme processing — turning the Process knob first completely to the "Level" and then all the way to "Compress" settings, then turning the "Drive" knob all the way up — I could not get the audio to sound "crushed."

I am astonished by the transparency that even ridiculously heavy settings produce, providing me with substantially louder levels without increasing peak volume or hearing objectionable artifacts. When using reasonable settings, I had to check my console PPM meters to verify the device was working. How do they do that?

Offline, I routed a newscast — voice and actualities only — through the unit's analog connectors. Our anchors use their own dynamic control when speaking, and using Aphex's prescribed settings, I was able to get 8 VU more gain out of their performance without audibly impacting it.

Additionally, the voices of the reporters — many of whom were on satphones, landlines or cellophones — sounded fuller, less shrill and more evenly balanced with the announcers, who use an unprocessed Neumann U87. I then bypassed the unit at the end of the 'cast, and the following program's music billboard and elements were simply dwarfed in comparison.

Going through the Compellor via AES/EBU and using it in a mastering tool application, I played a stereo mix of a big dynamic multi-track music production on which I am working. I was able to adjust the 320D so that my digital console registered a nearly solid .5 dBFS and yet I heard none of the "squashing" and harsh tonality so familiar to over-compression. It made my recording warm, fat and big-sounding — just like the major-label releases I was using for my A/B comparisons.

Operable at -10 dBv, +4 dBu and +8 dBu (via XLR connectors), the Aphex 320D Compellor has a bi-color LED meter for status information; a hard-wire bypass that is silently established if power fails (valuable for mission critical program); audio that is present at both analog and digital outputs regardless of input source (!); and an excellent owner's manual that goes well beyond the operation of the device and into wiring illustrations, definitions and a coherent overview of fundamental scientific practices and theory.

Applications include recording, mixing, mastering, video post-production, sound reinforcement, broadcast pre-processing broadcast STL, TV broadcasting and cable systems, video and audio tape duplication, voice processing and hard-disk recording. Whew.

I'm impressed with the Aphex Systems engineers' understanding of, dare I say affection for, audio. This company subscribes to the medical doctors' credo of "Above all, do no harm."

Mark Greenhouse is a broadcast/recording technician with National Public Radio in Washington, owns Vanity Music Company and is a record producer. He can be reached at (202) 488-8424 or vanitymusic@markgreenhouse.com.

Imagine the difference in 'density' between an epiglottal-thrusting, top-40 DJ and a public TV talk show with male and female hosts. The 320D Compellor is an appropriate manager for both.

Product Capsule: Aphex Compellor 320D

Thumbs Up

- ✓Transparent processing with dramatic results
- ✓Serves as an A to D converter.
- ✓Audio is present at both outputs regardless of input.
- ✓+4 or -20 operability

Thumbs Down

- ✓I have to return the test unit.

Price: $1495

Contact: Aphex Systems in Sun Valley, Calif. at (818) 767-2929 or visit www.aphex.com.

PRODUCT GUIDE

Crosley Turntables Offer Retro Style, Digital Technology

Here's one suitable for the holiday shopping season. Crosley Radio manufactures retro-styled electronics, such as AM/FM radios, portable suitcase-styled record players and wood turntables.

The CR79 Entertainer Plus Recorder model is a combination radio, tape deck, turntable and CD player that features its solid-state AM/FM radio on the face of the unit, and a hand-rubbed wood veneer cabinet. Also featured are wrap-around woven grill cloth corners; d stereo speakers; and three-speed belt-driven turntable that plays at 33-1/3, 45 and 78 RPM.

The CR73 features an analog AM/FM radio and old-fashioned airplane-style dial.

In addition to a manual return tone arm and diamond-stylus needle, the CR79 has a recording feature for the cassette deck, LCD display for the front-loading CD player, programmable 20-track memory and repeat play.

Other highlights include digital volume control and external FM antenna.

Like the CR79, the CR73 is a four-in-one unit with many of the same functions and features. Defining features are the analog AM/FM radio and old-fashioned airplane-style dial.

Crosley's Stack-O-Matic record player is offered in four styles, and features technology that enables records to be stacked six to eight at a time and automatically dropped on the platter for continuous play.

The Traveler version offers many of the same features as the CR79, such as a belt-driven turntable mechanism; automatic tone arm; and dynamic full-range stereo speakers. Like the CR79, it plays 7-, 10-and 12-inch records at three speeds.

For more information, including pricing, contact Crosley Radio at (866) 276-7539 or visit www.crosleyradio.com.

World Radio History

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World Radio History

Signal-Splitting Tips for Remotes

Taking an Audio Feed From the Sound System to the Remote Mixer Is an Alternative to Mic Clutter

by Bruce Bartlett

You are asked to do a remote broadcast of a church service, press briefing, public presentation or concert. A sound system with multiple mics is in use at the venue. You want to pick up the sound sources with close-up mics for best audio quality.

Setting up your own redundant mics is an option, but this adds clutter and might be unnecessary. An alternative is to take an audio feed from the sound system to the audio input jack of your remote broadcast mixer. You can take a split signal directly from one mic or a few mics, or take a split from the house-mixing console.

Four signal-splitting options are suggested below, depending on the number of mics in use:

- ✓ To split one to three mics: single-channel mic splitter
- ✓ To split four mics: multichannel mic splitter
- ✓ To split the house console output: line-level splitter
- ✓ To split one mic to several broadcast feeds: distribution amp

We will explore each of these options.

One to three mics: single-channel splitter

Basically, you need to take the signal from each mic and split it to two destinations: the house mixer and your broadcast mixer. The simplest and cheapest way to do this is with a Y-cable (Figure 1).

The Whirlwind LBS line balancer/splitter.

Since the two mixers might be at different ground potentials, a Y-cable might create a ground loop and result in hum. Therefore, you will also need a pin-1 ground lift in the feed going to one mixer. This ground lift can be either a switch in the Y-cable, or a ground-lift adapter that plugs into the mic line going to one mixer. Such adapters are made by ProCo and Whirlwind, among others.

Using headphones, listen for any hum introduced by adding the Y-cable. If you hear hum, flip the ground-lift switch or plug in a ground-lift adapter.

A drawback of the Y-cable is that it connects the inputs of the two mixers directly together. Phantom power on one mixer's mic input will appear at the other mixer's mic input. Another problem: Changing the input attenuation on some mixers changes the DC or impedance at the mic input. These changes also appear at the other mixer.

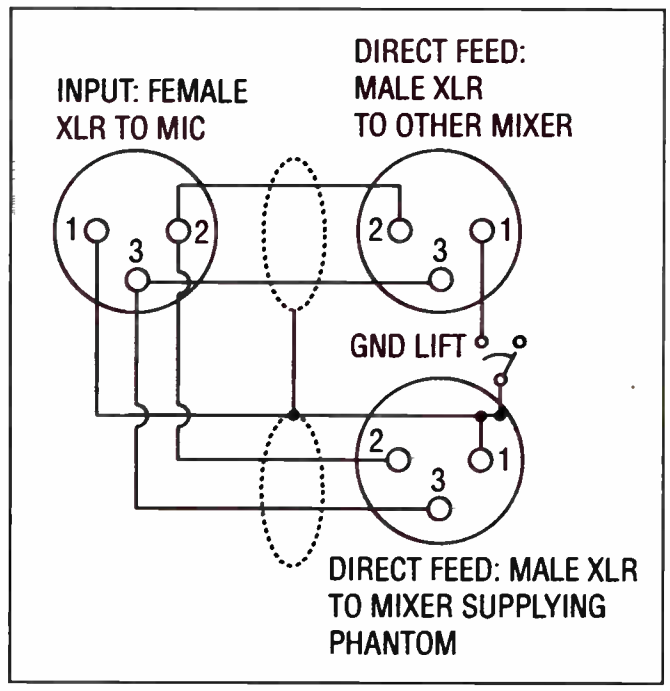
A solution is to use a transformer-isolated mic splitter (Figure 2). It has one XLR mic input and two XLR mic-level outputs that feed two mixers. One output connector is wired directly to the input connector. The other output connector receives the mic signal through an isolation transformer, which blocks any DC between the two mixers.

The mic splitter has a ground-lift switch to prevent ground loops between the two audio systems, preventing hum. At least one mixer must provide a pin-1 ground to the microphone to prevent hum pickup.

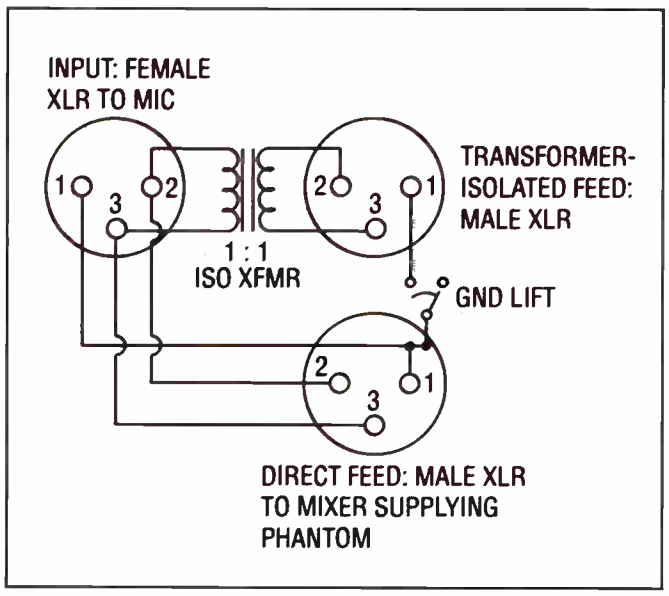
Caution: If you are using phantom power for condenser mics, do not ground-lift the cable going to the mixer that provides phantom power. That is because phantom power is applied to the mic-cable shield and to the two center conductors. A ground-lift in the cable shield prevents phantom power from reaching the mic. Also, the mixer supplying phantom should be connected to the direct side of the split — not the transformer-isolated side — because the transformer blocks phantom power, and will prevent a condenser mic from working.

Additionally, if one mixer provides phantom, be sure that phantom is turned *off* in the other mixer. Only one mixer should provide phantom power, otherwise hum can result.

Transformer-isolated mic splitters typically cost $30 to $80 per channel. Examples: ART Splitcom, ProCo MS2, Rolls MS20, Whirlwind SP1X2. Active mic splitters such as the ATI DMA103 provide independent gain control and phantom power, and typically cost about $90 per channel.



A Y-cable with a ground-lift switch.



A transformer-isolated mic splitter with a ground-lift switch.

Four mics: multichannel splitter

If the number of mics in use is about four, consider using a multichannel mic splitter. This rack-mounted device typically includes four mic inputs and eight mic outputs: one direct and one or two transformer-isolated outputs per channel. Ground lifts are included. Examples: Whirlwind MLTSP1X2, ProCo MS-42A.

For elaborate productions, mic splitters are available with up to 30 inputs in a single stage box. Example: Whirlwind SB series.

House-mixer output

If there are several mics and other inputs feeding a house mixing board, take a line-level feed from one of the following outputs on the house board: Main Out, Program Out, Tape or Record Out, Auxiliary Out.

Taking a signal from the Main Out, Program Out or Tape Out will feed the same audio signal that the audience is hearing to your broadcast mixer. Taking a signal from one of the Aux outs will let the house mixer send you a custom mix that might differ from what the audience hears. A drawback is that the mixer operator might not be attentive or skillful, and they have enough to do just creating the house mix.

If the house-mixer operator mutes or turns down all sound sources, you will get no sound. This can happen during the applause at the end of a speech or musical piece. You might want to add your own audience mics to your broadcast mix.

The house-mixer output connector will be an XLR connector, 1/4-inch phone jack or RCA-phono jack — all line level. Be sure to bring a set of connector adapters.

The house-mixer's main or program output will be in use feeding the system power amps. It will need to be split with a line-level splitter. This can be either a Y-cable with a ground lift, or a line-level transformer splitter, like the Henry Engineering PatchBox II, which takes the stereo output of a mixer and splits it into 12 balanced and unbalanced outputs, to simultaneously feed the house PA and several broadcast feeds. Six balanced outputs are available on XLR and 1/4-inch TRS jacks, with six unbalanced outputs on RCA "phono" jacks.

The Whirlwind LBS line balancer/ splitter splits a line-level signal to two destinations with transformer balancing and isolation for one or both of the outputs. Each output has a ground-lift switch. Inputs are female XLR and 1/4-inch TRS, while outputs are male XLRs.

The ProCo IT-1 Isolation Transformer Unit is similar, but with 1/4-inch TRS and XLR outputs.

Those balancer/splitters also can connect to a mixer's unbalanced phone-jack or RCA jack output and provide a low-Z balanced signal. The balancing improves noise rejection when unbalanced outputs feed balanced inputs.

One mic to several feeds: DA

In this situation, one mic at a lectern is feeding the mixers for several stations. Passively splitting a mic signal to more than two inputs is not recommended because this loads down the mic, causing level loss, low-frequency loss, or distortion. It is best to use a distribution amplifier (DA), also called an active splitter.

Typically, a distribution amp includes one or more mic inputs with switchable phantom power. The mic signal is applied to a buffer mic preamp, which provides an ideal, unchanging impedance to the microphone.

The output of the mic preamp is fed to several more amplifiers, each providing an isolated line-level output. Most DAs include a gain adjustment on each output. Weak signals can be boosted to improve their signal-to-noise ratio on long cable runs. Also, all outputs can be transformer coupled which improves Common Mode Rejection (CMR) and reduces electrical interference.

These advantages over a passive circuit allow a signal to be split to more outputs. Example: The Whirlwind AS8X4 rack-mount module splits eight mic channels to one direct (passive) and four active destinations per channel. The ATI MMA400 and MMA800 can be used to split or combine up to eight transformer-isolated channels and provide independent gain and phantom power.

The Radio Design Labs STM-DA3 surface or rack-mount module distributes a single mic to three active isolated destinations, and may be set to supply phantom voltage. In many installations where the stage rack is located some distance from the house mixer, the RDL STM-LDA3 module is used. This module provides three line level outputs. Line level distribution is often preferable for improved noise performance.

BSS, owned by Harman International, makes the MSR-604 II, a 4-channel 1x4, active microphone/line level distribution system, capable of supplying 4, 8, 12 or 16 outputs from one input. The AR-416 is an active 4-channel direct injection unit.

We looked at several devices that allow you to take a clean feed from a venue's sound system. Take them to your next remote, and you will be prepared for almost any situation.

Bruce Bartlett is a technical writer/ mic engineer for Crown International, a recording engineer and an audio journalist.

World Radio History

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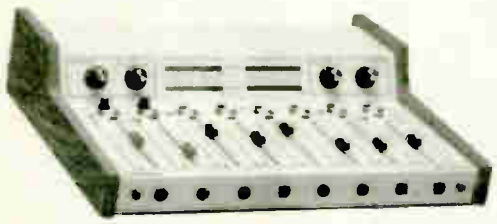

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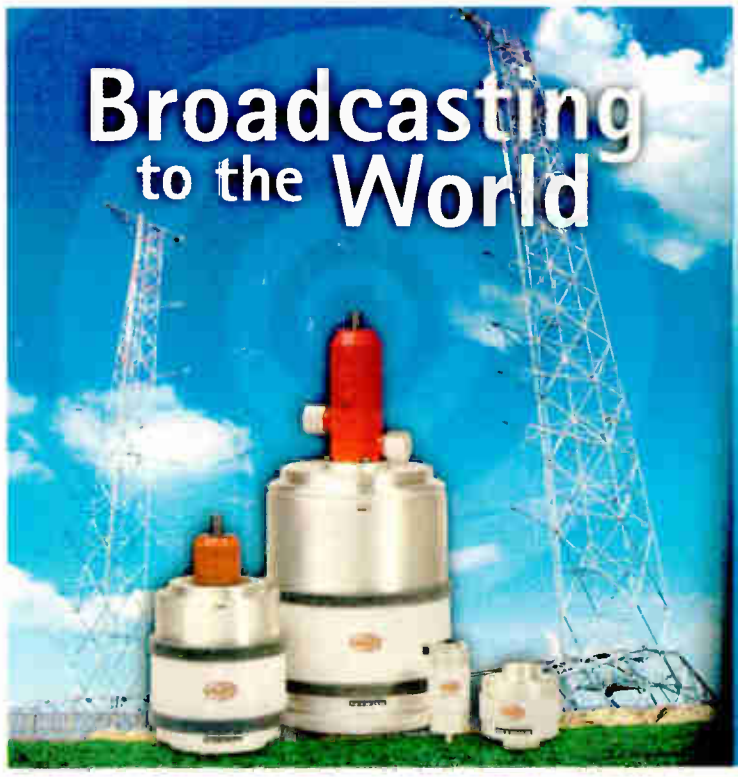

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◆PRODUCT GUIDE◆

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SLS Offers Ribbon Driver Technology

Springfield, Mo.-based SLS Loudspeakers says it has developed ultra-high-fidelity, ribbon-driver loudspeakers and sound systems for the commercial and professional markets, with 20 to 30 percent less distortion than typical compression driver and dome tweeters.

Features include push-pull neodymium planar ribbon drivers; Baltic birch plywood cabinets; reticulated foam-backed powder-coated grilles; and steel input panels with parallel Neutrik Speakon (NL-4 or NL-8) 30-amp-rated jacks.

Also included are crossovers with heavy-gauge air core inductors and high-voltage polypropylene capacitors; one-piece, die-cast aluminum ribbon wave guides that can be rotated; and T-nut-mounted woofers with aluminum baskets, magnetic structures and high-temperature edge-wound voice coils.

For more information, including pricing, contact SLS Loudspeakers in Missouri at (417) 883-4549 or visit www.slsloudspeakers.com.

Switchcraft Releases Patch Cords, Pro Audio & Broadcast Catalog

Switchcraft says its line of molded audio patch cords is suitable for digital and analog applications. The cords are made with 110-ohm, low-loss cable and are available in eight colors and 10 lengths from 30 to 300 cm. Terminations include 6.35 mm (long frame), TT/bantam and twin TT/bantam jack plugs.

Metallic shells are used between the rubber boots and nickel-plated plug bodies for shielding and strength, and the molding process provides protection against dust and moisture.

The company also released the sixth edition of its Pro Audio & Broadcast catalog, which it says features new products including EZ Norm audio patchbays, RS-422 Series patchbays, MBPK combination patchbay connectors and new EH Series connectors. Also featured are bantam and long-frame patchcords and an expanded line of AAA XLR connectors.

For more information, contact Switchcraft in Illinois at (773) 792-2700 or go to www.switchcraft.com.

Road Ready Modifies DJ Case

Road Ready Cases redesigned and made available its RRCDJ digital turntable case, which the company says is intended for DJs.

The modified case accommodates the Technics SL-DZ1200, Pioneer CDJ1000 and CDJ800 and Denon DN-S5000 and DN-S3000 turntables. Features include removable front panel for access to the CD drawer, rear-access cable port for connections and adjustable modular foam lining for custom-fitting your gear. Other highlights are stackable ball corners; 3/8-inch vinyl laminated plywood; tongue-and-groove locking fit; and an ATA 300 rating.

For more information, visit www.roadreadycases.com.

Pomona Broadcast Line Features XLR Connectors

Cable manufacturer Pomona Electronics' broadcast line uses XLR connectors, including a clamping mechanism that withstands 100 pounds of pull. Gold contacts and black nickel coating reduce reflection; a latching mechanism enables secure connections. The connectors also are available on 10-25-foot cable assemblies made with Belden 1172A four-conductor Star Quad low-impedance cables.

The broadcast line includes cable assemblies that ship plug-and-play-ready with the option of adding markings or customer logos. "As the broadcast market has migrated to HD and other forms of digital signals, the demand for high-quality connectors and cable assemblies has grown dramatically," said Product Manager Dwight Hyland.

Pomona Electronics products are sold through general electronics and broadcast specialty distributors.

For more information, contact the company in Washington at (800) 490-2361 or visit www.pomonaelectronics.com.

ATI SPL Meter Checks Studio Acoustics

Audio Technologies Inc. debuted its Precise Sound Pressure Level Meter at the AES show in San Francisco in October.

The company describes the SLM-100 SPL meter as an analog meter for accurate measurements in factories or offices, or for checking the acoustics of studios and auditoriums. It has a frequency response of 32 Hz to 10 kHz and is equipped to make A- and C-weighted measurements with peak or averaging response.

Additionally, the SLM-100 is equipped with a 7 SPL range selector, calibration control and a test signal output via an RCA jack.

For more information, including pricing, contact Audio Technologies Inc. at (215) 443-0330 or visit www.atiaudio.com.

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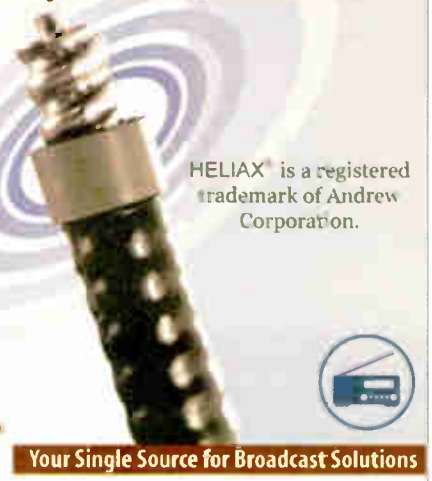

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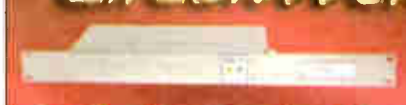

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FIRST PERSON

Northwest Festivals Broadcast Live

Gonzo Hosts Take Show From Islands to Mainland With Tieline, Shure and Yamaha Gear

by Judith Walcutt

Judith Walcutt and David Ossman, husband and wife hosts of "Live From the Islands," orchestrated a live remote broadcast using Comrex, Audio-Technica and Mackie products from Choochokam, the Whidbey Island, Wash., summer music and arts festival. They wrote about it in the July 14 issue.

This segment describes the production behind a live broadcast from both the Djangofest Northwest and the Northwest Folklife Festival.

WHIDBEY ISLAND, Wash "Live From the Islands" airs on KSER(FM), and presents musical performances and festivals from on and off Whidbey Island. Last fall, we moved our show to a beautiful restaurant — The Edgecliff, which offers a view to sigh over — and went back on the air for a 13-week run from October through December.

When traveling island-to-island, or taking our broadcast from outside in the summer to inside in the autumn, we have the opportunity to sample different codecs, and as mentioned in the last "Live From the Islands " segment, we like the Comrex BlueBox a lot. Another unit we've had the opportunity to try is the Tieline Patriot. It had features I was interested in trying, and the price was comparable.

Cliffside remote

Every Saturday, the engineering team of Wayne and Leslie Newitt and producing/hosting team of David and myself, would set up the live broadcast from "the big round table" at the restaurant. Folks from all over the island, as well as the world, dropped by to show and tell — a formal sit-down affair, reminiscent of the fabulous days of the '40s when icons like Tex and Jinx broadcast from the Waldorf Astoria in New York, or the Fitzgeralds invited their audience to breakfast in their living room.

Our October debut started with Djangofest Northwest. Sponsored by the Whidbey Island Center for the Arts, the four days of nonstop Django Reinhardt jamming filled the streets and restaurants, as well as packing full houses into the Center's theatre with two shows a day.

Guests included Patrick Saussois and Angelo Debarre from France, the Robin Nolan Trio from Amsterdam, Alphonso Ponticelli & Swing Gitan, Canadian Michael Dunn with his Hot Club of Mars, Shelley Park with the Ross Bliss Trio and Alain Cola with Hot Club San Diego. It was wild and noisy, and musically over the top. It was gonzo radio over the edge at The Edgecliff.

But we had a lot of trouble with the environment generating feedback. The beautiful glassed-in view was reflecting sound back and around, resulting in that nasty feedback we all hate even when not on the radio.

We had a whole suitcase of mics from Shure representative Van Brown of Brownstone. I longed to use the Shure KSM Studio Series condenser microphones but found them just *too* good (live!) for the room. We also found that by dropping back to Shure SM 58s, a lot of the feedback problems we were generating could be defeated. There *are* benefits to lower frequency response.

A Shure ULXPA4 handheld wireless was added to the mix of what we had to work with, which saved our lives more than once when something went wrong and we couldn't bring up the performing musician's voice mic. We just sent our guest comedian Jim Freeman to where the mic was needed, which allowed him to roam the room and interact with the guests at the restaurant.

Photos courtesy of Jumanji Goodbee Ruth

David Ossman uses the Shure KSM 44 mic, while co-host Judith Walcutt uses the Shure KSM 32.

For reinforcement, we started with a set of monitor speakers that created problems due to their open backs. Eventually those were replaced with Yamaha MSR 100s, which have a number of features that were beneficial to our difficult ambient room problems.

Each unit has a simple but effective mixer built into the rear, providing three inputs with master EQ for sound control. This feature was helpful when we were reducing the feedback in the room. Small and compact, they are good for a show like ours that hits the road. Additionally, they feature a variety of mounting options, so you can put them on poles, suspend them form the ceiling, attach them to the wall or stack multiple units on the floor.

When Wayne Newitt brought those speakers along, courtesy of Morgan Sound in Woodinville, Wash., our sound changed decidedly for the better, in the room and on the air.

Codec indecision

And what about the Tieline? We were impressed with the quality of the signal, the sound on the other end and the user interface. Again, the true test was, can I make it work on my own, for days when I have to go it alone? The answer was yes. Even I could dial it up and get us on the air.

The Tieline automatically sets up the correct bit-rate speed so the talent does not have to, and also tells you on its display how good or bad your line connection is before you go on the air.

If the LQ percentage falls below 20 percent, the connection speed can be manually adjusted. You can go all the way down to 24,000 bps and still get 15 kHz audio. And if you have to renegotiate, it takes only 1.5 seconds.

Here's something especially helpful. For those nervous-breakdown days when there is no engineer on-site and a non-techie like myself has to host, produce and get the live show back to the station, someone at the home station with more technical skills than I can take remote control of the Patriot and adjust levels out of the remote box before it even gets there. Now that is failsafe.

The Tieline also has an interface for your PC laptop, so when you are out in the field you do not have to rack up an even higher long-distance phone bill. Instead, you can just send little messages home over the Internet, words like "How do I sound?" with return messages like "You're off mic!"

Engineer Wayne Newitt works the Tieline Patriot and Mackie mixer.

So which codec did I try out for our next remote?

When it came time to take "Live From the Islands" to a mainland event — broadcasting from the 33rd Annual Northwest Folklife Festival this past Memorial Day, we had several major broadcast issues to consider.

We had put together a seven-station network to carry the broadcast, made up of community stations from Bellingham, Wash. to Astoria, Ore., including: KUGS(FM); KSVR(FM); KSER(FM); KBCS(FM); KAOS(FM); KBOO(FM); and KMUN(FM).

It was the first time these stations had cooperated in a unified broadcast of this festival, which has annually drawn crowds of 250,000 to Seattle center over the holiday weekend. Some stations were fed by the Public Radio Satellite System and others were not. To solve the feed problems, we used both ISDN and POTS codecs.

We took a feed from the main room sound mix, and then had to feed several outs from there. We had two ISDN lines — one going to the Public Radio Uplink at KUOW(FM) in Seattle, and one going to KBCS community radio, as their satellite downlink was being repaired.

We used Tieline Commanders for the POTS feeds — one to KSVR, which does not have a downlink from the PRSS and could only take the show from us live in this way. Another Commander went back to KBCS as a redundancy unit and to allow us to make a sound quality comparison. And for the kind of get-up-and-go Gonzo-style live remotes we like to do, we were thrilled to have them in the mix. They were invaluable in expanding regional stations' access to the live remote broadcast.

While Tieline has since discontinued both the Patriot and Commander, the buzz around the Commander G-3 is positive. The unit offers a modular format where the user can build the piece of equipment they need — POTS, ISDN and GSM are all available components. And guess what? Any two modules can operate at the same time. You can do stereo POTS or stereo ISDN, double mono POTS or send a mono POTS and a mono ISDN from the same unit to two different lines, reaching two different destinations.

I haven't gotten a chance to use the G-3 yet, but I am intrigued from a gonzo-radio perspective. With one box I can feed a POTS signal back to my local station, and at the same time get a quality ISDN to a satellite uplink. The possibilities for future "Live From the Islands" broadcasts have multiplied.

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

World Radio History

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World Radio History

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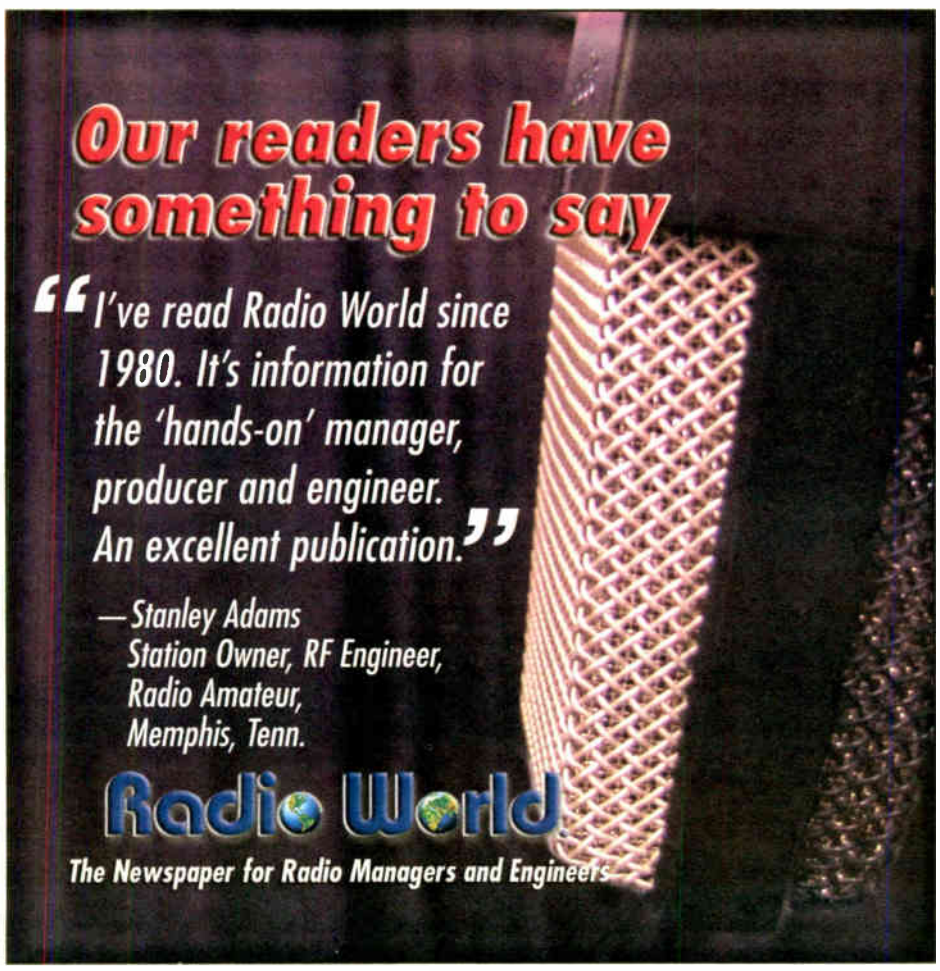

◆ READER'S FORUM ◆

Radio World, December 1, 2004

A Digital Call to Arms

The Author Says a Separate Band for Digital Would Squash IBOC Concerns and Push Free Enterprise

by Don Kennedy

Close to a quarter-century ago, the owner of a small-town AM station and I were talking about the promise of digital radio, then a mere possibility. He commented, "What a boon that'll be to AM stations. Listeners will be able to hear them clearly 24 hours a day."

"Yes," I said. "The FCC will most logically assign a new band for digital, with current owners and radio pioneers alike able to serve listeners unique programming, much the same as the separate FM band did. It'll take a while to be commercially feasible, but FM took three decades to catch on, and look at it now."

This, of course, did not transpire.

However, the idea is still feasible. We can imagine an infrastructure of hundreds of pure digital signals in every community in the nation, using a digital transmission system similar to that of satellite systems but with enough power to make terrestrial reception possible. Perhaps the system used in Europe might be logical. Certainly, technical development and digitization are at a point where innovative engineers could design a new, practical, pure-digital radio transmission system.

Surely everyone understands the reason for the IBOC idea. Current owners want to preserve their frequency franchise, but still be able to offer the PR magic of the word "digital," while preserving their analog audience. That certainly makes commercial sense.

So let the giant owners fool around with whatever they wish. But regulators should allow dedicated radio folk to develop a fresh, pure-digital approach — risking, as with FM in years past, a relatively minor amount of money as they expand program choices for the listener.

Free enterprise is a wonderful incentive for the pioneer spirit, but innovation essentially has been squashed by deregulation, the opposite of its intent.

Grocery stores can benefit in free enterprise — there can be one on every corner, limited only by the service they provide their customers. The quality of the product determines their success.

If, indeed, the FCC would create a dedicated digital band with a virtually unlimited number of stations, dedicated radio people could engage in such free enterprise. Oh, yes, and the customers would also be the beneficiaries. Radio should be operated for the benefit of a community of listeners.

There are still some radio pioneers creating programming with excitement and dedication. Most are in small towns, with fewer in larger markets, where station programming is dictated by bottom-line needs rather than by listener needs.

This is understandable, for the cost of frequencies demands monolithic attention — not to new ideas, but to formulized sound, so the massive investment can be amortized. A pure-digital band with virtually unlimited station potential would solve that problem, while the big guys continue to dominate the established FM and AM frequencies.

It may not be too late. There are still radio people out there who long to offer the innovation and creativity that was, and is, the basis of radio. The FCC has to take the lead to create a pure-digital band. They cannot continue to fiddle around with stopgap measures such as LPFM and expensive, highly directional daytime AM signals. Surely the FCC must realize that listeners should be served, not with cookie-cutter programming, but with variety and information services.

Someone at the FCC must take the lead before radio continues to disintegrate, spiraling downward into a ratings-driven morass of mediocrity.

The author is the president of Crawford Houston Group Inc., which syndicates "Big Band Jump."

Stop the IBOC Pony

As a long-time reader, when I unwrapped my Oct. 6 issue and got to the *Reader's Forum*, my faith was renewed in your magazine and your openness to all sides of the issues.

IBOC has been pushed by the powers-that-be and their "engineers" for a number of years, while many engineers, technical people, radio managers and those with just plain good sense have looked and listened, and come to the conclusion that IBOC will not be good for the industry — especially AM radio.

Just because the TV industry has been forced to go digital does not mean this will work for radio. "Digital" does not equal "better" in all things; and no matter what the digital "pushers" say, we humans still hear in analog.

Thank you, Radio World, for printing letters from people like Mr. McBride and Mr. Savage and commentary from Mr. Smith that address how many of us in the business — except those that are selling or have already bought the technology —really feel.

As a consultant, I have gone into a top market to help a new AM station build revenue and seen them go in the hole right out of the gate because they had been convinced to spent $100,000 on IBOC equipment for nothing but bragging rights and a technology to which no one can listen.

This is way too reminiscent of AM stereo and the promises that never came to pass. Radio, especially AM radio, has enough challenges as it is. I know there are people with a lot of money tied up in this technology, but is it worth killing off the band just because no one is brave enough to admit they made a mistake?

Let's stop this pony before it takes us over the cliff.

Tim Johnston
American Radio
Dahlonega, Ga.

World Radio History

◆READER'S FORUM◆

'What's Wrong With Radio'

Got the paper today with the article praising Laura Ingraham and TRN ("Laura Ingraham Takes Charge," Sept. 24). TRN stands for Tyrannical Republican Nazis.

Why give space and time to what's wrong with radio? They are jerks who miss breaks, brainwash listeners and call themselves radio professionals.

Cancel my subscription immediately.

Glenn M. Liles
Roswell, N.M.

AES Numbers

I want to thank you for the outstanding coverage on the 117th AES Convention, both in Ty Ford's preview article ("AES Promises San Francisco Treat," Oct. 6) and in Paul McLane's earlier column ("Make a Date at the Golden Gate," Sept. 8).

This year's convention shaped up to be one of the most successful in AES history. We logged in 417 exhibitors, and more than 16,000 attendees from around the world attended.

Coverage in meaningful publications such as Radio World is critical to our efforts in getting the word out to the industry. We very much appreciate your devoting so much valuable editorial real estate to this event.

Roger K. Furness
Executive Director
Audio Engineering Society Inc.
New York

Front-Line Reporting

This note is not intended to suggest that all issues of Radio World are not equally well produced. But maybe some are more equal than others. The Oct. 20 issue was a standout.

Jeff Littlejohn's rationale as to why the Clear Channel AM stations are cutting bandwidth ("Clear Channel Reduces Bandwidth") makes perfect sense. As he said, set manufacturers walked away from the high-bandwidth standards years ago, so why not reduce it at the transmitter level? Not said but implied is that with the introduction of HD Radio, there will be ample bandwidth, and the opportunity for AM stations to introduce some music back into their operations.

The piece by Bill Ryan on KPYK(AM) ("KPYK Is a Real Mom & Pop Station") was a delight. A family-run radio station, playing the music they want to hear, and doing a great job of serving the community — really refreshing in this era of radio consolidation.

Speaking of serving the community, the Brits don't get left out, either. The job that Tim Blackmore is doing with Oneword radio in the U.K. ("Oneword Radio Speaks to Listeners") is just great. Finding a niche and filling it is what radio is supposed to be all about. Let's hope that it is a rousing commercial success.

And what a refreshing article about Arman FM, Afghanistan's first commercial radio station ("RCS Helps Arman FM Go National"). Three brothers returning to their homeland to bring excitement and *arman* (hope) to the beleaguered citizens of that ravaged country.

I cannot end this screed with commenting on your timely editorial. Your unbiased stance on HD Radio is to be commended. There is no doubt that a lot more work is required if we are ever to see 24/7 HD on the AM band. And during that process, I have no doubt that Radio World will be reporting from the front lines.

Robert E. Richer
Farmington, Conn.

An Engineer In Need

Friends say Denver-area broadcast engineer Jeff Gulick is undergoing a battle with bone cancer that involves chemotherapy, and suffering pain and nausea from the treatment. He was scheduled for bone marrow and stem cell transplant procedures after press time.

Gulick is unemployed, with doctors advising he will be unable to return to work for at least another year. Supporters say his investment income is being depleted rapidly by medical insurance costs.

They are asking for donations to The Jeff Gulick Fund, c/o Branch Manager, Wells Fargo Bank, 2500 East Second Avenue, Denver, Colo., 80206-4746.

Are You Awake Yet?

On Feb. 11, Radio World chided the industry in this very space for perpetuating the practice of airing long commercial breaks of far too many 60 second commercials back to back. "Too much commercial clutter" has long been a big negative that competing media like public and internet radio — and especially satellite services — pounced on to lure listeners away.

Wall Street took notice this summer and called for the reduction of spot loads and an overall cleanup of commercial radio programming and practices. Radio stocks have underperformed in recent years. The owners seem to be hearing the call for change. Our business long has been overdue for a good bath and haircut.

Clear Channel was the first to step up and announce plans to do just that. We applaud its leadership on this issue, and now see other radio groups following suit.

Fewer commercials and less clutter by emphasizing :30s over :60s is a big step in the right direction. Better copywriting and production are required as well to make the radio commercial do its job more effectively and efficiently.

Beyond fewer commercials, a key component needed to re-energize traditional radio's value is a renewed focus on expanded and improved local service. In real estate, the value mantra is location, location, location. For radio, it's local, local, local. This is the one trump card terrestrial radio can wave high over the head of satellite, at least as satellite is now constituted.

Another ingredient in radio's needed makeover is the movement to jettison controversial "bad-boy" talent like Bubba, Opie & Anthony and ultimately the King of All Media himself, Howard Stern. The pay-to-listen satellite channels will provide safe harbor for these guys, at least for a while.

Shock jocks and their employers got the same message about cultural and moral values from middle America earlier than the Democrats did on Nov 3. With the threat of punishing fines for indecent programming, publicly held companies have been forced to attend much more closely to their listeners, their customers, their stock holders and the FCC.

Yet another part of traditional radio's needed transformation is conversion to HD Radio. Don't underestimate the importance of accelerating radio into its new digital future to help give it more parity with its competitors. Those competitors sport digital, high-quality, noise-free platforms already.

Perhaps the most attractive advantage satellite enjoys over terrestrial radio is variety. It's hard for even multi-station clusters in any market to compete with the hundreds of different channels on satellite. But help is on the way.

Only public radio has shown a keen interest so far in the second program channel capabilities of HD Radio. It's time for commercial FM to understand and seize the potential of adding twice as many program offerings in their multi-station clusters. This is a sleeper that should allow them to compete more effectively with the variety on XM and Sirius as this capability rolls out.

The next few years offer lots of exciting opportunities for traditional radio to reinvent itself yet again. It easily can become more competitive and more vibrant than ever before. And won't it feel good to make the radio naysayers eat their words?

Just don't miss the wake-up call.

— RW

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