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NEWSWATCH

SCMS Acquires Harris' Radio Vendor Business

MASON, Ohio Harris Broadcast has sold its third-party product resale business to Southern Coastal Marketing Service (SCMS).

SCMS, headed by Bob Cauthen, is privately held and based in Pineville, N.C. Harris Broadcast is in Mason, Ohio, and is part of a larger publicly held corporation. Financial details of the deal were not released.

Cauthen said SCMS hired two Harris employees and purchased its third-party equipment inventory.

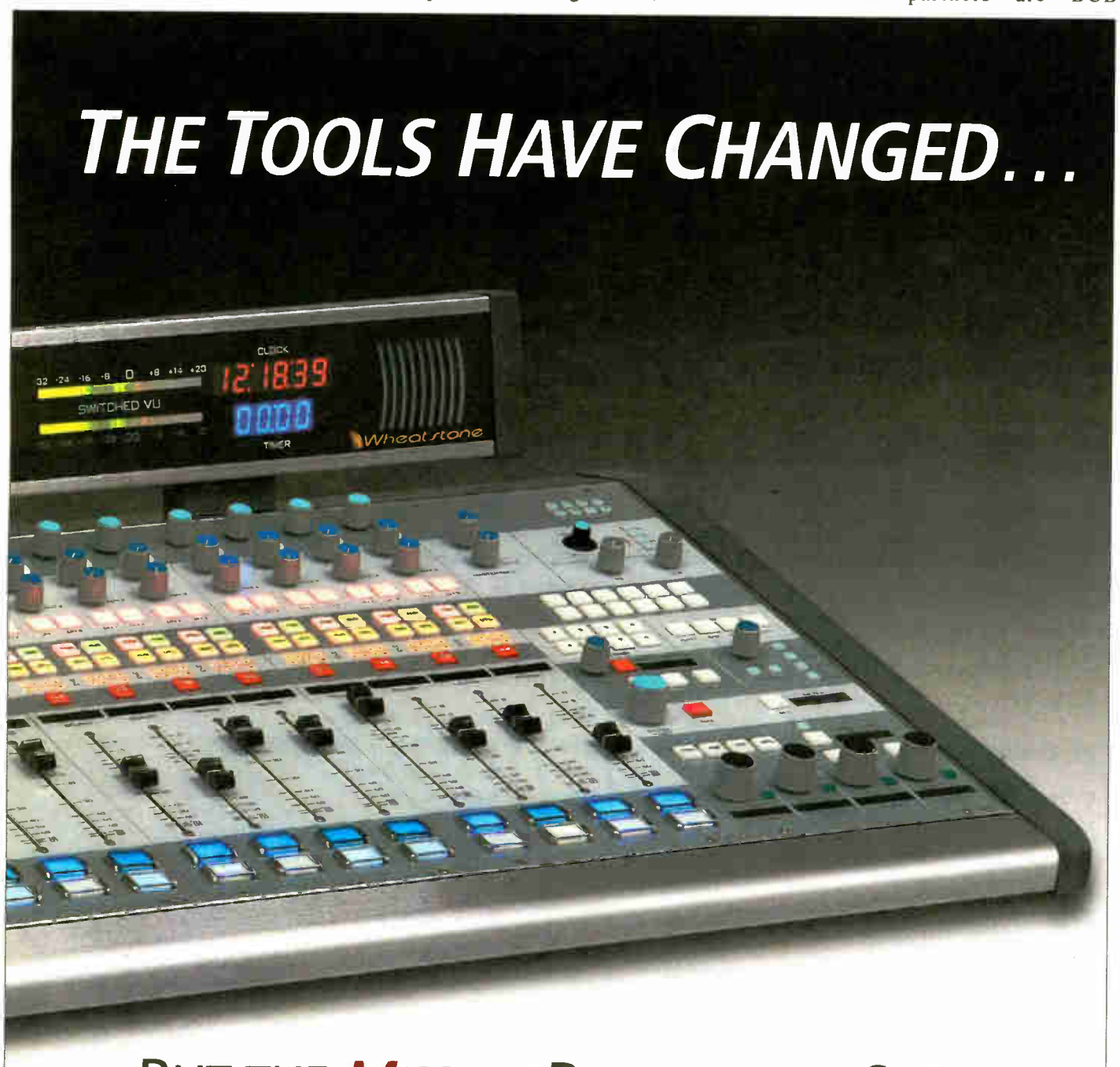
The Harris dealer sales business was the descendant of the company once familiar to many in the industry as Allied Broadcast.

The dealer resale business was separate from Harris' core manufacturing of transmitters, consoles and other hardware, which was not affected by this announcement.

Separately, Harris announced a "channel partner initiative" that includes 10 U.S. and three Canadian companies, including dealers, distributors and systems integrators. The company hopes the move will help it extend its reach into small- and mid-sized markets.

The companies are Balsys Technology Group of Winter Garden, Fla.; Broadcast Connection, offices in Colorado, Illinois and Indiana; Broadcast Technical Associates in Kansas; Calhoun Communications in Iowa; Digital Radio Engineering in New York; Giesler Broadcasting Supply in Texas; TechNet Associates in New Hampshire; Technical Services Group in Louisiana; and WPS in Maryland.

Canadian partners are BCB Electronics Sales Ltd., RVA Canada Limited, and BSE (Broadcast Systems & Equipment).



Brazil Could Reduce Tax on Imported HD-R Gear

BRASILIA Brazil's Minister of Communicat-ions says that country could adopt HD Radio by September and allow transmissions at the beginning of 2008.

That's according to a report from Tela Viva, a Brazilian news outlet that focuses on television. According to the report, Minister of Communications Hélio Costa indicated that Brazil likely will adopt a hybrid of IBOC for AM and FM and Digital Radio Mondiale for shortwave.

However, in June at a conference on digital radio, Costa stated that no decision had yet been made. "The project is fundamental for the growth and integration of Brazil," Costa said in a statement on his Web site. "We are seeking support and financing, in the same manner we approached digital television."

In the same statement, Costa noted that Ibiquity had agreed to waive royalties for Brazilian broadcasters to operate HD Radio.

Tela Viva also reported the Brazilian government has approved a reduction of import taxes on digital television transmission equipment from 12 percent to zero. The reduction only

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Emergency Signal Product Elusive

ADiCorp Still Trying to Get Ambulance, Fire, Police Alert to Drivers

by Randy J. Stine

WASHINGTON At least one company is trying to keep alive the concept of alerting drivers about approaching emergency vehicles through their car radios.

Some broadcasters, however, doubt the concept is feasible.

Alert Devices International Corp., which is leading efforts to establish an Emergency Vehicle Signaling Service, has changed RF engineering firms, a move the company hopes will improve chances of having the technology approved by the FCC for use in this country.

AdiCorp first petitioned the FCC in 2003; it vows to move forward with plans to re-submit a proposal to the commission for approval of its Vehicle Alert Transmitter — formerly called Radio Alert Transmitter — even as several other companies appear to have ceased developing the technology.

EVSS involves the installation of a low-power transmitter in public safety vehicles, which transmits a message directly to motorists through their AM or FM car radios that are already in use warning of an approaching emergency vehicle. The transmissions typically have a range of up to 1,000 feet and broadcast at 15 mW to 45 mW, based on the speed of the public safety vehicle.

The redesigned Vehicle Alert Transmitter from ADiCorp, Model #582.

Low-power transmitter

Proponents believe the devices can save lives by reducing motorist crashes with emergency vehicles, as RW has reported.

Opponents of EVSS say they are worried over the potential interference from the device to terrestrial radio stations and described as "flawed" ADiCorp's request to create such a service, no matter how good the perceived result.

ADiCorp petitioned the FCC proposing to create a Part 90 EVSS to allow emergency vehicle warnings via AM and FM broadcast spectrum. It asked the FCC in 2004 to dismiss its rulemaking request after several organizations, including NAB and SBE, opposed the premise and pointed out concerns about potential blanket transmissions on AM and FM broadcast channels and potential interference with Emergency Alert System messages.

ADiCorp has now hired RF design and manufacturing company Protium Technologies Inc. of Northborough, Mass., to do additional RF design work and develop future generations of its Vehicle Alert Transmitter.

"To get the job done we needed to make a change. Protium does a lot of government work and has the capability on the digital side to get this done," said Tom Macone, a former police officer, who is president of ADiCorp's emergency alerting division.

Atlantic Quality Design handled the original RF design work, said Macone. "They did a fine job for us, but to get to the next level, we needed to change."

ADiCorp and two other companies, Safety Cast Corp. and AlertCast Communications LLC, have worked inde-

See ADICORP, page 5 ▶

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Newswatch

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applies to goods that do not have domestically produced counterparts.

The Executive Management Committee of the Chamber of Exterior Commerce approved the two-year tariff reduction, which may be extended. A spokesman for Broadcast Electronics told Radio World the break would also apply to digital radio equipment.

The tax reduction has several layers of government approval yet to go to become final, he said.

Arbitron, CCR Concur on PPM

Clear Channel Radio has agreed to use the Arbitron Portable People Meter audience ratings system in 46 markets. Clear Channel is Arbitron's largest radio ratings subscriber and represented about 19 percent of Arbitron revenue in 2006.

The deal, which runs until the end of 2011, includes all Clear Channel stations in markets Arbitron has converted or plans to convert to the PPM ratings methodology by year-end 2010.

The agreement also extends until 2011 the current contract for diary-based radio ratings in markets covered by the deal that have not been converted to PPM radio ratings before the end of 2008. The current diary agreement with Clear Channel also expires in 2008.

MediaAudit/Ipsos, meanwhile, said it is still committed to a comparison test, pitting its smart phone technology against the PPM.

Swiss HD Radio

ROTKREUZ, Switzerland The companies conducting a field trial of HD Radio in Switzerland are testing a BMW equipped to receive IBOC, DRM and FM analog signals.

The HD Radio signals are broadcast from a transmitter in central Switzerland, delivering "surprisingly good results under difficult frequency and topographical conditions," according to proponents. An HD Radio field trial, underway in Switzerland since 2006, is entering a second phase that will include using an IBOC translator for the Lucerne region.

Markus Ruoss heads up the Swiss field trial; he's the majority shareholder in Radio Sunshine and owner of Ruoss AG, an electronic media-consulting firm.

FCC Reviews Merger Ban

WASHINGTON The FCC may waive, change or drop its rule prohibiting satellite radio companies from merging and is asking for public comment on the issue.

In a Notice of Proposed Rule Making, the commission noted that in 1997 the language authorizing satellite radio stated that one licensee "will not be permitted to acquire control" of the other "to help ensure sufficient continuing competition" in the satellite digital radio space.

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World Radio History

Radio World Finds a New Home

From the Editor

Paul J. McLane

As Alan Cohen put it, "in movement there is life, and in change there is power."

Change is taking place at Radio World. Look at the last inside page of this issue and you'll find a new name in place of IMAS Publishing.

On July 5, RW and its younger siblings — broadcast and professional audio trade publications including TV Technology, Pro Audio Review and Audio Media — were acquired by NewBay Media, part of the Wicks Group of Companies, a New York-based private equity firm.

Leading brand

This announcement marks the departure of Steve Dana, the driver of our newspaper for three decades and, more than any other person, the man responsible for launching what has become a competitive radio technical trade publishing industry.

Dana founded Industrial Marketing Advisory Services in the 1970s, originally with the goal of creating a computer-based electronic industry marketplace.

Talk about being ahead of his time. This concept didn't pan out; the era of personal computers and consumer online access was too far in the future. But IMAS quickly moved in another, more fruitful direction.

Dana, then a 29-year-old entrepreneur, saw an opportunity to start a publication aimed specifically at technical professionals in the U.S. radio broadcast market. The idea came from one of the few early IMAS customers for computer services.

The client "suggested a publication rather than a computer service," Dana told me in a 2001 article noting IMAS' silver anniversary. "Why radio? Because radio station technical people felt disenfranchised by the existing publications at that time, which were largely focused on TV matters, not radio.

"Chief engineers were the target readers and they needed a voice. RW filled that niche, and still does today, though in an expanded manner."

Radio World's "godparents" — advisers Steve named his Audio Mafia — included people like Harv Rees, Bill Sacks and Mark Durenberger. RW's first big story was the debate over the First Phone license; coverage of that issue helped build tremendous readership. Ad support from Roy Ridge and Allied Broadcast was a big early boost, Dana said.

In the years ensuing, Dana built the IMAS line card up from a publication covering one sector of broadcasting into a family that reached into video and professional audio, and which stretched — via print and online — into numerous other countries and markets.

NewBay Media CEO Steve Palm

The success of RW spawned competitors and imitators but the Radio World name remains the leading and most familiar brand in a niche that Steve literally created. If you are a radio engineer and feel you have a wealth of trade information available to you from IMAS and elsewhere, Steve Dana is a big reason.

'Wonderful fit'

Given his long and prominent role in radio and the intense loyalty of our readers and advertisers, our ownership change will be scrutinized even more closely than it might otherwise.

Steve never hid that he planned to exit when it was time for him to retire; and our staff has known for some months that a change was coming.

IMAS is a healthy and prosperous company. I knew it would be attractive when it was offered for sale eventually. Our managers did a good job of keeping staff informed during the time the company was on the market; and we knew in the spring that several potential buyers had come forward and one selected, though we didn't know the name.

As in any pending company sale, employees have wondered what might come of this sale and who our new bosses would be. When I learned the outcome, I was relieved and excited for RW, which I think plugs right into NewBay's offerings like a tight-fitting XLR connector.

NewBay itself is a quickly evolving part of Wicks. Just last fall it had acquired CMP's 14 magazines, among other assets, from United Business Media.

So Radio World now is part of a family that includes Pro Sound News, Guitar Player, Bass Player, Systems Contractor News, Keyboard, EQ, Residential Systems, Rental & Staging Systems, Videography, DV, Government Video, Television Broadcast, Digital Cinematography, Technology & Learning, DV Expo and Government Video Technology Expo. The company reaches 3 million professional and enthusiast readers monthly.

In the IMAS transaction, NewBay Media picks up the IMAS brands, publications and Web sites. That includes Radio World, Radio World Engineering Extra, Radio World International, Radio World Francophone, Radio World Latin America, TV Technology, TV Technology Europe, TV Technology Latin America, TV Technology Asia Pacific, Pro Audio Review, Audio Media and Broadcast & Production Italy. The sale also includes the contracts for the official show dailies for NAB and NRB.

Our new CEO Steve Palm calls IMAS and NewBay a "wonderful fit" and said the move adds depth and breadth to NewBay's pro audio and video divisions. I met with the new CEO before the sale and interviewed him by phone after the announcement. I was pleased by his enthusiasm and interest.

"IMAS is the No. 1 player in the radio and TV broadcast space; that was very attractive to us," Palm told me. He sees NewBay as a mid-sized publisher with the breadth and depth to thrive in this sort of market but small enough to be able to react and take on opportunities.

"I think IMAS is similar in terms of its culture. It's an aggressive entrepreneurial organization with some scale," a company that achieved a lot given the resources it had. NewBay, he indicated, will bring further resources to bear.

"Radio World is a great publication. It obviously has the support of readers and advertisers as well as partners. When you have that sort of situation — where everybody reads the publication, from the users to the manufacturers, to the retailers, the advertisers, regulators, everybody — that's nirvana to me.

"RW is such a dominant publication in the space (so) our feeling is, how do we enhance it, grow it and not lose what makes it special?"

Palm is interested in enhancing RW's online offerings and possibly exploring more involvement with events, two areas in which NewBay has significant investments elsewhere. But he remains a believer in the value of the print medium and says the majority of decision-makers continue to make decisions based on

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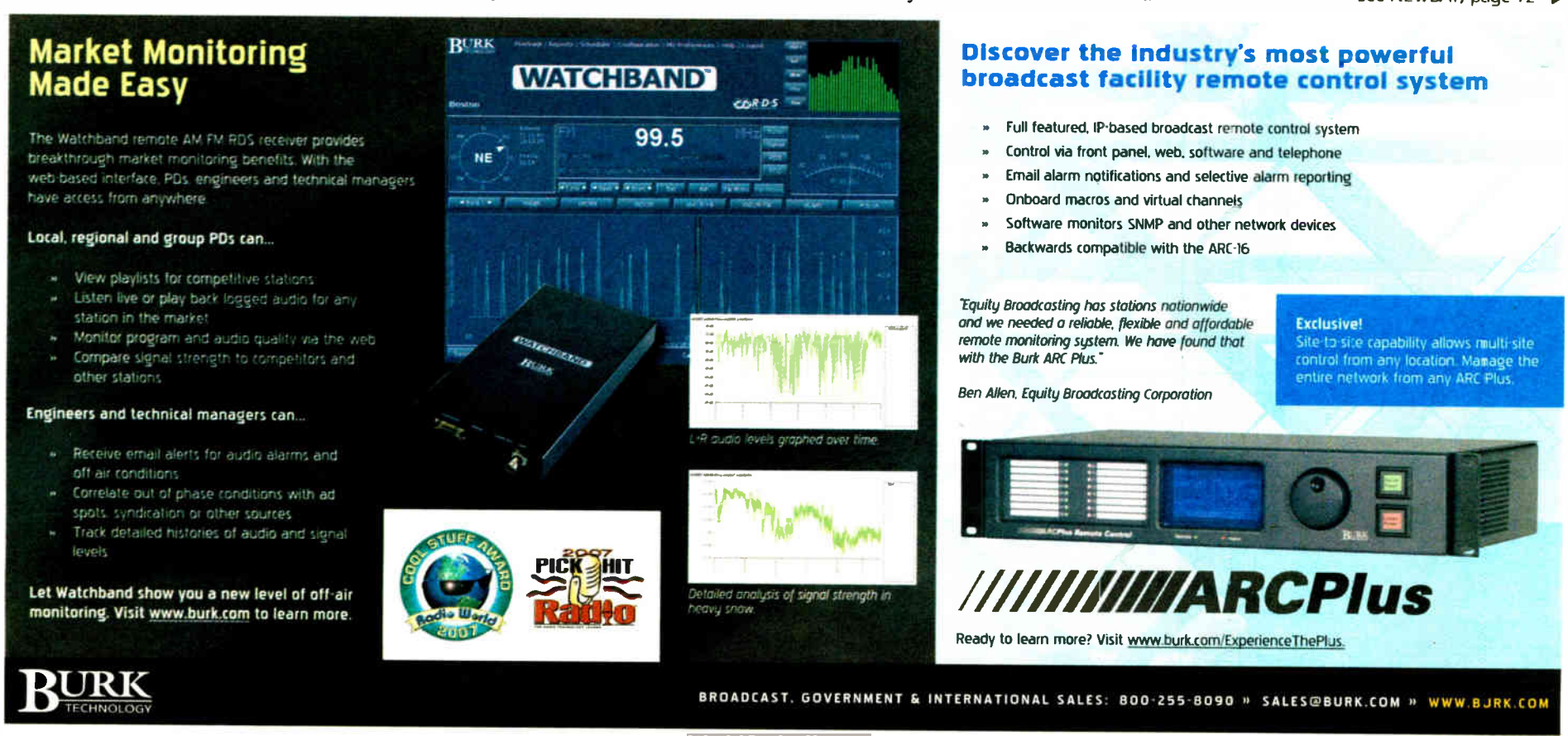

World Radio History

ADiCorp

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pendently on developing EVSS technology. Efforts to reach Safety Cast and AlertCast Communications officials for comment for this story were unsuccessful. The last known working phone numbers for both companies are no longer in service.

Others interested

Macone said ADiCorp has spent more than $1 million developing the technology and has listened to numerous venture capitalist firms interested in investing in the company.

"We could sell and manufacture our product right now and sell it offshore. We've even been approached by the United State military about using it for certain applications. But we want to do this right and have the FCC approve its use here first. We were a bit naïve when we tried to launch this originally. Now I think we are much better prepared," Macone said.

ADiCorp officials say they've addressed the concerns of opponents and made improvements to their Vehicle Alert Transmitter, which would initially sell for approximately $1,000, if approved.

"I believe NAB now realizes that we are not out to block the entire dial for minutes at a time. There is minimal interference for a matter of seconds. These are short-range, short- time transmissions," Macone said.

The company's EVSS system no longer blankets the entire AM and FM band in a market, but instead selects only the most powerful 12 to 18 stations in the immediate area and broadcasts alerts only on those frequencies, he explained.

Macone said opponent's fears of EVSS transmissions "talking over" EAS messages are unfounded. According to the ADiCorp 2003 FCC filing: "To ensure that EVSS does not interfere with the public's reception of EAS messages, we recommend each EVSS transmitter monitor primary EAS stations in the market for the EAS attention signal, to turn off [the EVSS unit] upon its receipt and remain off for the duration of the EAS transmission."

In addition, ADiCorp says its Vehicle Alert Transmitter now uses GPS to determine the speed-to-power ratio necessary to regulate the broadcast strength of the signal from the public safety vehicle and in turn, a driver's radio.

Plans to re-submit concept

"Thus it transmits at a higher power (when the public safety vehicle) is at speed on the freeway compared to blasting the signal out while cruising down a side street at a slower speed," he said. "So the unit is now a receiver, transmitter and GPS unit."

Macone says his company's development of EVSS has been mired in design changes and regulatory issues. Despite promises since 2005 to re-file its petition with the FCC, it has yet to do so.

"We are headed to re-submitting our proposal for rulemaking with the FCC," Macone said. "We would like to meet with NAB in advance to show them the improvements."

NAB and SBE, both of which posted rebukes in comments with the FCC in 2003, are still skeptical.

We want to do this right and have the FCC approve its use here first.

— Tom Macone, ADiCorp

Asked about the issue recently, NAB Spokesman Dennis Wharton said, "We have not been contacted by ADiCorp in regards to the latest developments. If and when we are we will address the issue again at that time. We remain dedicated to preserving spectrum integrity."

SBE in its FCC comments called ADiCorp's plan "deeply and fundamentally flawed" and "paradoxical."

Dane Ericksen, chair of SBE's FCC Liaison Committee and partly responsible for drafting SBE's comments on ADiCorp's filing, said in June, "While I am always willing to listen to, or read, a new proposal by ADiCorp, it is unlikely that they could solve the defects in their Emergency Vehicle Signaling Service as long as they continued to make the system effectively a jammer.

"SBE believes EVSS might be feasible if a dedicated land mobile frequency was set aside for that purpose and if autos were equipped with a receiver that would monitor for such transmissions. That would require a separate FCC rulemaking, to say nothing of the many years it would take before most autos on the roadways were equipped with such a monitoring system."

Others who are familiar with the EVSS technology say it's likely the cost to equip new vehicles with a receiver set on a unique frequency would be prohibitive.

In conclusion, Ericksen stated, "I don't see how a resurrection of any EVSS that attempts to use AM and FM broadcast channels would make sense."

Despite using analog AM and FM broadcast bands, Macone admits that ADiCorp doesn't have a system to reach every motorized vehicle on the road, what with HD Radio, satellite radio and other audio devices being played in vehicle. EVSS only works with analog AM and FM radio.

"We know we can't reach everyone. However, we are looking at HD Radio and how to become compatible," he said.

An FCC spokesman said the commission is prepared for ADiCorp to reintroduce its EVSS proposal and declined further comment.

Newswatch

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XM and Sirius told the commission in filed comments the language is a policy statement, not a binding commission rule, because it was never codified in the Code of Federal Regulations. They want the rule to be waived, changed or eliminated.

The FCC is asking whether doing those things would serve the public interest.

"NAB is pleased the FCC is asking tough questions about this proposed government sanctioned monopoly," said NAB Executive Vice President Dennis Wharton in a statement. "We're hopeful that in the final analysis, regulators will conclude that competition serves consumers better than a monopoly, particularly when XM and Sirius have said repeatedly that they are not failing businesses."

Comments to MB Docket No. 07-57 are due to the FCC 30 days after the notice is published in the Federal Register.

News Roundup

FILING PROCEDURES CHANGED: Come late September, there will be no filing at the FCC by fax or e-mail. It is doing away with procedures it adopted in 2001 to allow electronic filing of certain pleadings after an anthrax scare on Capitol Hill and some U.S. Postal Service processing facilities disrupted mail delivery. The agency now has steps in place to guard against contamination from mail that's been tampered with.

COMMSCOPE will acquire Andrew Corp. in a deal the companies say is worth about $2.6 billion. CommScope will acquire the outstanding shares of Andrew for $15 per share, at least 90 percent in cash. The companies expect the deal to close by year-end.

FAIRNESS DOCTRINE: The House on June 28 smacked down an attempt to revive the Fairness Doctrine. By a 309 to 115 vote, lawmakers voted to prohibit the FCC from requiring stations to balance conservative content with liberal programming, or vice versa, The Hill reported.

LOCALISM HEARING: Broadcasters, citizens and civic groups provided differing views on how broadcasters are fulfilling their public service obligations in the FCC's public hearing on localism, held in Portland, Maine, in late June.

WEBCAST PROTEST: Thousands of Webcasters silenced their streams for a day in late June to protest expected increases in Internet music royalty fees. It was organized by the SaveNetRadio Coalition comprising Webcasters, listeners and artists lobbying for Congress to reject the royalty increase, due to go into effect July 16. The RIAA and music publishers say the increase is overdue and some streamers pay no royalties.

SOUNDEXCHANGE, which represents music labels in a dispute over Internet radio royalties, proposed capping the royalty fee at $2,500 per service. New regulations due to go into effect July 16 require each Webcaster to pay a minimum $500 fee "per station or channel" regardless of the overall number of stations/channels streamed. The Digital Media Association said the offer didn't go far enough.

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World Radio History

EAS

▶ Continued from page 1

cally relayed to other stations for broadcast a national alert not meant for the public. What was supposed to be a closed-circuit test of a 10-minute presidential alert message from FEMA was broadcast to hundreds of stations. Some engineering sources believe the total number affected was about 500.

The error occurred as FEMA is upgrading EAS equipment by installing a satellite-based distribution network in the 50 states to provide redundancy for broadcast radio and TV stations to relay emergency messages. The upgrade is part of system improvements at the behest of the White House, reported here earlier.

FEMA is using a contractor to install the EAS satellite distribution receivers.

The agency was testing whether a presidential alert message could be transmitted to specific receivers in different parts of the country. Two stations, one in Cleveland and another in Richmond, Va., were used to measure any difference in data quality or time delays over the satellite distribution network.

Those tests were successful, FEMA spokesman James McIntyre told Radio World.

But that test went far beyond those markets.

In Illinois, the contractor, which FEMA declined to identify, installed the new EAS satellite distribution receiver, connected the unit to the state EAS distribution system and left it on in late June at the Springfield operations center of the Illinois Emergency Management Agency.

FEMA said the contractor was told to turn off the receivers after local testing, but did not. The Illinois state EAS distribution system was left in "automatic" mode, according to the federal agency.

The improperly installed equipment "basically created an open loop. That system was not supposed to be online," said McIntyre.

FEMA personnel performing the test on June 26 did not know any of this when they conducted the Emergency Activation Notification tests.

EAN is an event code used by EAS to signify a federal activation of the system; indeed, many stations that received the errant test said the header message said the message came from the District of Columbia. An EAN is reserved solely for the president.

FEMA said it notified Illinois about a week before it tested the national alert system at two stations in Richmond and Cleveland. IEMA Director Andrew Velasquez said in a statement that IEMA had no advance warning of the test.

Engineers told RW their programming was taken over for 10 minutes, starting at 7:30 a.m. to about 8 a.m., depending on when each Illinois station in the chain got the message.

All listeners in the Chicago area, for example, heard the alert tones and then regular programming of PI station WGN with no explanation, according to engineering sources. In other parts of the state, listeners heard dead air after the alert tones.

A monthly test would have lasted for two minutes, as opposed to the 10-minute national alert. Some engineers were able to cut off the national alerts earlier than 10 minutes, McIntyre said.

Chicago, Rockford, Quincy and Springfield were among the affected areas, engineers said.

Blame

FEMA doesn't know how many stations were affected by the errant EAS message. Engineering sources told RW they believe approximately 500 Illinois stations were affected. FEMA believes stations in neighboring St. Louis, parts of Wisconsin, northern Indiana and southwestern Michigan could have received the false presidential alert too.

Velasquez also stated that FEMA used a "hot" or active code rather than a test code for the test message. FEMA said it had no choice. Unlike test codes for mandated weekly and monthly EAS testing, the federal agency stated, there is no test code for the president to send a national message using EAS.

Because the national alert is a unique code, the only way to gauge how the receivers and equipment will react and process the alert using the new delivery path was to send an EAN code to specified receivers in a controlled test, FEMA said.

In response to a query from RW, FEMA said the new satellite distribution system has not been tested in other markets and no additional EAN tests are planned because the Richmond and Cleveland tests were successful.

When asked why testing occurred at the height of morning drive, a FEMA official responded that the test "was not intended for public consumption."

The errant presidential alert message points to the fragility of EAS, one engineer told RW; the sooner the broadcast distribution of EAS is supplanted by other technologies, the better, he said.

The FCC has an open EAS proceeding underway and has solicited comments on how to improve the system. Recently, it adopted an order that requires participants to accept messages using Common Alerting Protocol after FEMA adopts standards. CAP involves the transmission of EAS alerts as text, audio and video via broadcast, cable, satellite, and other networks. The FCC also is revisiting the appropriateness of unattended operations for all stations and how that affects the transmission of EAS alerts in connection with its review of public interest requirements for IBOC.

Asked whether tightening unattended operations rules would have made a difference in this case, one Illinois engineer said he doubted so because "no one at the station could have stopped the message."

Mike O'Shea, *Chief Engineer*
WUSF, Tampa Florida

"When we started shopping for new consoles at WUSF, my first step was to ask my peers what they thought. I posted a question on Pubtech saying I was thinking about switching to a routing system console, and asked for recommendations. The majority of responses led us to Logitek.

We have purchased several Logitek consoles over the past few years, and are amazed at how much console we get for the price. I recently bought two consoles plus a router for less than I paid in 1989 for two analog consoles. When you consider what the 1989 costs represent in today's dollars, the cost savings are incredible and there's no comparison for the flexibility we have today.

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World Radio History

Meet Some Real-World Super Heroes...

Mark Ericson and the WOKQ morning team, along with Steve Vanni from Technet, recently used ACCESS to deliver a three hour remote from the top of Mt. Washington. For mere mortals, this would have been an impossible task. The height, the weather, the distance – all conspired to prevent a successful remote. But because they carried ACCESS, they became real-world super heroes.

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- **Cancun:** Sunrise Over IP
- **Brockton, MA:** Minuteman Communications Always Gets Their Man... um... I Mean, Their Remote
- **Alpena/Tawas City, MI:** Are You Tired of STL-Over-the-Public-Internet Stories Yet?
- **Dallas:** The Ticket
- **Amarillo, TX:** You Gotta Do What You Gotta Do
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World Radio History

Citadel

▶ Continued from page 1

ing facilities in New York, Chicago and Detroit, with Citadel's collection of stations in medium-sized and small markets.

Stabbert, based in Reno, has visited each ABC Radio market cluster and all ABC Radio Network facilities since Citadel and ABC reached their initial agreement in February 2006. The preliminary evaluation process included inspecting all physical plants and meeting engineering personnel.

"There were really no surprises. We got first-rate facilities in large markets and some engineers who are obviously at the top of their game. The staff that came with the ABC stations are a part of the Citadel family now," Stabbert said.

'First-rate facilities'

Stabbert, who has been with Citadel since 1992, admitted there was some anticipation among the former ABC Radio engineers about what would happen. "Their emotions ran the full spectrum, but I think in general there was excitement."

The transaction was fairly uncomplicated thanks to the lack of duplication in markets, Stabbert said. Hence, no engineering positions have been eliminated within the new company.

"I think people overestimated the difficulty of doing this. I've been through small acquisitions that were a lot more complicated where we had to integrate stations into existing facilities in some markets. We basically were getting turnkey facilities in this deal when it came to the physical plant level," Stabbert said.

Clay Steely, former vice president of engineering for ABC Radio, chose to remain with Disney to work with its O&Os. Steely was "very involved in the transition process as a facilitator," Stabbert said.

Christine Ianuzzi, vice president for broadcasting, technology, engineering and operations at ABC Radio Networks, transitioned to Citadel as vice president of engineering and operations for ABC Radio Networks, which has facilities in New York and Dallas.

Citadel's engineering department consists of Stabbert at the top and approximately 50 chief engineers in individual markets supported by additional engineering staff at the station level. There are no regional levels of engineering management, he said.

Some analysts have pointed to a "cultural difference" between Citadel and ABC Radio as an obstacle for management to overcome. Stabbert said there will be a period of adjustment for all involved — "certainly, given that the incoming markets were top 10 markets, with one exception. Some of our legacy markets are a ways down the list. So there are certainly differences in philosophy ... maybe not philosophy, but there have to be differences on how things are run."

Challenges moving forward

"It presents an interesting and perhaps challenging gradient that is more of a pronounced gradient than you would typically have between larger and smaller markets within a group. It's a bit early to determine what sort of equilibrium will be struck," he said.

"We have stations in the number one market to unranked markets like Presque Isle, Maine. So you can't run them the same. The real challenge moving forward will be being able to finesse that unequal treatment for markets that are so different. And unequal sounds negative, but I can't think of a better way to describe it. We have some very simple, low-impact transmitter installations located on a hill in Maine and Utah."

We got first-rate facilities in large markets and engineers who are obviously at the top of their game.

— Martin Stabbert, Citadel

But, he said, the company also has facilities on the Empire State Building in New York.

"You can't expect to drive your truck to the door on the 102nd floor at the Sears Tower in Chicago. Things are very different from market to market."

Stabbert described the ABC Radio facilities as being consistent with the stature of the markets and the legacy of ABC Radio; he doesn't expect to make any major equipment overhauls.

"What they have for equipment appears to be working well for those stations. As a general rule we do not like to walk in and make wholesale changes. It would be counterproductive to get rid of perfectly good equipment," he said.

In the days following the merger, Stabbert said his primary focus is to "keep things running smoothly as we cross the transition threshold" and to "keep current ABC Radio projects in motion," including several HD Radio rollouts.

Of the 22 ABC Radio stations Citadel acquired, 18 are broadcasting in HD Radio and another three are in various stages of conversion, Stabbert said. Citadel has 31 HD-R stations completed and another four under conversion.

Citadel, which doesn't have standardized purchase agreements in place with any equipment manufacturers, has purchased more IBOC gear from Harris than from any other equipment manufacturer, Stabbert said. However, it also has purchased HD-R transmitters from Nautel, Broadcast Electronics and Continental in the past.

Evaluation process

Stabbert said the post-merger assessment will continue for the conceivable future with the possibility of subtle changes being made in how the company's 50 or so market engineering managers conduct company business.

"It's still very early in the process, but I expect no major philosophical changes to be made at this point," he said.

Whether immediate operational changes are implemented, corporate-level engineers with large broadcast groups said the potential for culture shock exists for the former ABC Radio employees.

"I expect some of the ABC folks will be shocked when confronted with their new budgets and staffing expectations, a bit like what Susquehanna employees went through following the Cumulus merger," one source said.

Stabbert declined to discuss Citadel's estimated post-merger engineering budget with RW.

Another source, familiar with the management styles of both ABC Radio and Citadel, described Citadel's style of operating as "very economical."

"The (ABC Radio) physical plants are among some of the finest in the business with generous funding provided for operational and capital projects. That is likely to change at least a bit," he noted.

A third corporate engineering manager suggested Citadel would likely do an in-depth analysis to see if it can reduce operating costs.

"Lots of analysis and financial and programming data crunching will be involved," he said.

Yet another engineering manager who has been through several mergers, said, "The first challenge is to how to keep from losing any great engineers during the transition. There is always a period of uncertainty during transition and it is at that time that people start looking for other opportunities. An open dialogue and communication in the months following the merger is key.

"Management shouldn't favor incumbents. Rather, the individuals best suited for any given position should be given that position, regardless of which side of the fence they came from," he said.

Comment on this or any story. E-mail *radioworld@imaspub.com.*

Canada Allows IBOC

Experimental Authorizations Available For Simulcast Digital Channels

by Leslie Stimson

OTTAWA Canada is rethinking the use of Eureka-147 digital radio technology; meanwhile it plans to allow the use of FM IBOC on an experimental basis.

The change will be part of a proceeding asking industry and the public to comment on the use of other digital radio technologies and whether L-band should be opened to non-digital radio use.

The Canadian Radio-television and Telecommunications Commission had indicated that a review of digital radio technologies was in the offing (RW Jan. 17, page 22). Now Industry Canada, the government department that manages Canadian spectrum, is developing a standard for the implementation of IBOC in that country.

Michael Binder, the assistant deputy minister of the Spectrum, Information Technologies and Telecom Sector for Industry Canada, wrote to Michel Arpin, vice chairman of broadcasting at the CRTC, stating that Industry Canada agrees the rollout of digital radio on L-band is going slowly and that a new service model for digital radio is needed.

IBOC "may play a part in that model," Binder stated in the letter, obtained by Radio World.

In terms of global developments, L-Band digital radio broadcasting (1452–1492 MHz allotments) "no longer appears to be part of the solution" for the radio broadcasting move to digital. Instead, more comprehensive multimedia applications in L-band seem to be a trend, he stated.

As part of the government's move to open a proceeding reassessing L-band use — and whether it should open the band to uses other than digital radio — it has placed a freeze on applications for new L-band allotments for digital radio and canceled unbuilt construction permits. Those changes have gone into effect.

L-band stations on the air with the Eureka-147 technology are not be affected.

Vassilios Mimis, director of broadcast technical policy and planning for Industry Canada, told Radio World that only FM IBOC is allowed for use in Canada at this time on an experimental basis while a more formal IBOC policy is crafted. Experimental authorizations for simulcasting FM programming on an IBOC channel can be granted immediately to any station that applies.

If a station using FM IBOC causes interference to another Canadian station or to a U.S. station, it has to stop broadcasting in IBOC, Mimis said.

As for AM IBOC, Canada is being cautious because it is wary of potential nighttime interference. The country will monitor the rollout of AM IBOC in the United States and "develop a longer-term strategy," said Mimis. That may include technologies such as Digital Radio Mondiale.

"We have to take another look at assumptions we made 15 to 20 years ago" and look at technologies now available, he said.

U.S. IBOC proponents are pleased with the development; one source employed by a manufacturer of HD Radio transmission gear called the development "game and match" for IBOC in Canada.

Mexico and Canada look to each other for such decisions, the source also said. Mexico is close to allowing FM IBOC on an experimental basis at northern border stations, Radio World International Latin America has reported.

Observers are curious to see how many Canadian stations apply for experimental IBOC authorization. Some commercial stations seem interested, though the results of FM tests by noncom CBC/Radio Canada, presented in April to the U.S. National Radio Systems Committee, were cautious.

The report recommended that the broadcaster make no further investments in FM IBOC until the interest of other Canadian broadcasters is gauged and while it monitors the rollout of data services and applications in the United States.

The CRTC is expected to solicit public comments soon on its transitional digital radio policy and L-band allocations.

World Radio History

Feature packed.

(Kind of like our ads.)

Go (con)figure • The folks at MPR say they really love being able to configure and administer an entire building full of consoles and routing equipment from the comfort of their own offices. Put an Internet gateway in your Axia network and you can even log into Element (or any other part of an Axia system) remotely from home where there's plenty of Cheetos and Pepsi. Great for handling those 6 P.M. Sunday "help me!" phone calls from the new weekend jock.

Who are these guys? • Why buy a console from Axia? Element was designed by Mike Dosch and his team of ex PR&E renegades (who know a bit about consoles). And Axia is a division of Telos, the DSP experts.

Perfect timing • You can't have too much time. That's why Element's control display contains **four different chronometers**: a digital time of day readout that you can slave to an NTP (Network Time Protocol) server, an elapsed-time event timer, an adjustable count-down timer... and there's also that big, honkin' analog clock in the center of the screen (Big Ben chimes not included).

Screen play • Use any display screen you choose, to suit your space and decor. Get a space-saving 12" LCD, or go for a big 21" monster. (This is Dave Ramsey's favorite Element feature, by the way. Anyone want to bet he bought his monitors on sale?)

Lovely Rita • LED program meters? How 1990's. SVGA display has lots of room for timers, meters, annunciators and more — enough to show meters for all four main buses at once. Reboot to 5.1 surround mode and the light show is even cooler, with surround audio and associated stereo mixes all going at once.

Memory enhancer • We know how forgetful jocks can be. That's why Element remembers their favorite settings for them. Element's Show Profiles are like a "snapshot" that saves sources, voice processing settings, monitor assignments and more for **instant recall**. Profiles are easy to make, too: just have talent set up the board the way they like it, then capture their preferences with a single click for later use. (Hey, make *them* do some work for a change.)

Black velvet • Some things **just feel right.** Like our premium, silky-smooth conductive plastic faders and aircraft quality switches. We build Element consoles with the most durable, reliable components in the industry — then we add special touches, like custom molded plastic bezels that protect on/off switches from accidental activation and impact. Because we know how rough jocks can be on equipment. And nothing's more embarrassing than a sudden case of *broadcastus interruptus*.

Split decision • No, you're not seeing double. Element gives you the choice of single-frame or split-frame configurations of **up to 40 faders.** Perfect for complicated talk or morning shows where the producer wants his own mini-mixer, or to give talent space for copy, newspapers and such. Solomon would be proud.

Swap meet • Element modules hot-swap easily. In fact, the **entire console** hot-swaps — unplug it and audio keeps going; an external Studio Engine does all the mixing.

Stage hook • This button activates the emergency ejector seat. OK, not really. It's the Record Mode key; when you press it, Element is instantly ready to record off-air phone bits, interviews with guest callers, or remote talent drop-ins. One button press starts your record device, configures an off-air mix-minus and sends a split feed (host on one side, guest on the other) to the record bus. Like nearly everything about Element, Record Mode is **completely configurable** — its behavior can even be customized for individual jocks. Sweeeet.

How many? •
How many engineers does it take to change these light bulbs? None... they're LEDs.

Talk to me • Need some one-on-one time with your talent? Talk to studio guests, remote talent, phone callers — **talk back to anyone** just by pushing a button.

Missing features • Did we forget something? Program these **custom button panels** with any macro you want, from recorder start/stop to one-touch activation of complex routing and scene changes using PathfinderPC™ software. You could probably even program one to start the coffee machine (black, no sugar, thanks).

Great Phones • With Element, jocks never have to take their eyes or hands off the board to use the phones. Element works with any phone system, but really clicks with the Telos Series 2101, TWOx12, and new NX-12 that connects four hybrids plus control with a **single Ethernet cable.** StatusSymbols™ (cool little information icons) tell talent at a glance whether a line is in use, busy, pre-screened, locked on air, etc. Even dial out with the built-in keypad.

The Busy Box for jocks • Element comes standard with a lot of cool production room goodies you'd pay extra for with other consoles, like per-fader EQ, aux sends and returns and custom voice processing by Omnia™, enabling you to quickly build and capture compression, noise gating and de-essing combinations for **each and every jock** that load automatically when they recall their personal Show Profiles. Context-sensitive SoftKnobs let production gurus easily tweak these settings while simultaneously satisfying their tactile fixations. (Don't worry: for on-air use, you can turn off access to all that EQ stuff.)

Mix-plus • If constructing a complicated mix-minus on the-fly brings a big grin to your face, you're excused. But if you're like us, you'll love the fact that Element does mix-minus **automagically.** Forget using all your buses for a four-person call-in, or scrambling to set up last-minute interviews. When you put remote codecs or phone calls on air, Element figures out who should hear what and gives it to 'em — as many custom mix-minuses as you have faders.

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Shown: 16-position split-frame Element, nicely equipped, $12,558.00 US MSRP. Not shown but available: 4-, 8-, 12-, 16-, 24- and 28-position Element. Dual exhaust and whitewalls optional at extra cost.

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Element

World Radio History

NAB Petitions FCC To Deny Merger

The NAB filed a petition to deny the proposed merger of XM and Sirius, which it says would create a "a satellite DARS monopoly." Here are excerpts provided by the NAB from its Executive Summary.

This is a simple and straightforward case. A decade ago, the Commission established satellite DARS as a distinct, "continuous nationwide" service that "local radio inherently cannot provide." To ensure that consumers benefited from competition in the satellite DARS market, the Commission implemented a duopoly market structure and insisted that the two licensees have no interest in each other and "prohibit[ed]" them from ever merging. It took these actions at the insistence of Sirius, who argued that such limitations were necessary to (1) "preserve intra-service competition and overall DARS diversity of programming" and (2) to prevent a "DARS monopoly."

XM and Sirius now urge the Commission to abandon this carefully crafted competitive satellite DARS regulatory regime...

The Commission should not countenance this assault on competition. The Commission stood firm in favor of competition over monopoly the last time the only two licensees in a spectrum-based service sought to merge — rejecting the proposed direct broadcast satellite merger of EchoStar and DirecTV — and should do so again here. Indeed, the case for denying the instant merger application is even more compelling than in the EchoStar/DirecTV case.

The Commission has said repeatedly that a threshold question in a merger case is whether the proposed merger would violate a Commission rule or policy. The proposed merger of XM and Sirius would violate the satellite DARS anti-merger rule, long-standing Commission policies against spectrum monopolies, and the pro-competitive vision enshrined in the Telecommunications Act of 1996.

The proposed merger would create a monopoly in the national satellite DARS market, which would inevitably result in increased prices, fewer programming choices, less local programming for radio listeners, and other public interest harms. The Applicants, however, have not even come close to meeting their burden of demonstrating by a preponderance of the evidence that there are "extraordinarily large, cognizable and non-speculative efficiencies" that justify the creation of a monopoly. The Applicants also admit that a merger is not necessary for the future success of either company. In short, the Commission lacks any evidence sufficient to support a conclusion that the proposed merger would serve the public interest, convenience and necessity.

The Commission lacks any evidence sufficient to support a conclusion that the proposed merger would serve the public interest, convenience and necessity.'

While some will undoubtedly argue that the Commission could craft conditions to offset the anti-competitive harms that would flow from approving the merger, no such conditions would be sufficient. Temporary price caps or other forms of regulatory intervention would be illusory and contrary to the pro-competitive vision of Congress and the Commission. Moreover, there is no reason to believe that the merged entity could be relied upon to comply with any such regulatory conditions, given each company's past history of substantial rule violations.

Accordingly, the Commission should summarily dismiss the application as violative of the satellite DARS anti-merger rule. In the alternative, the Commission should designate the application for hearing to determine whether grant of the application would serve "the public interest, convenience and necessity."

GREEN RADIO

Is Biodiesel Radio's Future Fuel?

By Randy J. Stine

SEATTLE Not many vice presidents of broadcast engineering can talk you through the process of converting canola triglyceride oils into biodiesel just as easily as explain the principals of AM propagation.

Marty Hadfield can, and then he'll gladly throw in tidbits like how his gasoline-electric hybrid vehicle gets 34 miles per gallon.

Hadfield, an engineering executive for Entercom, has lived his entire life in the Pacific Northwest, which might partly explain his obsession with following energy conserving practices when possible. A member of the Dark Sky Society, a group devoted to minimizing light pollution and conserving energy (*www.darkskysociety.org*), Hadfield increasingly has tried to incorporate similar eco-friendly practices at Entercom.

"Obviously we are all on the same planet, so my life perspective is to try to improve our existence here while minimizing the harm we are doing," Hadfield said. "I love to share the excitement of using greener ideas and limiting our environmentally wasteful ways."

Biodiesel — which Hadfield can tell you is produced from biological organisms such as vegetable oils and animal fats — is just one part of developing a sustainable future through emerging technology.

Marty Hadfield's RoadTrek Sprinter RV, which he fuels with biodiesel.

Entercom, which has 120 radio stations in the United States, will likely begin requiring soon that all of its radio stations' emergency generators have about a 2 percent biodiesel base.

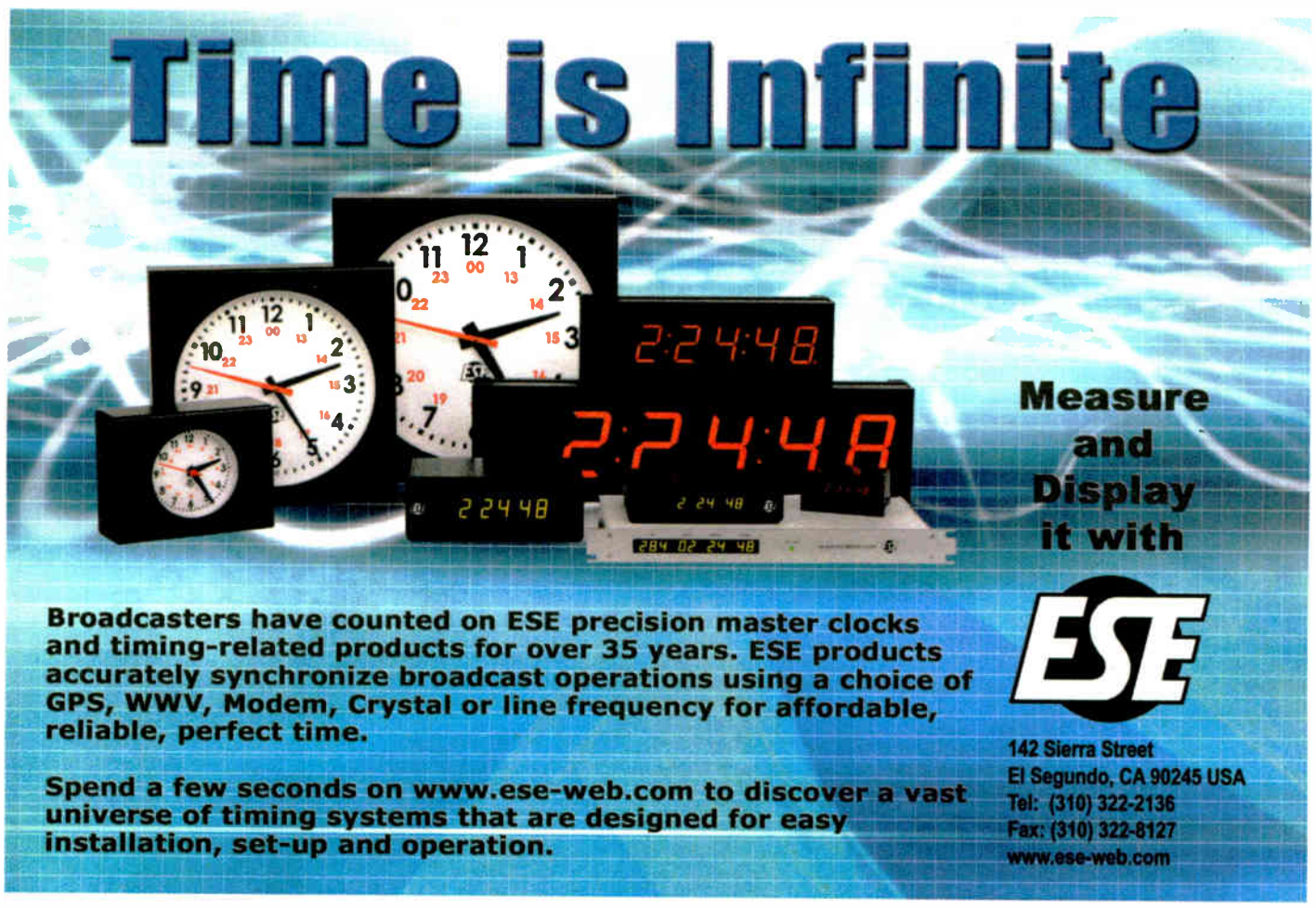
"It is just good policy to take some of these steps. Of course, it will depend on the availability of biodiesel in certain parts of the country, but it is becoming more widely available every day," Hadfield said. It's all about "lessening the impact on the environment" from its facilities, he said.

"No one can deny that broadcast facilities have a huge impact on electrical loads, which means broadcasters have to make smart use of alternatives."

Hadfield, who drives a Ford Escape gasoline-electric hybrid SUV and fuels his RoadTrek Sprinter RV with biodiesel at the pump, is eager to embrace new energy saving technology. Biodiesel prices for B20 blends, which are 20 percent biodiesel, averaged around $2.53 a gallon in March, according to the U.S. Department of Energy. The price for B99 blend, which is essentially pure biodiesel, was nearly 70 cents more.

"Finding alternative means of electrical generation and using cleaner running vehicles is important. Costs are beginning to come down and raised awareness of the general public should result in our industry adapting to these new alternatives. I want to make sure Entercom is a leader in doing so," Hadfield said.

Tell us how your radio station or company is "going green" at *Lstimson@imaspub.com*.



World Radio History

Wireless Broadband Internet Remotes

"The first time out with the Tieline was a brilliantly simple experience for everyone involved. For lack of a better phrase, the codec just worked."

- Christian Vang
Chief Engineer
Clear Channel St. Louis

"The codecs sounded great. My management was very, very impressed with the demos"

- Grady Jeffreys,
Technical Manager,
Mackay Communications

"The remote was a spectacular success, in no small part thanks to the flawless sound which the Tieline G3 provided over the public Internet"

- Mike Rabey
Chief Engineer
Entercom Indianapolis

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World Radio History

NewBay

▶ Continued from page 4

what they see in editorial content delivered on paper.

"There's a satisfaction out of a magazine that you don't get online. But online delivers news, audio and video very quickly. It's up to us, the publishers and editors, to decide which content is best delivered in which way."

In the announcement Palm also noted the "global reach" of IMAS, which serves readers in six languages and more than 100 countries, and he talked about expanding NewBay's brand internationally.

Top officials like IMAS CEO Carmel King, VP of Sales Eric Trabb and Publisher John Casey remain in place; and Carmel has told me several times that she is delighted that Steve Dana found a buyer with a "similar mindset" about building great publications.

Photo: John Casey

Steve Dana works the floor at his last NAB convention before selling IMAS Publishing. He attended his first NAB show in Washington in 1977, 30 years before.

Our company also will continue to be based in the nation's capital region.

"We are looking at a new facility within a few miles of its current location, but still in the D.C. area," Palm told me. "Editorially, as far as the heart and mind of these publications, RW and TV Technology, those will still emanate from the same people in virtually the same location."

NewBay also will retain IMAS offices in the United Kingdom and Italy.

No doubt there will be movement and change as our corporate culture becomes part of NewBay's. But from what I've seen, this acquisition will be a healthy and powerful one for RW's readers, advertisers and staff.

Through the negotiations, Palm said, Steve Dana "was a gentleman. This is his baby; and our intention is to take good care of it and grow it. These are two great publishing groups that will learn from each other."

Comment on this or any article. E-mail *radioworld@imaspub.com*.

◆ NEWSWATCH ◆

FURCHTGOTT-ROTH: Former FCC Commissioner Harold Furchtgott-Roth, an economist, released a study of the proposed sat rad merger that concludes consumers would benefit from the union due to reined-in prices and increased programming choice.

The paper was prepared for the satellite radio companies. "(T)hese competitive choices discipline the prices that XM and Sirius charge subscribers today and will continue to do so regardless of whether the firms merge. I believe that government agencies should afford these companies the flexibility to respond to rapidly changing market conditions."

NAPOLI COUNTERS: Media policy analyst Philip Napoli countered the report by Furchgott-Roth. The educator and director of the Donald McGannon Communication Research Center at Fordham University was hired by NAB. He stated "The satellite radio market is in fact a distinct market for antitrust purposes, and a merger of Sirius and XM would lead to monopoly conditions in the downstream consumer market, as well as monopoly conditions in the upstream programming market, that our antitrust laws are intended to protect."

MERGER ACCOLADES: Americans for Tax Reform and the 60 Plus Association support the proposed merger of the satellite radio companies. ATR is a coalition of taxpayers and taxpayer groups who oppose federal, state and local tax increases while the 60 Plus Association is a seniors' advocacy group.

WOMEN & MERGER: The National Council of Women's Organizations supports the merger of XM Satellite Radio and Sirius Satellite Radio. The group says it represents 11 million U.S. women.

XM HQ: The Washington Times reported both satellite radio companies plan to keep the approximately 800 employees based in the District of Columbia and the XM building if regulators approve their merger. In an interview, Sirius Satellite Radio President/CEO and XM Satellite Radio Chairman Gary Parsons called the building an asset in the developing NoMa section of DC.

FIREWIRE: FireWire faces major challenges and its market share is stagnating. Those conclusions are from tech research firm In-Stat in a report about IEEE 1394, also called FireWire or i.Link. "The peak year for 1394 devices is expected to be 2008, and a slow decline will set in beginning in 2009," it stated. 1394 is a high-speed serial bus specification used in PCs, PC peripherals and consumer electronics.

World Radio History

You're looking at a complete audio-over-IP routing system.

(Just add Cisco.)

Administer this • The beauty of the Web is that you can get information anywhere. Same thing with Axia: you can set up and **administer an entire building full of Axia equipment** – audio nodes, consoles, virtual routers, whatever – from your own comfy office chair. All you need is a standard Web browser (PC or Mac, we like 'em both). Put an Internet gateway in your Axia network and you can even tweak stuff remotely, from home or anywhere there's a Net connection. Hey, isn't it time for a Mochachino?

It's not rude to point • Little kids tell mommy what they want by pointing — a pretty intuitive way of doing things. PathfinderPC software gives talent the same convenience. You can **build custom "button panels"** to execute complex operations with just one click. You can map these panels to controller modules on Element consoles or to turret-mounted controls, place mini-applications on studio computer screens, even run them on touchscreen monitors.

Automation station • Wouldn't it be cool to have a **self-monitoring air chain with silence-sense** that can fix problems, then e-mail a status report? To be able to switch your program feed from Studio "A" to Studio "B" with one button? Or build custom switching apps and scheduled scene changes based on Boolean logic and stacking events? PathfinderPC software does all these things and more. But unlike HAL 9000, it doesn't talk back to you.

Nothin' but Net • Did you know you can plug a PC directly into an IP Audio network to exchange audio? Can't do that with a mainframe router. Well, you *could* add more input cards to the mainframe, buy high-end audio cards and run more wiring... but with Axia, you just install the **IP-Audio Driver** on any Windows PC to send and receive pure digital audio right through the PC's Ethernet port — no sound card required or additional router inputs needed. The single-stream version is great for audio workstations; the multi-stream version lets you send and record **16 stereo channels simultaneously** — perfect for digital automation systems.

Put that in your pipe • How many discrete wires can a CAT-6 cable replace? Well, a T-3 data link has 44.7 Mbps of throughput. But Axia networks' Gigabit Ethernet links give 1000 Mbps of throughput between studios — more than 22 times the capacity of a T-3; enough for 250 stereo channels per link — the equivalent of a **500-pair bundle on one skinny piece of CAT-6**. Use media converters and optical fiber for even higher signal density. Think that might save a little coin in a multi-studio build-out?

Level headed • These green, bouncing dots built into every Axia Audio Node are confidence meters. One glance and you know whether an audio source is really active — or just playing possum.

Jammin' on the mic • Radio studios and microphones go together like Homer Simpson and donuts. Unfortunately, so do preamps, mic compressors, EQ boxes, de-essers — let's face it: most studios house more flying saucers than Area 51. Axia helps clean up the clutter by including mic preamps with our Microphone Nodes; not bargain-basement units either, but **studio grade preamps** with headroom enough to handle Chaka Kahn. Phantom power, too. And if you choose to use Axia Element consoles in your studios, you'll find world-class mic processing built right in: vocal dynamics (compression and de-essing) from the audio processing gurus at Omnia, plus three-band parametric EQ with SmartQ, available on every mic input. Rap on, Grandmaster.

Very logical, Captain • Routing logic with audio used to be as hard as performing the Vulcan Mind Meld. But Axia makes it simple, converting machine logic to data and pairing it with audio streams. So **logic follows audio throughout the facility** on Axia's switched Ethernet backbone. Eight assignable GPI/GPO logic ports, each with five opto-isolated inputs/outputs, are built into every Element power supply, so you can control on-air lights, monitor mutes, CD players, DAT decks, profanity delays, etc. Got more than eight audio devices? Add a GPIO node like this one wherever you've got gear.

AES yes • You like your audio to stay digital as much as possible, right? We get that; our AES/EBU Audio Nodes let you plug AES3 sources right into the network. Studio-grade sample-rate converters are inside; anything from **32 kHz to 96 kHz** will work. Oh, and there are 8 AES ins + 8 AES outs in each node. Digital distribution amp, anyone?

Heavyweight champion • This Axia StudioEngine works with our Element Modular Consoles (the fastest-growing console brand in the world, by the way) to direct multiple simultaneous inputs and outputs, mix audio, apply EQ, process voice dynamics, and generate multiple mix-minuses and monitor feeds on the fly. To make sure it delivers the reliability and ultra-low latency broadcast audio demands, we powered the StudioEngine with a fast, robust version of Linux — so fast that **total input to output latency is just a few hundred microseconds.** How can one little box do so much? There's a blazingly fast Intel processor inside, with enough CPU muscle to lift a small building. Strong *and* fast: Ali would approve.

Push to play • Axia Router Selector Nodes are **really advanced selector and monitor panels** that you can put anyplace you need access to audio streams. Like newsrooms, dubbing stations, or even the station's TOC, so you can monitor any of the thousands of audio streams on your network at a moment's notice. The LCD screen scrolls through a list of available streams; the eight Fast Access keys let you store and recall the streams you use most. There's even an input, for convenient connection of an analog or AES device. Sweet.

Brains in the box • The typical radio jock cares for studio equipment about the same as a five-year-old cares for a puppy: haphazardly, if at all. That's why we **took the CPU out** of our Element modular console and put it in here, with the power supply and GPIO ports. That means a greatly reduced chance of being taken off the air by a Coke spilled into the board. Because we know that you have better things to do on a Sunday night than trying to dehumidify circuit boards with a hair dryer.

Quick Connect • Axia I/O is presented on RJ-45 and adheres to the StudioHub+ standard. A couple of clicks and you're done.

You got to have friends • Delivery system providers like ENCO, Prophet, BSI, BE, iMediaTouch, DAVID Systems and more all have products that **work directly** with Axia networks. So do hardware makers like AudioScience, International Datacasting, 25-Seven, Telos and Omnia. Check out the whole list at AxiaAudio.com/partners.

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World Radio History

Control Your DA Over the Web

by John Bisset

With an eye toward HD Radio, a number of AM stations are considering transmission site upgrades this summer.

In the case of 30-year-old narrowband directional arrays, the upgrade may be comprehensive. If you think that not much has changed in the world of phasors and control systems, Tom King, president of Kintronic Labs has a surprise.

The Kintronics Model KTL-WAC/PLC/24VDC Web-accessible directional AM antenna system, transmitter and pattern selection controller brings phasor control to the Web.

This control system allows for the station staff to bring up a replica of the front panel of their station directional antenna control system via a browser. The system permits operator selection of a transmitter or pattern with one click of the computer mouse, hence providing the ultimate in operator accessibility to a station antenna system operation. Of course, access to the controller Web port will require a user-defined password.

Using a software-driven programmable logic controller to emulate standard relay logic, this controller will require significantly less rack space than a standard relay logic controller.

Additional features of this system include a customer-specified alarm notification via e-mail; alarm history; automatic pattern and/or transmitter switching with atomic clock synchronization; custom operational reports in a variety of formats; and easy configuration for up to 12 towers and five patterns.

Other features that are provided on any Kintronic Labs pattern control system include key-operated interlock bypass to permit transmitter operation into a dummy load; provisions for transmitter RF mute, antenna safety interlock and dummy load air interlock; failsafe switching logic utilizing the transmitter RF mute to prevent switch movement with RF applied; and an adjustable-duration switching window for solenoid protection and to permit operation of any type of RF switch.

You can learn more about the Web Accessible AM DA System by heading to *www.kintronic.com*.

★ ★ ★

It's nice when a problem is solved by a new product but even better when it's a broadcast engineer who has identified a need and the solution.

Many engineers have been forced to build their own mounting brackets for hanging heavy RF transfer switches. Nassau Maine's Bill Ryall has taken the project one step further, with his boss' encouragement.

Over the years, Bill's company William Ryall Woodworks has built a variety of wooden copy stands for Tony Gervasi's Nassau Radio group to use as it built new studios. But Bill also welds steel angle iron to form vertical and horizontal mounting brackets for transfer switches. Nassau has standardized on the Dielectric series of 1-5/8 and 3-1/8 inch switches for their transmitter sites, but the brackets can be drilled for

See WORKBENCH, page 15 ▶

Fig. 1: Mounting switches? Bill Ryall's welded transfer switch brackets can speed the job.

Fig. 2: With plumb switch mounting, coaxial runs are simplified.

Fig. 3: Switches can be mounted vertically with this bracket.

World Radio History

Workbench

▶ Continued from page 14

any switch mounting pattern.

Fig. 1 shows an 1-5/8 switch mounted with the ports horizontal. The mounting bracket can be fastened to Kindorf, Unistrut or similar brands of framing, or simply mounted with lag bolts. Bill includes mounting hardware for the switch and an instruction sheet.

Fig. 2 shows the 3-1/8 inch switch, also with the ports horizontal. Note how easy it is to run straight transmission line runs when the switch is plumb. Bill recommends a laser level, found at Lowes or Home Depot, to ensure the transmission line runs are level.

A box-like bracket is used for vertical switch mounting (ports in the vertical plane), shown in Fig. 3.

Many engineers have been forced to build their own mounting brackets for hanging heavy RF transfer switches. Bill Ryall has taken the project one step further.

Of course, you can spend your time manufacturing a bracket out of Unistrut. But the time constraints that a transmitter project brings make the ready-made welded variety a great way to increase your efficiency. The transfer switch mounting bracket runs about $200.

Want more information? Head to Bill's site *www.ryallworks.com* or e-mail *bill@ryallworks.com*.

★ ★ ★

Jay Harrison is the general manager for Accent Radio Network. An avid reader of *Workbench*, he offers yet another program that will set your computer clock. In fact, this program can make corrections once if minute if you wanted that kind of accuracy.

Best of all, the program is free. Here's the link: *http://ravib.com/timesync*.

Jay Harrison can be reached at *gm@accentradio.com*.

★ ★ ★

Summer months are prime ones for remote vehicles. It's also important that as these traveling billboards roam they put forth the best impression. What better way than by keeping them clean?

Fig. 4: Polish station vehicles to keep your station image clean. Dustin Laird does the duty here.

Entercom Scranton Market Chief Lamar Smith is a frequent source of neat *Workbench* tips. He suggests getting a high school or college student to maintain your fleet of remote vehicles over the summer.

Shown in Fig. 4 is Dustin Laird, who has worked part time for the cluster for several years, while going to school.

John Bisset has worked as a chief engineer and contract engineer for 38 years. He is the northeast regional sales manager for Broadcast Electronics. Reach him at (571) 217-9386, or jbisset@bdcast.com. *Faxed submissions can be sent to (603) 472-4944. Submissions for this column are encouraged, and qualify for SBE recertification credit.*

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Wired for Sound
by Steve Lampen
in
Radio World
and archived at radioworld.com

World Radio History

Waiting for the Third Shoe to Drop

The FCC's Recent Digital Radio Ruling Still Leaves A Few Important Points Unsettled

The Big Picture

Photo: Gary Hayes, BBC

by Skip Pizzi

When the FCC issued its Second Report & Order on digital radio in May, we learned that these were not truly and completely "final" rules, but that there will very likely be a Third R&O to follow.

This was obvious from reading the full title of the proceeding (FCC 07-33), which included a Second Further Notice of Proposed Rulemaking.

While the Second R&O mostly moved U.S. digital radio out of the shadows of "interim rules," there are still some key points that the FCC left unresolved, and which are now considered in the Second FNPRM.

broadcasters were interested in multicasting, but today many are quite engaged with it. Think back also to the earliest days of IBOC regulation, when the FCC first opened Docket 99-325 in response to USA Digital Radio's landmark Petition for Rulemaking to allow IBOC broadcasting, filed in October 1998.

Did anyone at the time envision that competing, subscription radio services would have over 10 million subscribers before "final" rules allowing IBOC were approved?

So no matter how well you think you understand the landscape, or how ahead of the curve you think you are, things ball, for example, a 30 percent success rate for hitters (i.e., a .300 batting average) is considered great.

Some have said that this is why the game is so popular among the American rank and file, but I say it's about context and degree of difficulty. We're all graded on a curve, and the slopes of those curves vary with the situations at hand. But I digress.

The point is that even though subscription terrestrial broadcasting is relatively untried, this doesn't mean it couldn't become wildly successful in the future under the right circumstances. Look at cable TV and satellite radio, which also flew in the face of the conventional wisdom in their early days.

So what may seem a minor, unresolved detail today could turn into a

The disquiet of interim status still lurks at the margins as the industry remains in doubt over a few IBOC matters. (Shown: An auto receiver by JVC.)

So the disquiet of interim status still lurks at the margins, as the industry remains in doubt over a few IBOC matters.

Perhaps most important among these are possible future rules on IBOC subscription services (audio or data), which the FCC addresses at some length in the Second FNPRM.

The new rules now in effect for IBOC broadcasting allow such service only under experimental authorization, leaving them in interim status and reserving their final disposition until the next R&O — just as multicasting, datacasting and Extended Hybrid operation were under the previous rules.

Most broadcasters probably don't care much at the moment about the issue of subscription service, but this could change over time.

Consider how not long ago few can change relatively quickly. Thus terrestrial digital subscription radio services may soon evolve to significant importance — again, perhaps even before the FCC creates final rules governing them.

When digital pigs fly

The concept of subscription broadcasting is nothing new.

Even before cable, terrestrial broadcast TV tried it, but the service never caught on. Terrestrial radio has never really worked in this space, although if you ask public radio, they will tell you differently. For them, voluntary subscription radio has been a success — if you call the approximately 10 percent of their listeners that actually contribute a "successful" rate.

It's all relative, of course. In base-

major new service feature for radio broadcasters, both commercial and noncommercial. (Public radio already has its own interesting ideas for subscription IBOC, by the way, one of which would authorize listeners who have made their contributions to receive a pledge-free multicast channel for the remainder of the fund drive.)

Pay me now or pay me later

The FCC is perhaps rightly concerned that IBOC not become simply a money-grab for broadcasters, but that new and improved radio for the general public result. (The slow start of IBOC acceptance among consumers makes the likelihood of broadcasters' moving in that direction ever more realistic.)

So the Second FNPRM asks whether limits should be placed on how much of a station's IBOC digital bandwidth might be applied to subscription services, and/or whether fees should be levied on revenues thereby collected by stations.

The levy idea is not unprecedented, of course. A close parallel already exists under current rules for digital terrestrial television, which require DTV stations to pay 5 percent of what they earn on digital datacasting to the feds. But this authority was granted to the FCC by congressional mandate, and it applied specifically to digital television datacasting. (Remember that, unlike IBOC digital radio, TV stations were all granted new 6 MHz channels for their DTV services, so the context of a "free spectrum giveaway" was an issue that required some political bargaining.)

So the FCC asks in the Second FNPRM whether it has statutory authority to levy similar fees on IBOC digital radio datacasting without express congressional authorization. It further asks that even if it does have adequate jurisdiction, should it levy such fees, and if so, at what rate?

Or should the FCC simply choose an arbitrary percentage of IBOC bandwidth that must be reserved for unencrypted (non-subscription) service(s)? Or should it do this and levy fees on subscription revenues? These are all questions that are being addressed in the current comment period.

More commercials, please

Another point to ponder: To support its desire to ensure that the IBOC transition will broadly impact the general public, the FCC is considering rules that would reserve adequate bandwidth for "free" service.

In reality, however, "free" translates to "commercially supported" service (or equivalent noncommercial underwriting announcements). Is it really in the public interest to effectively mandate that all new multicast radio streams will include commercials?

Perhaps wiser stewardship would provide greater consumer choice via a tiered approach, such that "free" services are maintained (including their new digital equivalents on IBOC's main program service), and new commercial-free subscription services via IBOC multicasts are also freely allowed.

No coach seats are removed (in fact, they are upgraded by IBOC), but a new first-class service is provided for those who want to pay for it. The marketplace will determine how much of each type of service is viable. That's the American way, and a smart regulatory approach could enable it.

Further, the unfettered application of subscription IBOC services might allow terrestrial broadcasters to compete in a more agile and direct way with satellite radio, which already offers many channels of commercial-free music to consumers who pay a monthly fee.

Thus allowing subscription service to develop without artificial regulatory constraint could be beneficial to both consumers (providing them greater service variety) and to broadcasters (making them more competitive). This would argue for the FCC to take a light-handed approach here.

Next time we'll take another look at some of the open questions that remain on digital radio regulation.

Skip Pizzi is contributing editor of Radio World.

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NEWS MAKER

Copps: 'We Can Aim Higher Now'

The FCC in June held one in a series of hearings about broadcast localism, this one in Maine. Here are excerpts of remarks by Commissioner Michael J. Copps.

Since the FCC re-opened its review of its media ownership rules last year, we have witnessed a growing national concern over what many people believe are disturbing trends in the media. Citizens from all over the country, conservative and liberal, red state and blue state, young and old, rural and urban, north and south have come together to express their concern and even alarm.

For many months the discussion has focused on whether the FCC should further loosen its ownership rules with people asking how many — or perhaps, more accurately, how few? — broadcast stations media conglomerates should be allowed to own? For what purposes are stations granted licenses? And how does the public interest fare in a more heavily consolidated environment? ...

I do believe that many broadcasters still have that flame to serve the public interest burning in their breasts. There aren't as many of them now — there aren't as many station owners any more because of consolidation — and the truth is that those who remain are less and less captains of their own fate these days and more and more captives of unforgiving Wall Street and Madison Avenue expectations.

Some tell us the answer is to rely more and more on marketplace forces as a proxy for serving the public interest. They seem to trust that the public interest will somehow magically trump the urge to build power and profit and that localism will somehow survive.

Meanwhile, since the 1980s, fundamental protections of the public interest have weakened and withered. In addition we have pared back the license renewal process from one wherein every three years the FCC examined very rigorously whether the broadcaster was actually serving the public interest, to one wherein now companies need only send us a short form every eight years and generally nothing more.

These days getting a license renewed is pretty much a slam dunk. It's not called postcard renewal for nothing.

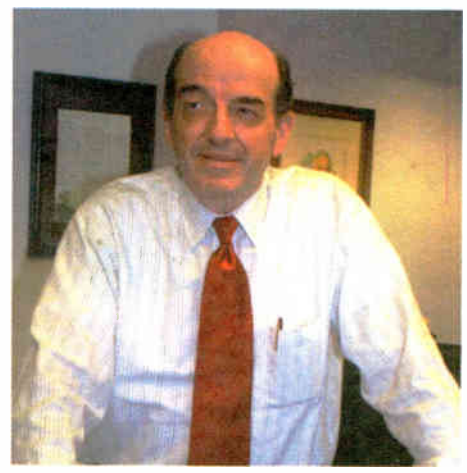
So step by step, rule by rule, public interest protections were simply frittered away. Believe it or not, we had an FCC chairman in the 1980s — when a lot of this deregulation really got into high gear — who said that a television was just "a toaster with pictures." And that's how they proceed to treat the people's airwaves — just another business, nothing special about it.

All this has happened at high and dangerous cost to the American people. Our country confronts many urgent priorities but, to my mind, few have such long-term importance to our democracy as how America communicates and converses with itself and how this process has been eviscerated in recent years.

Playing offense

The good news is that I believe there's a difference between the media ownership proceeding of three years ago and this time around. We can aim higher now. We don't need to play just defense — we can start playing offense, too.

Now it's not just a question of defeating bad new rules — although we must still do that. Now we are in a position to revisit the bad old rules that got us into this mess in the first place. And we can go on from there to restore meaningful public interest responsibilities to our broadcast media.



Commissioner Copps

For starters, let's go back to an honest-to-goodness licensing system that doesn't grant slam-dunk renewals, but stops to ask if a license-holder is really doing its job to serve the common good. And let's do this license renewal every three years — the way it used to be — not every eight years like it is now.

In doing so let's get answers to some all too important questions like did the station show programs on local civic affairs? What type of local political coverage did it provide leading up to Election Day? Did station owners meet with local community leaders and the public? And is the station providing children's programming that is actually educational?

Let's also put what stations are doing to meet their public interest obligations up on the Web, so citizens can know how their airwaves are being used. And let's make sure that all that new digital capacity we're giving broadcasters returns something positive for our communities and local talent and civic issues coverage.

If your local broadcaster is given the privilege to multicast half a dozen program streams into your communities and homes, is it too much to expect that some good portion of that should be used to enhance localism and diversity?

So these are the kinds of things we all need to be talking about and I'll bet there are other ideas we'll hear tonight. And I hope among them will be some discussion about the future of low-power radio and television, because in an age of consolidation, they are often the last bastions for media diversity and media democracy

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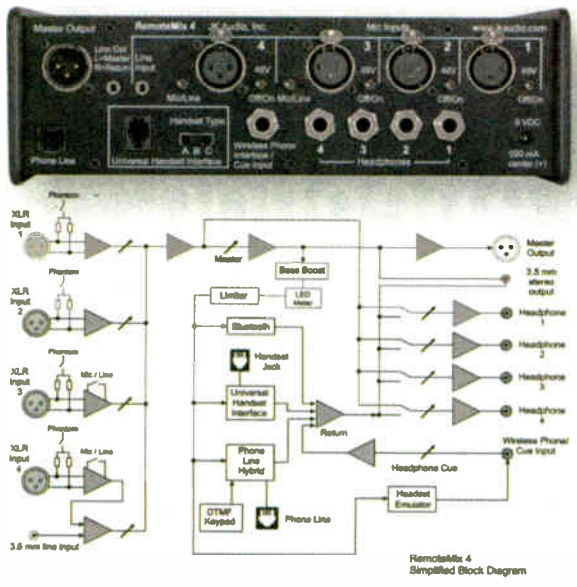

RemoteMix 4
Simplified Block Diagram

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HD Radio News

Radio World — Covering Radio's Digital Transition — August 1, 2007

Data Delivery 'For Pay'

Page 22

PRODUCT EVALUATION

Visteon HD Jump Goes on the Road

Tom Ray Tries Out the Unit Marketed as the 'Premier Transportable HD Radio Receiver'

by Thomas R. Ray III

I have in my possession a Visteon HD Jump radio. My review in the car is based on comparison with my benchmark, a Kenwood KTC-HR100TR. My table benchmark is a Directed Electronics Table Top HD Radio.

My AM observations are with the WOR signal, which I know well. My FM observations are on several stations transmitting off of the Empire State Building.

Who is Visteon? Chances are, you have used a Visteon radio before and you just didn't know it. Visteon makes most of the factory-installed radios found in Ford vehicles, among others. The company also manufactures numerous aftermarket auto electronics products.

Photo : Tom Ray

The Jump is installed in a place of honor with its suction cup mount, right next to the author's two-meter radio.

Photo: Tom Ray

The Visteon HD Jump comes with most everything you need for car installation, including cables, cradle and mounting accessories.

Several mounting methods

The Visteon HD Jump is designed to be similar to a Sirius Satellite Radio or XM Satellite Radio. It is slightly larger than the Delphi XM SkyFi radio. The HD Jump is designed to be used in the car or, when disconnected from its car cradle, in the home with the optional home cradle.

The HD Jump comes with a variety of mounting methods, which made me happy. One is a suction cup mount that mounts the radio directly to the windshield, the method I used.

It also comes with a plastic disk slightly larger than the suction cup, which has a sticky glue on one side. This disk can be placed virtually anywhere on hard plastic, such as the dashboard or console, and the suction cup will stick to it.

The HD jump is fairly easy to install — providing you know how to get at the connections on the radio already installed in the vehicle. The radio has two antenna cables, one to connect to the incoming antenna lead, the other to plug into the existing radio's antenna jack.

When the HD Jump is turned off, it will pass signals through to your existing radio. In this way, you do not lose use of your existing radio, and it will provide less incentive to "Y" the antenna lead, causing illegal emissions if you use the internal FM modulator.

Unfortunately, Joe Consumer will not be able to connect the antenna leads.

It was not a problem for me, as the Kenwood KTC-HR100TR is located in the glove box for easy access. If I had to access the radio in the dash of my 2003 Ford Explorer, I would have needed to pull the front of the dashboard out and unbolt the radio to do so.

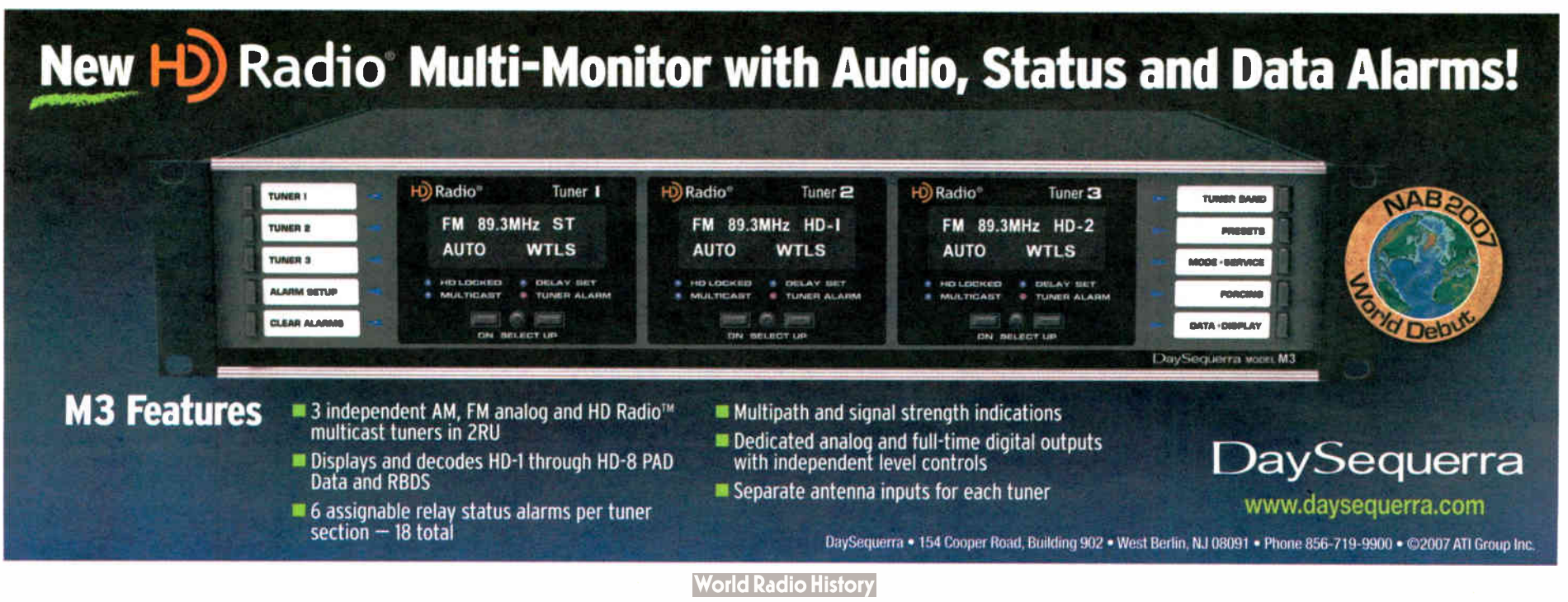
The power lead is intended to be connected directly to the fuse block in the vehicle. I connected it through a cigarette lighter plug. (I have a 12 volt distribution panel in the back seat, as I also have my two-meter ham rig, a GPS unit and an inverter for my laptop all connected in.) The fact that the unit is designed to be connected to the fuse block may be another deterrent to a do-it-yourselfer.

Audio connection to your vehicle can be accomplished in two ways. The first is the internal FM modulator of the HD Jump, the second is a direct audio connection to an auxiliary input to your existing radio.

Adjusted audio output

I tried the FM modulator, then connected the audio directly into the aux inputs of the Kenwood using a 3.5 mm stereo plug-to-RCA plug cable that I pro-

See JUMP, page 22 ▶



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Radio World's HD Radio™ Scoreboard

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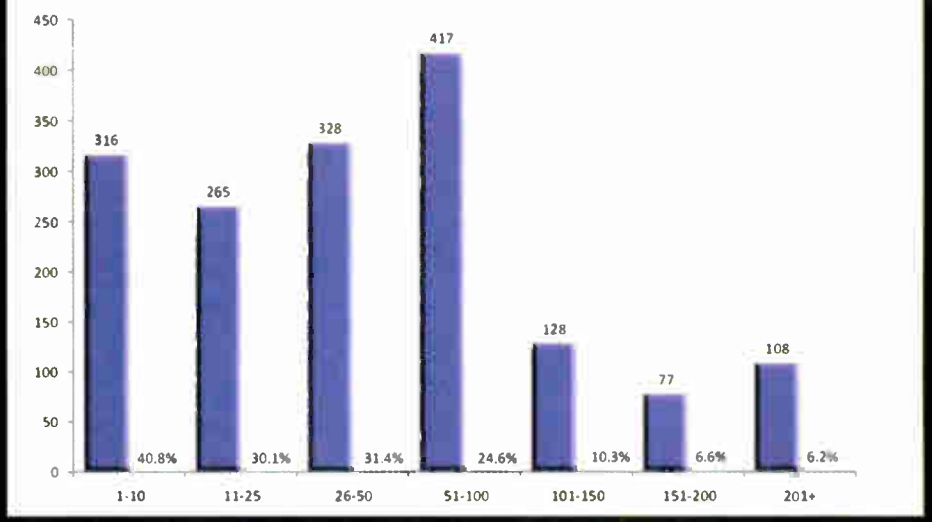
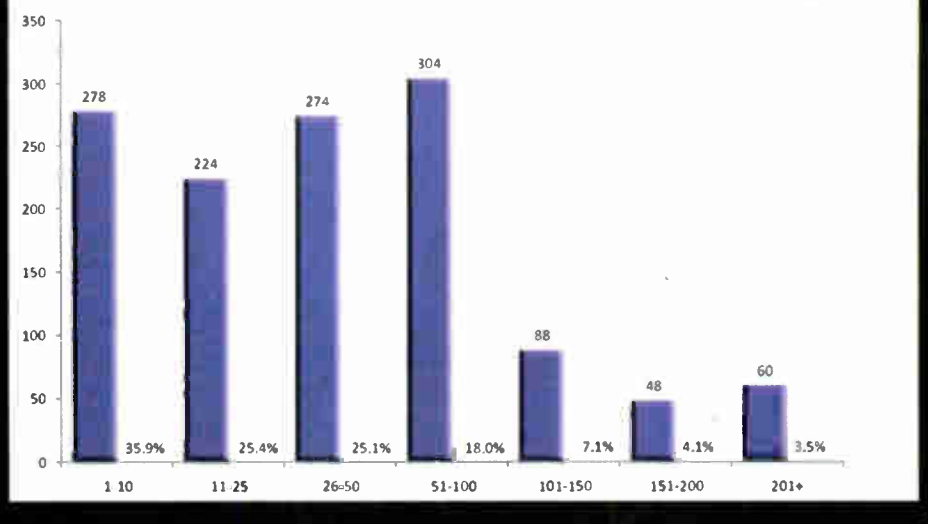
Number and % of HD Licensed Stations By Market Size Range



and % of HD On-Air Stations By Market Size Range



Data is from BIA Media Access Pro and includes Ibiquity information.
Companies are ranked by total revenue.

BIA fn Financial network

MEDIA ACCESS PRO

The HD Radio Bottom Line

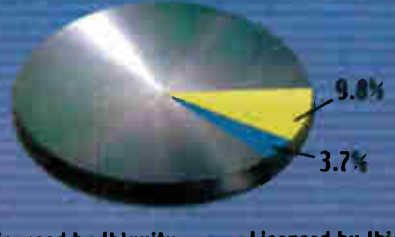
Total Licensed	On the Air
1,859	1,349

Last Month

Total Licensed	On the Air
1,851	1,325

Market Penetration United States

13,837 AM & FM Stations
(excludes LPFMs)



Licensed by Ibiquity and on the air

Licensed by Ibiquity and not on the air

Number of FM Stations Multicasting:

661

Last Month: 660

World Radio History

Jump

▶ Continued from page 20

vided. The HD Jump comes with a 3.5 mm stereo plug-to-3.5 mm stereo plug cable to plug into an MP3 aux input on a radio. I think it should also come with an RCA cable.

I live 50 miles north of New York City, and there is only one FM HD Radio station, Cumulus-owned WPDH, in Poughkeepsie, in this area right now. After installing the HD Jump, I set its internal modulator on and set its frequency to 87.9 MHz. I turned the radio on and tuned it to the local FM HD station.

The audio through the HD Jump's FM modulator was extremely clean and good, and even though you are putting the HD audio through an FM stereo generator with pre-emphasis, you can definitely hear the difference when the HD signal locks. I turned the modulator off and used the aux input on the Kenwood.

I then encountered a problem. The audio from the HD Jump into the aux input was extremely distorted.

The HD Jump's audio output can be adjusted to three levels, low, medium and high. The high setting produced clipping distortion at the input to the Kenwood. The medium setting was just right, placing the volume control on the Kenwood where I would normally have it.

However, I discovered that, on power up, the audio going into the aux input of my radio was distorted for anywhere from 15 to 45 seconds. This is being caused by a small amount of DC on the audio output of the Jump, and it appears that the input to the Kenwood is either direct coupled or, more likely. capacitively coupled, and there is no way for the caps to equalize quickly to prevent this. An isolation transformer would correct this, but in my mind, this defeats the purpose of a direct connection.

The following morning I headed into the city. I live below the 0.5 mV contour of WOR, and the signal was barely audible. I did note, however, that the normal noise floor wasn't where it normally is, which is a good thing, and the radio was telling me that WOR was transmitting an HD-R signal.

In Monroe, N.Y., WOR has just about 05. mV, and the signal on the Route 208 bridge over Route 17 is very clean — but the audio was still quiet.

Then the HD Radio decided to kick in.

It almost sent me through the roof of the car, as I had the volume cranked up a good 12–14 dB above normal, and the volume level came up that amount when the radio blended to HD Radio. Guess that's where the name "Jump" came from, because I sure did. Once I was over the 1 mV contour, the analog levels were fine, as was the HD-R signal.

In direct comparison to the Kenwood, the HD-R performance of the Jump was okay. I drive a route that pretty much follows the null of WOR's signal, and I noted that the Jump would drop out of HD-R going under bridges and overhead road signs on the upper end of Route 17 in New Jersey, whereas the Kenwood stays locked solid. This could be caused by numerous things in the design of the radio on which I will not speculate.

HD-R performance

The Jump's HD Radio performance on FM was very good. The HD-R signals started dropping about 40 miles out, where they tend to drop with the Kenwood, and in a few areas exceeded the range of the Kenwood.

It was here I started encountering a problem that I first thought was AGC-related. It was extremely annoying driving after hitting the HD-R threshold, as the volume and noise levels of the FM signals would vary wildly depending on conditions and multipath. It was almost like being on a roller coaster at times. In strong signal conditions, the HD Jump did not have this problem.

In talking with Bill Wikehart, technical fellow of DSP and radio for Visteon about what I was hearing, it appears the HD Jump is designed with noise canceling circuitry which, in addition to canceling out noise in low signal areas, also reduces the audio level. I told Bill frankly that, while noise cancellation is noble and that I thought the Jump did it well, the audio level reduction was a big problem.

The Visteon HD Jump is shown in a publicity photo.

If this is how the public perceives radio with DSP noise reduction technology, I can now understand when someone tells me that "radio sucks."

When the signal level drops to where it will be noisy but there, and the audio level drops into the mud, Joe Consumer is going to think there is something wrong with the radio station's signal (possibly one he has listened to for years), and will most likely go to another station when the audio level drops. He probably won't blame the radio. This could be a big problem for the industry.

In the office, the Jump exhibited the same initial issues, but after settling down, both AM performance with the included AM loop antenna and FM performance with a simple wire antenna were both more than acceptable and equivalent to the benchmark.

The HD Jump is also RDS-compatible. I did note, however, that the RDS data is somewhat downplayed and not "in your face" as the HD PAD data is. This, in my opinion, is sending a subtle message to the consumer that HD-R is superior to analog. I think this is unfair to a station transmitting an RDS signal that for whatever reason has not yet converted to HD-R transmission.

Under strong signal conditions, the audio quality on both AM and FM was extremely good. It has a very clean sounding FM modulator.

The fact you can take the HD Jump with you into the house is a big plus. And the expected price, around $200, is more than fair for what you get.

Unfortunately, I was not able to locate a Web site where the HD Jump was being sold as they tend to be sold through smaller aftermarket auto product dealers and auto dealerships, so I can't give a street price.

Even though Joe Consumer most likely won't be able to self-install this radio in his car, it has great potential and seems like a great little radio. If Visteon backs off the aggressiveness of the noise canceling circuitry, this radio could be a consumer hit.

Tom Ray, CPBE, is vice president/corporate director of engineering, Buckley Broadcasting/WOR Radio, NYC, W2TRR.

Product Capsule:

Visteon HD Jump Car/Home HD Radio

Thumbs Up

- ✓ Reasonable cost and "palm" sized
- ✓ Radio can easily be moved indoors; no need to buy a second radio
- ✓ Can be used with existing car radios
- ✓ Both car and indoor use kits available
- ✓ Audio is extremely clean
- ✓ Can be mounted easily where you want it in the car

Thumbs Down

- ✓ Radio needs to be professionally installed in vehicles
- ✓ Noise cancellation circuitry is far too aggressive
- ✓ Radio runs very hot. Use care where it is put in the vehicle
- ✓ Needs outboard amplification

PRICE: $249 list, available from automotive aftermarket retailers

CONTACT: www.evisteon.com.

'For Pay' Data Delivery Examined

by Leslie Stimson

Vendors and broadcasters are expanding the exploration of conditional access technologies.

The use of encryption to transmit programs on an HD Radio multicast channel has been tested, as we've reported. Now Broadcast Electronics, Ibiquity, NDS and Navteq are examining delivery of real-time traffic data on a conditionally accessed multicast channel.

BE said field trials on Emmis station WKQX(FM) in Chicago were successful and it is looking ahead to other tests validating the ability of an encrypted multicast HD-R signal to deliver such data.

Navteq provided Chicago-area data that was streamed with the HD Radio signal, interpreted by a navigation system and then mapped onto a display. Navteq recently acquired Traffic.com. It has rights to federal and state traffic monitoring data from road-embedded sensors.

The tests, conducted in May and June, were the first to use the updated Ibiquity importer software, version v2.1.5, said Ray Miklius, vice president of studio systems for BE. Ibiquity was due to release that importer software version to stations this summer, he said.

Of the available 96 kilobits per second of throughput for the IBOC channel, the station used 48 kbps for its main digital channel and 38 kbps for its supplemental channel, leaving 10 kbps to test the traffic data delivery using conditional access.

Participants in conditional access testing for delivery of real-time traffic data at WKQK: Rear, from left: Steve Devries/Navteq, Jordan Scott/Ibiquity, Patrick Berger/Emmis, Tom Rucktenwald/NDS, Bob Hadden/NDS, Ray Miklius/Broadcast Electronics, Paul Brenner/VP Emmis. Center: Tim Anderson/Ibiquity. Front: Mark Saunders/Navteq.

"We were passing real-time traffic data ... pulling it from Navteq and running it through a formatter for HD and then through the HD-R importer," Miklius said. Participants used BE's IDi 20 HD Radio importer for the test.

Miklius and a crew from NDS — the company that has adapted its encryption or "conditional access" technology to IBOC — as well as technical personnel from Ibiquity, Navteq and WKQX drove around Chicago to test the system. They went to areas where the station had had reports of reception issues, to see how the NDS conditional access system would affect reception of traffic data.

In all cases, the conditional access worked well, with a robust delivery of data, Miklius said. Testers listened to the HD-R signal on both the main and the secondary channels, with no perceptible change in audio quality, he said.

Test participants looked for dropped IBOC data packets and loss of service on channels with the conditional access turned on and off. They checked two receivers, to make sure no one would have received the encrypted channel by mistake or for free.

Although testers focused on Chicago data, they also experimented with delivery of traffic data from other cities. "We wanted to stress the channel," Miklius said. "Navteq is looking for a cost-effective, reliable and robust way to send this information."

The tests began May 22 and were slated to run through June.

Patrick Berger is chief engineer of Emmis Chicago stations WKQX(FM) and WLUP(FM).

World Radio History

PRODUCT EVALUATION

Silver: Dual Paths Process FM, HD

by Rich Rarey

"Ooooh … it's blue," said a colleague when I mounted the Audemat-Aztec 6B audio processor in the rack. While the processor's 1 RU front panel actually is silver, more than a dozen bright blue LED-segmented meters twinkled and danced as its incoming audio was compressed, limited and conditioned.

Audemat-Aztec's Silver line offers 4- and 6-band FM audio processors with dual paths for simultaneous processing of FM and HD. I evaluated the 6B-FM, which has the most audio processing tools.

Modern transmission-path audio processors increasingly are feature-filled, complex devices. The 6B-FM is configurable — with password protection — by a small front-panel display with associated control knob and three soft keys that expose basic control and configuration parameters; and configurable remotely by connections to its RS-232 serial port, a front-panel USB port and by a networked LAN connection.

The included control software presents the user with a pretty, virtual front-panel metering display (with a virtual bright blue LED spray) and exposes the nearly two-dozen configuration menus using a utilitarian "directory" index.

The layout follows the logical signal flow from analog/digital inputs, TransLanTech Ariane RMS leveler, bass enhancement, multi-band limiter and associated mixer, look-ahead limiter and an inclusive section for analog and digital outputs with and without de-emphasis and stereo pilot tone. In addition, an eight-event daypart scheduler will load any of the 6B-FM's presets at a day and time of your choosing.

If the prospect of navigating the menu is daunting, one can select the Basic user menu level, where most arcane controls are hidden and set to a factory-determined "safe" value.

Twenty-two factory presets, optimized for FM broadcasting and representing a variety of music formats, are easily loaded into the 6B-FM, with the resulting processing change immediately audible. My personal favorite preset, Bypass, is included in the preset list. Eight user-definable presets are available, loaded by front-panel controls, remote controls or by rear-panel remote control pin-to-ground.

A pleasant addition to the 6B-FM is a well-written 64-page user manual, included on the CD-R that also contains USB drivers and a remote control software application. The manual devotes several pages to "Introduction to Audio Compression" and a thoughtful discussion regarding the integral Ariane audio leveler. Once the user has seen the 6B-FM's complexity, it is the manual that calms and reassures the user, as its text gently guides the newbie and seasoned pro through the 6B-FM's features.

Byte size

I mounted the 6B-FM in a rack for my evaluation, connected analog audio inputs and outputs to an audio router for convenience and plugged an LAN cable into the rear RJ-45 jack.

As the 6B-FM requires a static IP for LAN connection, I easily dialed in an IP address, gateway and subnet mask by selecting the System submenu from the front-panel display and then selecting the IP submenu.

By turning the front control knob "down" from 255 until I reached the desired byte, I

See SILVER, page 24 ▶

Twenty-two factory presets, optimized for FM broadcasting and representing various formats, are easily loaded into the 6B-FM, with the resulting change immediately audible.

Product Capsule:

Audemat-Aztec
Silver 6B-FM Audio Processor

Thumbs Up

- ✓ Remote control by Serial/USB/LAN
- ✓ Bright LED display
- ✓ Analog and digital I/O with silence sensor
- ✓ Password-protected
- ✓ SCA input, with MPX and Pilot outputs, all on BNC
- ✓ Integral pre- and de-emphasis
- ✓ Good user's manual

Thumbs Down

- ✓ Time, experimentation required to achieve satisfactory results
- ✓ Daypart scheduler's clock must be manually synchronized

PRICE: $7,985

CONTACT: *Audemat-Aztec in Miami at (305) 249-3110 or visit* www.audemat-aztec.com.

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World Radio History

Silver

▶ Continued from page 23

pressed the control knob to save that byte of the address, and turned the knob to the next byte of the address, and so on. Once the LAN information was entered, I enabled remote control from the front panel, installed the remote control software on my MS Windows desktop computer, connected to the 6B-FM by LAN, and sat comfortably listening and controlling the processor from the next room.

A nice and safe feature is complete processor control from the front panel — should you need it — but the pleasantest user experience is remote controlling the 6B-FM. The front panel even indicates when one is remote controlling the 6B-FM, and front-panel control is blocked until one presses the front-panel soft key to force-disconnect the remote user, or the remote user disconnects willingly.

Once connected, I was confounded by the Input Analog Level control: When I set it to +4 dBu, the Clip indicators flashed and the audio output was horribly distorted. After calling tech support — I should have studied the manual more thoroughly — I found a manual section stating the Clip Level "would normally be set to +24 dBu if driving the Silver 6B audio processor from professional audio equipment. This would translate to the wide-band AGC being driven to 12 dB gain reduction by a 0VU (+4 dBu) audio signal."

Audemat-Aztec Silver 6B-FM Audio Processor

Once the input level was properly set, I began to explore the 22 factory presets, playing different program services thru the 6B-FM. The manual suggests using the presets as your starting point, and saving your custom settings to one of the eight user presets.

When auditioning different settings, I find it helpful to return to the Bypass preset before and after loading different processing schemes; this allows a better comparison of each preset, is a nice reference to what the preset is trying to accomplish and reduces ear fatigue. Of course, Bypass will sound dull and unexciting after exercising some of the 6B-FM presets.

Surfing formats

In listening to studio-generated news/talk audio, I found the two Classical presets suited to the spoken word format. Each lightly limits the signal, while the Classical 2 preset adds some bass enhancement and slightly more "excitement" than Classical 1.

Other presets worked the human voice too vigorously, or made the signal sound like a poor AM receiver. Interestingly, the bass enhance revealed pops on announcer tracks.

I preferred using the 6B-FM to process music, and listened to three formats to evaluate how the processor's presets changed or enhanced the audio.

The first format, an eclectic Triple-A music service with artists ranging from the Meat Puppets to Bonnie Raitt to Supreme Beings of Leisure, sounded best using less aggressive processing such as with the AC ST or Mellow ST preset. Each brought out a pleasing, tight bass line that slapped a bottom on the music.

On older analog tracks like 60s performer Dusty Springfield, the analog hiss was more noticeable, yet was not pumping with dynamic changes. Some tracks' guitar riffs had an edge and splatter suggesting, again, that the presets are just a starting point.

Next, we listened to a folk music service, and started listening to the two country presets, but found them too compressed and hard on the music. Again, the gentler presets, Mellow ST and Jazz ST brought a sparkle to the music without distortion. Interestingly, the Urban preset crisped up the music nicely, but was too overstated and harsh on vocals.

The third service, "a nicely chilled plate of ambient beats and grooves," really made the 6B-FM shine. I found the logical preset, Dance ST, good for tracking the bass line, but clipped on high-frequency melodies and splattering on vocals. The Hot Rock ST setting was fatiguing with this format. I preferred the Mellow ST for its subtle processing, and the CHR ST preset for its extra crispness and exaggerated bass line. The AC ST preset was similar but has less bass prominence.

The Urban preset worked well on some tracks — crisp highs and banging bass — and sounded good on the super-mellow ID announcements. However, the preset was fatiguing on dense string tracks.

An important consideration when using any modern DSP processor is the source material's format. The music services I auditioned use MP3 audio files as their source, and the 6B-FM's manual clearly cautions against low bit rate data-compressed audio sources such as MP3 because, as the manual states, the re-equalization the 6B-FM performs can break the frequency masking characteristics of the data-compressed file.

The result is distortion that was inaudible prior to processing. "Linear formats are always to be preferred," says the 6B-FM manual, to which we would heartily agree.

Rich Rarey is master control supervisor for National Public Radio and a frequent contributor to Radio World.

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World Radio History

AUDIO ARCHIVES

'Time Machine': Back to the Future

Little Walter Is in Syndication, on the Internet and Spinning on the Club Scene After Battling Cancer

by Joe Viglione

For many years the unique sound of Little Walter DeVenne, legendary Boston disc jockey, could be heard on Massachusetts stations such as WBCN(FM), WROR(FM), WFNX(FM), WMEX(FM), WODS(FM) and WXKS(AM).

His voice can still be heard. DeVenne's current show is syndicated by M.G. Kelly Syndicated Radio Shows, although "as soon as my contract with M.G. is up, later this year, I plan to try to sell it to individual stations," he said. It airs 8 p.m. to midnight on Sundays on WBOQ(FM), "Northshore 104.9," and is heard in states as far from Fenway Park as Alaska, Hawaii and the Carolinas.

His tag line: "'Little Walter's Time Machine' presents four hours of reelin' and rockin' with the man who knows all the hits and the stars who made them!" Another radio legend, M.G. "Machine Gun" Kelly of "American Hit List" and "The Amazing 80s" has said that mainstream oldies radio plays material only from 1964 and later; DeVenne defies that trend.

The Web site, www.littlewalter.com, features a link to a South Carolina station where the show airs Sundays, 9 p.m. to midnight. That broadcast on Citadel's WOMG(FM) in Columbia, streams on the Internet at www.womg.com, which allows anyone with a computer and speakers to hear the distinctive voice and remarkable style that have maintained a place on the air for over 40 years.

A show is born

What makes DeVenne special? Beyond the fact that he knows the music and the people who made that music, he also is one of the premiere mastering engineers for this material.

DeVenne turned 59 in January. He got his start at age 8 riding his bicycle from home on Billings Avenue in Medford, five miles north of Boston.

Walter would ride along Route 16 in 1956 to get to WHIL(FM) — now Kiss 108, one of the most powerful stations in the region — at 99 Revere Beach Parkway. The station played beautiful music. But it was the programming on its big sister AM station that riveted DeVenne. He would watch the popular hosts as they spun records on the station: George Fennell; the late Don Masters, who would go on to work promotions for Polygram; Jack Chatterton and Jack McDermott.

"I was watching George play 'Rip It Up' by Little Richard; it was 'Boston's Music Station,'" said DeVenne. "Sometimes they'd let me in the studio and hang around; I'd watch the guy reading the news," he said. That was when they didn't have him fetching coffee.

In high school, DeVenne started his own "station" using what was called a wireless nurse, a device that allowed parents to place a microphone in a room so they could hear a baby via an unused frequency.

"We used to have some fun in high school," he said. "We had three turntables, a couple of tape machines. The neighborhood would be my disc jockeys. It kept us out of trouble. I used to use the 1610 frequency, just a little above the dial. Most radios went to 1600 AM, and had a little edgeway.

"The 'wireless nurse' only worked a short distance, but we used to set antennas up on the roof. I'd send my brother up on the roof with wires. Then a guy at an electronic store built me the transmitter. He liked what we were doing. I put him on the air or at least gave him commercials," he said.

DeVenne is credited on albums by Jackie Wilson, John Lee Hooker and Frankie Lymon and The Teenagers.

The DJs had free rein on the household.

"Kids used to come into my house without ringing the doorbell, just walk in and turn on the transmitter and start broadcasting. My father would get upset," he said.

Along with this underground radio station on Billings Ave., DeVenne had his own proto-label. "I actually put out a record. We sold 200 [copies], a group called The Syndicates. [The song] was called 'The Duke,' a solid rip-off of Gene Chandler's 'Duke of Earl.' I had a company in New Jersey press it — 100 copies on red vinyl, 100 copies on yellow vinyl.

"It's a collector's item now. I still have one red one and a yellow one with Nelson Noble's initials on it. Nelson was the owner of WILD(FM); had to have his initials on it. So I asked him to do it so DJ Jimmy Byrd could play it on the air. It was a hit in Medford."

Meanwhile, DeVenne became a fixture at music stores, which led to the creation of his show.

"I was working in the record shops at the same time. It's a toss-up; everything was music," he said. "Medford Music and Farrah's Music in Medford Square. I was the kid behind the counter. When Medford Music went to the Zayre's Mall, Mike Vara and Jerry Vara took over and called it Vara's Music. Then I went to Big John's Oldies But Goodies Land — huge store, world-nown — at 683 Washington St. in Boston.

"At Oldies But Goodies Land, Tom Gamache, 'Uncle T,' had a midnight radio show on Saturday night; we got together and decided I'd bring the records and he'd bring himself. When he went from WTBS(FM) 88.1 (MIT Radio) to WBUR — now Boston University's NPR station — I got checks as music director.

"With Uncle T no longer at WTBS, somebody at the station looked at me and said, 'They're your records, you ought to start playing them," and that was the start of Little Walter's Time Machine, I think 1968," he said.

"I was always near radio, always involved in radio. Nice little cross between radio and the record shops," he said. "I just watched all this stuff happen. I had a ball."

Sick leave

In the new millennium, the DJ and archivist moved his mastering lab from Medford to Derry, N.H. But some of his work was derailed as he battled cancer.

Though ever-present on radio, DeVenne was conspicuous in his absence on the club circuit. He is candid about what happened. He noticed a couple of lumps in his neck in 2005 and agreed to begin chemotherapy and radiation at the behest of his family.

"You gotta have someone to care for you to get these things looked at. It wasn't going away so my very worried wife brought me over to the doctor's.

"I went through CAT scans and PET scans — none said it was cancer, just that there were a couple of lumps in my throat," he continued. "They were going to stick a needle in my neck so I told them to operate on me [instead].

"I had my first operation in the beginning of 2006. Like Dion said, if I didn't have a wife or a mother, I would never have sought medical advice because it didn't hurt," DeVenne stated, referring to his friend, singer Dion DiMucci.

Chemo and radiation continued through March of last year.

"They make a form-fitting face mask with netting so you can see through, and they screw it down," assuring that the radiation treatment would reach the same place on his neck.

"The chemo is what I really had a reaction to and that's what put me in the hospital for a couple of weeks. I begged them to let me out. So my wife learned how to give me the IV. At 9 a.m., I'd have to get up, take the IV; they left it in my arm for two weeks with what looked like an RCA plug."

Able to maintain his humor through what he called a horrific experience, DeVenne declared of his therapy, "I only fell down a couple of times."

"When they put that radiation on the throat, it is like getting a super-duper sunburn. The definitive sore throat, not being able to taste anything," he continued. "It took about six months after the radiation for me to get my taste buds back and be able to swallow."

In his element

Now Little Walter is back on the air, in the clubs and at work with other music acts.

"I did a Spike Jones package for Capitol Records which was funny, but not my usual kind of thing," he said. DeVenne also worked on a Bobby Darin "two albums in one" CD piece and a similar Irma Thomas package for Liberty/Capitol.

"Irma features 'Time Is on My Side.' She did the original that the Rolling Stones ripped off from her. She was so mad at them she didn't sing the song for years. Note-for-note identical," DeVenne said. "She went on that soulful tour that Peter Wolf emceed seven or eight years ago with Chuck Jackson, Percy Sledge, Ben E. King and others."

Obscure music from groups like The Knockouts and The Genies are for collectors. DeVenne knows how to put the music back together so it sounds as authentic as it did when fans originally bought the tunes on vinyl.

"That was fun," he said in the up-tempo voice so recognizable to his radio listeners. "I did that today, there was only about 14 tracks on the CD." It was for Collectables Records, a respected label that reissues music, with DeVenne usually overseeing the reproduction work.

"I'm real proud of some work I did with Dion," he said. "Collectables came out with 'Dion & Friends Live in New York.' This thing could've been a one-man Broadway show if he had decided to perform more than just the two nights. The new CD's got all his hits, all his new stuff and a couple of gospel tracks that are very palatable. It was an absolute magic night.

See DEVENNE, page 28 ▶

World Radio History

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World Radio History

DeVenne

▶ Continued from page 26

"You should see his face when he sings 'Teenager in Love.' I gave him the line, 'If I live to be 200 I'm always going to be a teenager in love.' He uses that line in concert."

DeVenne also recently completed newly re-mastered versions of hits from The Marcels (of "Blue Moon" fame) and The Cleftones, 25 songs on each disc for Collectables. His name is credited on hundreds of albums by Jackie Wilson, John Lee Hooker, The Cadillacs, The Five Satins, Frankie Lymon and The

Teenagers and Lloyd Price, and collections of music released by various radio stations.

A look at his credits on the Allmusic.com site is staggering; they include Rhino's "Doo Wop Box," which sold in excess of 500,000 copies — "surprising everyone," DeVenne said. Except for him.

The Doo Wop special was a perfect fit for public broadcast. DeVenne recently returned from three nights of taping in New Jersey for November airdates of music from Little Anthony & The Imperials (Little Anthony being one of the MCs), Flamingos, Nutmegs and many more.

When people tune in to his show on KGMZ(FM) Oldies 107.9 in Aiea/Honolulu, Hawaii, Sunday evenings from 9 p.m. to 12 midnight, they probably have no idea the man spinning the tunes also is the fellow who is re-mastering those same songs.

Mastering and spinning might seem enough for a man who has dedicated his life to preserving and airing these sounds, but he's booked for the rest of 2007 at a record hop at which he spins two weekends a month in a nightclub right between the Massachusetts and New Hampshire border.

Out of the house

The treasures in DeVenne's archives include dozens of live shows by Little Richard, including the only known live tape of Jimi Hendrix performing with Richard Penniman, Don & Dewey and Maxine Brown (although there is a studio 45 RPM of Jimi with Little Richard that was recorded around this period).

Recorded way back by DeVenne at the Back Bay Theater in Boston, the tape was mentioned when he was being interviewed for Visual Radio sometime in the 1990s. After the discovery, Experience Hendrix, Hendrix's family-owned company, heard it as re-played from the original broadcast tape aired in the 1960s on MIT University's station WTBS(FM). The information landed in Steve Roby's Hendrix book, "Black Gold."

When asked who got him back into circulation after the hospitalization, it turned out to be his old friend Dion, who was performing at the Mohegan Sun resort in Connecticut in August of 2006.

"He was the first one to get me out of my house."

Joe Viglione produces and hosts "Visual Radio," a biography/variety television program. He also writes for Allmusic.com, North Shore Sunday.

PRODUCT GUIDE

Pulsar II Offers Thermally Treated Diaphragm

M-Audio is shipping the Pulsar II small-capsule condenser microphone, which replaces the company's Pulsar small-diaphragm cardioid condenser microphone. M-Audio says the 3/4 inch diameter, 6-micron Mylar evaporated-gold diaphragm of the Pulsar II delivers sensitivity, especially for higher frequencies.

The microphone features a solid brass backplate for natural, transparent sound. The company says the capsule design is suitable for studio and stage applications including drum overheads, acoustic guitar, piano, close-miking strings and woodwinds and room miking.

Highlights include a thermally treated diaphragm to yield an additional 2 dB SPL over the model's predecessor. The –10 dB switchable attenuation pad enables users to capture higher SPLs. The 12 dB/octave high-pass filter also reduces low-frequency rumble and the potential for overloading mic preamps with low-frequency signals.

Transformerless Class-A FET electronics combine with the physical design properties of the Pulsar II to deliver specs including 20 Hz–20 kHz frequency response; sensitivity of –37 dB at 1 kHz, 0 dB = 1 V/Pa (13.8 mV/Pa); max SPL of 134 dB at 0.5 percent THD, 144 dB with –10 dB pad; and equivalent noise of 16 dBA. The product also includes a wooden box, windscreen, mic clip and manual.

The Pulsar II is available individually or as a matched set with +/-1 dB variation from each other. The matched pair includes a metal stereo mounting bracket for XY recording.

The Pulsar II carries an MSRP of $199.95

For more information, contact M-Audio at (626) 633-9060 or visit www.m-audio.com.

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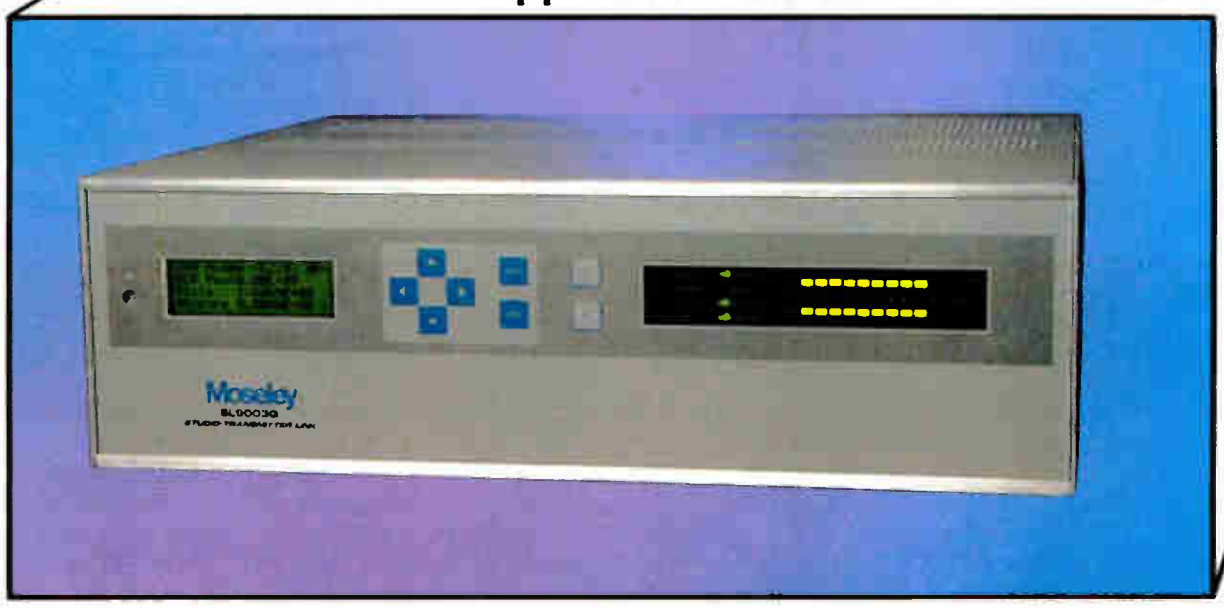

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World Radio History

USER REPORT

WXXI Deploys APT for IP System

by Kent Hatfield
VP, Technology and Operations
WXXI(AM-FM)

ROCHESTER, N.Y. At WXXI, we have grown significantly over the past number of years from just one TV and one radio station. We now offer six TV and five radio stations throughout Greater Rochester, N.Y. Such expansion naturally means additional investment in infrastructure, and much engineering effort has been focused over the past months on installing and upgrading our audio networks.

We recently made the move away from traditional phone lines and T1s and migrated our audio network to a microwave over IP-based structure to take advantage of the reduced operating expenditure and network efficiencies associated with IP networking. We selected the Tsunami radios from Proxim Wireless operating in the unlicensed 5.8 GHz band, and then started to look for multiplexing equipment to work in conjunction with these.

We got a couple of units on demo from a prominent U.S. manufacturer and tried them out on our network but despite many attempts by us and their service engineers, we were unable to get these to work over wireless IP.

We began to look around for alternatives and it was then that the WorldNet Oslo from **Audio Processing Technology** was mentioned. I wasn't at all familiar with either the company or the product so I contacted a few other users to get their opinion.

These engineers were mainly using the WorldNet Oslo over T1 not IP, but still the overall verdict was that they were more than happy with the unit's performance and loved the audio quality they were getting using the Enhanced apt-X algorithm.

On the Horizon

APT put together a proposal for us showing which units would be deployed in each location and sent out a pair of demo units for us to trial. The proposed configuration consisted of two WorldNet Oslos — a modular audio multiplexer with T1 and IP transport options — and two WorldCast Horizons stereo IP codecs.

Much to our delight (and relief!), they worked the first time we took the units out of the box and plugged them in. After several tests, we were happy that the APT solution worked well within our network and with the Proxim radios, and we purchased the proposed solution.

One of the WorldNet Oslos was deployed at our main studio on State Street in Rochester and another at the primary FM transmitter site on Pinnacle Hill, serving as an STL for WXXI(FM), WRUR(FM) and Reach Out Radio. We get a contribution feed into the Oslo at State Street from a WorldCast Horizon located at WRUR's studio and, as the unit is duplex, we also can send a return feed back to the WRUR studio.

The other WorldCast Horizon, located at our French Road AM transmitter site in Brighton, receives the WXXI(AM) feed from the main State Street studio. The return link on this connection is reserved for use by an emergency backup studio, which also is located at our French Road transmission site.

The high quality, dynamic range and low delay of the apt-X algorithm together with the performance of the units over IP were major clinching factors in our decision to opt for the APT solution. The audio quality was superb and, given the inherent packetization delay you get with IP networks, having a coding delay of less than 2 ms was a real advantage.

We have confidence monitoring feeds coming back to the State Street studio, which would not be possible if we were using any other coding algorithm.

The other major advantage, which the APT kit offered over the other products we tested, was how well it worked with the microwave gear. If the link was dropped momentarily, other manufacturers' units dropped the connection and needed manual rebooting at both ends. This just isn't a viable option on our main STL.

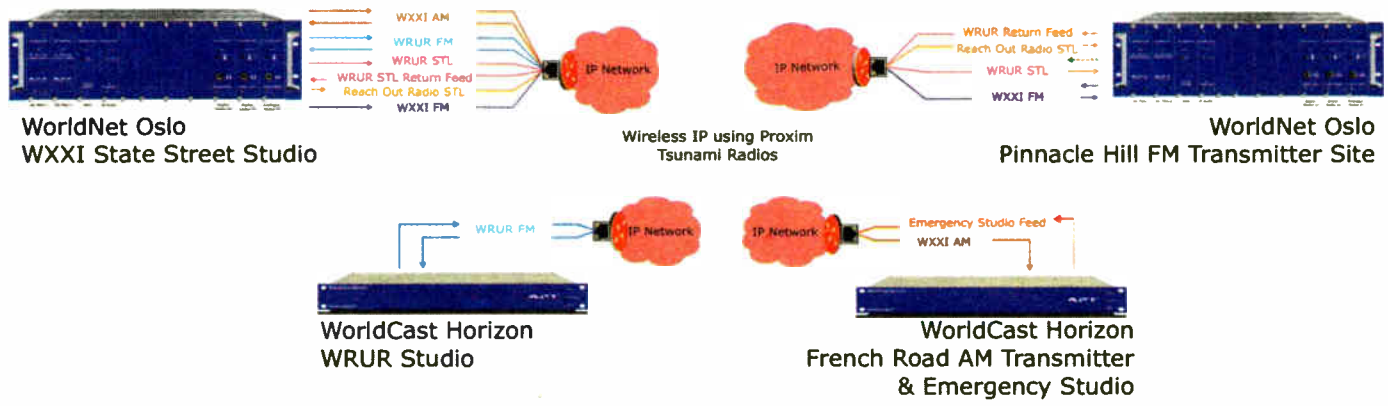
The APT codecs keep the connection open and automatically re-sync when the link returns. Redundant PSUs, an independent MCU card, passive backplane and hot-swappable cards also mean that our system has no single points of failure and we can sleep happily in our beds at night.

CMS

We also really liked APT's Codec Management System software package, which we use to configure and monitor all four units on the network. Not a DIP switch in sight and I can finally discard the terminal screwdriver when it comes to configuring my STL gear.

The CMS is intuitive and makes it simple to achieve complicated addressing and port mapping processes. There also is an essential performance monitoring tool, which constantly examines the link, report-

See WXXI, page 32 ▶



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BROADCAST BRADLEY PRO AUDIO

World Radio History

USER REPORT

Zephyr Does Double Duty for Radio Skonto

Telos Xstream ISDN Codecs Provide Identical RTP/UDP Streams For Two Remote Studios, Each More Than 150 Miles Away

by Ivo Bankovs
Engineer
Radio Skonto

RIGA, Latvia When Radio Skonto received licenses for transmitters in two other cities, management was pleased. But for me it posed a problem.

How would I get the signal from the studio in Riga to the distant cities of Rezekne and Liepaja, each about 155 miles away? Old-technology telco audio service was expensive. Installing my own STL radio system would be impractical due to the need for intermediate repeaters and towers — if I could get a license.

So I asked a local Internet Service Provider, Latnet, if it would be possible to use IP links to the two sites. Fortunately, the ISP was able to offer a guaranteed bandwidth service to the two sites at a cost much lower than the alternatives.

To avoid paying telco costs, Latnet installed a 26 GHz IP radio link with equipment made by Netro from the Radio Skonto studios to its point-of-presence in Riga. Radio Skonto contracted for 384 kbps from the Riga studio and 256 kbps at each of the remote sites, providing plenty of margin for packet overhead.

Livewire network

Radio Skonto decided to use **Telos Systems'** Zephyr Xstreams to provide MPEG compression and IP conversion. The station is a Livewire IP networked facility, so we wanted to input audio to the Zephyr at the main site via IP. The latest version of the Xstream hardware includes Livewire, so we plugged it in to a spare port on the Livewire Ethernet switch, and configured its input source to be from the main program Livewire channel.

A low-cost ($50) consumer IP router was used to connect the Latnet IP radio to another port on the Ethernet switch. This router was "locked down" to pass only the required audio signals and thus to isolate the Livewire network from any other traffic on the external network. The Xstream provides two (identical) RTP/UDP streams, one for each site.

Bankovs (standing) and Assistant Engineer Karlis Malkavs use the Telos Xstream.

Each remote site has a small studio setup for local programming. The Zephyr Xstream delivers its audio via analog connections to a console fader input. DSL lines provide the IP connection. Again, these are firewalled with a low-cost router inserted between the DSL line and the Zephyr. The routers have additional LAN ports that are connected to other PCs that are used for non-real-time audio transfer.

We were concerned about delay, wanting the lowest possible value so people listening to live telephone calls would not be confused (we do not use a profanity delay). So we initially set our Xstreams to the lowest buffer setting, 250 ms. We were not sure if such low a setting would work, but we decided that the best strategy would be to start with a minimum value and increase it in small steps until any audio drop-outs stopped.

It turned out that the minimum setting worked without problem. Fortunately, the IP network had very low jitter.

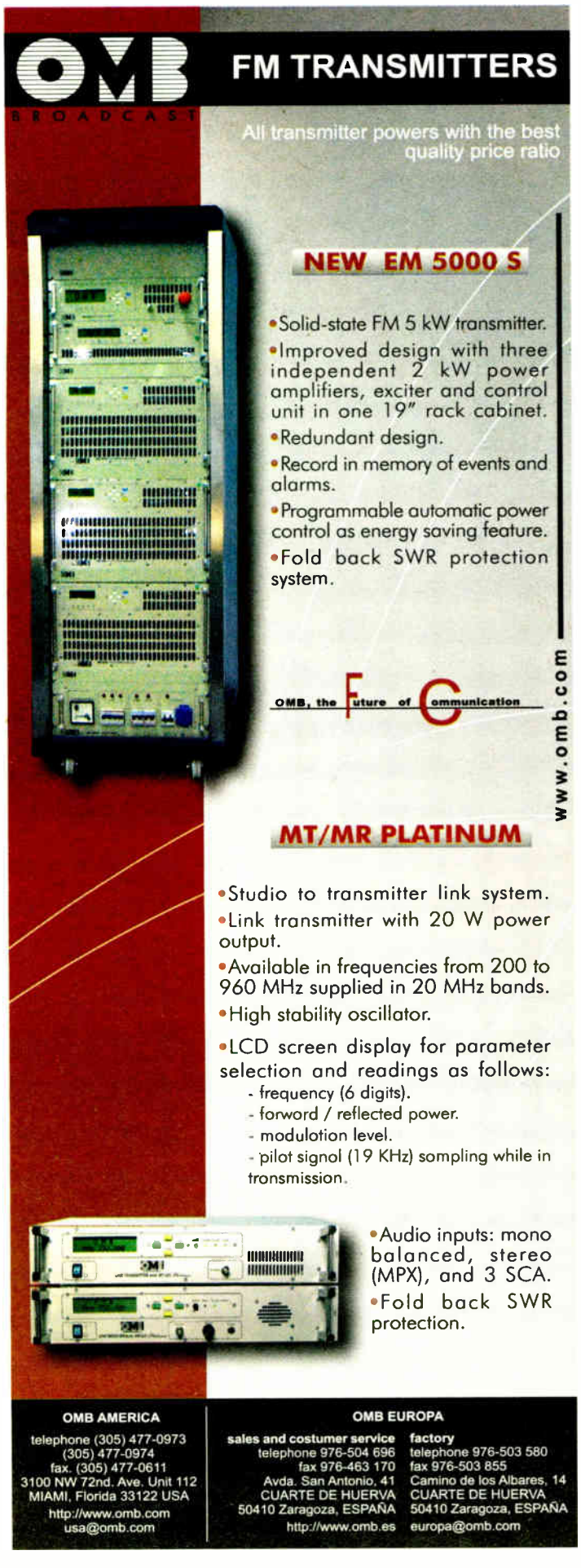
My assistant engineer, Karlis Malkavs, and I wondered if 128 kbps would provide sufficient quality and were ready to increase to a higher rate if we were to hear compression artifacts. But after a month of on-air operation, we decided to stay with this lower rate. MPEG AAC has been officially designated as "indistinguishable from the source" at 128 kbps by the European Broadcasting Union, so this was pretty much what Telos had told him to expect.

The system has been in operation for over nine months and is working well. There was a single outage at one of the sites, caused by a power failure affecting the ISP's equipment center. A UPS was supposed to provide backup, but a switch in the path was mistakenly not connected to the UPS. Fortunately, the folks at Latnet were serious about offering a high-reliability guaranteed connection and were willing to fix the problem by making sure the rest of the equipment was placed on the UPS.

Other than that, no problems. The ISP's promise of guaranteed bandwidth has been kept, and the IP option has proven to be a satisfactory studio-to-transmitter link.

The project was far easier than I had imagined. Basic IT skills were necessary. "Much easier than if we had attempted an RF STL. Even a single hop STL would have required considerable effort to obtain licenses, plus the work of installing the RF equipment," said Malkavs. Latnet even took care of the RF link so our involvement was minimal.

For more information, contact Telos Systems in Cleveland at (216) 241-7225 or visit www.telos-systems.com.



WXXI

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The CMS also allows us to make changes to the IP connection parameters like packet size, buffer size, QOS values and bit rates should remedial action be required to right a network issue.

One of the major reasons for migrating to IP was the cost-effectiveness. And the APT/ Proxim solution was a competitively priced solution, working out at just over $3,000 per channel end-to-end. It is a suitable solution for those stations who can't get a reliable FiOS or ADSL, or for whom the MRC of a managed IP link is out of reach.

In addition, given that the WorldNet Oslo units are modular, we only need to purchase additional cards, not a whole new system, should we need to add in additional programming or other services in the future.

In summary, WXXI chose the APT solution because it provided high-quality audio with low latency, modular design and easy reconfiguration. We found, during testing, that the APT equipment performed well across our multi-hop, bi-directional IP radio system.

For more information, including pricing, contact APT in New Jersey at (800) 955-APTX (2789) or visit www.aptx.com.

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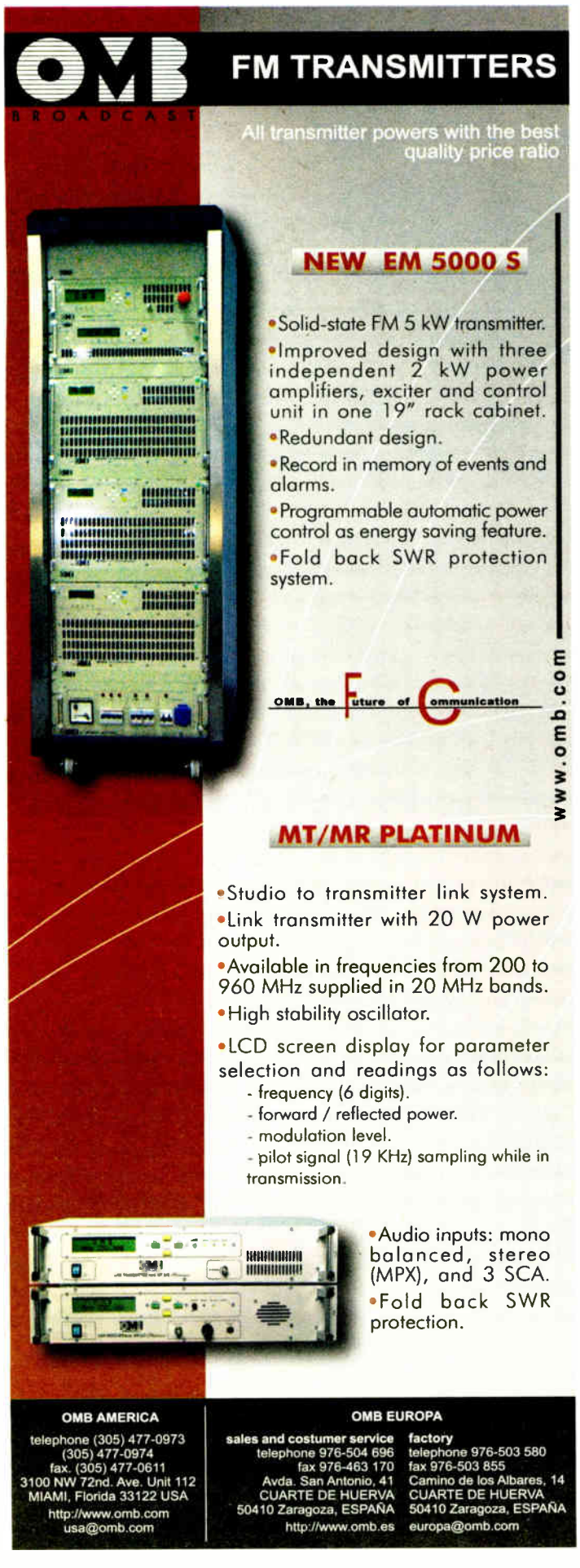

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World Radio History

USER REPORT

Live from the Cornfields of Iowa

Country Station Broadcasts From 'Old-Fashioned' Fair With RemoteMix 4 Featuring Bluetooth Technology

by Edwin Brand
Operations Manager
KMGO(FM)

CENTERVILLE, Iowa As a kick-off to every summer, KMGO(FM) Radio sponsors the biggest country concert of the year in southern Iowa at the Wapello County Fairgrounds in Eldon. We also provide live coverage of the entire fair's events and activities (our owner is president of the fair board).

As with any big promotion for our 100 kW country powerhouse, we demand complete live and local coverage, which for most remote situations is not usually a problem, except this particular concert is at a county fair in an extremely rural area.

From a picturesque old-fashioned fair, we broadcast all varieties of live content over five days, from cattle shows to our own produced country talent showdown — all live.

This much coverage can become quite a headache. That's why the arrival of our **JK Audio** RemoteMix 4 telephone interface was as refreshing as a glass of lemonade from the carnival.

Stealing the show

The new demo unit arrived a week before the county fair was scheduled to start. This gave us plenty of time to set it up in our test environments and let the air staff try out the unit they'd be dealing with extensively the following week.

We've used several of the JK Audio RemoteMix Sport units in past years, for the high school and college athletic content we originate, and this unit had many new and exciting features. Four XLR mic inputs with a switchable pad on 3 and 4 for line levels, four separate headphone level controls, bass boost and limiter on the phone send, and the biggest wow factor: Bluetooth connectivity, the coolest and most innovative feature.

Brand, KMGO Morning Host Russ Ocker and the RemoteMix 4.

Most of our station's arsenal of remote and sports cell phones have been updated in the last six months to newer Motorola models, which means they no longer have easily connectable headphone jacks to get the audio in and out of them. The Bluetooth feature on the RemoteMix 4 solves this problem handily, allowing a full bandwidth stereo connection between not only a wireless phone but also a laptop or any other Bluetooth-enabled device.

Set up was easy and accomplished by flicking a switch on the front of the unit and setting the wireless phones to use the RemoteMix 4 as you would with any Bluetooth accessory. After a couple of seconds, we were ready to broadcast via cell phone (with the phone still in the remote bag).

Audio over this connection is limited to 3.4 kHz to actually send back through the phone, but if you're taking a Bluetooth feed out of the mixer into a recording unit or laptop, you can achieve 20 kHz response in the wireless headphone mode, making for pristine recordings/air checks of the content.

The fair runs Wednesday evening through Sunday, which means we usually set up our remote equipment Wednesday morning and check out essentials such as cables and power. Our local cable company provides a high-speed Internet drop for our IP codec from Tieline to get the bulk of our live produced content back to our main studios located an hour away from the fairgrounds.

This year, setup was much easier. The RemoteMix 4, with its four XLR mic inputs, can double as a front-end mixer for our IP codec. We plugged four Sennheiser wireless mics into the unit and fed the Bluetooth wireless headphone audio into the laptop we use for remote control of our Google SS32 automation system back in Centerville. This gave us an air check of our remotes, which made the sales folks happy.

Once we had the RemoteMix 4 wired for sound, we plugged the XLR output into our Tieline codec, plugged the codec into the Internet feed and within 10 minutes had a crystal-clear audio feed from the fairgrounds.

As a backup to the Internet feed (cable never goes out, right?), we kept two of our sports phones on standby to switch over to in case of a failure. Though we didn't need them, we did at times purposely drop the Internet and dial the auto-coupler back at the station though the RemoteMix 4 Bluetooth connection.

Despite being cell-quality, the audio was clear and it was easy to switch the mixer's Bluetooth feed to the Motorola phones to dial the studios. Even our morning show host figured out how to do this within a couple of tries.

We were impressed with the RemoteMix 4. Our engineers thought it was durable and well built — it survived five 90-degree days at a dusty fair environment, where it may have been dropped once or twice. Our air staff loved the individual headphone level controls and bright LED meter on the front panel. And the Bluetooth technology ensures we'll be able to interface it with our wireless phones in the future.

For more information, including pricing, contact JK Audio in Illinois at (800) 552-8346 or visit www.jkaudio.com.

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TECH UPDATE

Mobile, Studio Rise From AEQ Phoenix Line

AEQ says it has finalized the development of its Phoenix IP audio codec line. The series consists of Phoenix Mobile and Phoenix Studio, each of which has two slots for inserting optional communication modules. Initially, POTS will be the first available module, but ISDN, X21, V35 and GSM are coming soon.

Phoenix Mobile is suitable for portable use, with a digital mixer with four analog inputs, internal Li-Ion battery, protective cover for the display and controls and 12 V DC power supply/charger. It can be hung over the shoulder for broadcasting via a 3G or satellite telephone with IP connectivity, or through a forthcoming GSM module.

Phoenix Mobile, in a temporary fixed location such as on a laptop, can communicate with a standard IP codec, and with the optional ISDN module with most ISDN codecs, X21/V35 and telephone hybrids, and by means of the POTS module with other Phoenix codecs.

Phoenix Studio communicates with standard IP codecs through IP networks or other data circuits that can be converted to IP such as 3G or satellite telephones or digital radio links. Like the Mobile, it communicates via the optional modules with most ISDN codecs, X21/V35 and telephone hybrids, and by means of the POTS module with other Phoenix codecs.

For more information, contact AEQ Broadcast in Florida at (800) 728-0536 or visit www.aeqbroadcast.com.

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USER REPORTS

STL-IP Enables Stations to Share Content

Family Life Radio's 16 Stations Share Programming From One Location With Audio Over IP

by Robert Mumm
Director of Engineering
Family Life Radio

TUCSON, Ariz. Family Life Radio is always looking for new ways to create synergy between our large, and growing, number of stations.

In this regard, no other technology has impacted our organization as much as the AudioTX STL-IP, an audio-over-IP unit manufactured by MDOUK and distributed and supported in the United States by **Broadcast Electronics**.

This unit makes it possible for our 16 radio stations in eight states to share programming from a single location, whether stations have a studio or not. Programming is located at our KFLR(FM) studio in Tucson, and distributed via IP using the AudioTX STL-IP, a shared programming concept that isn't entirely new to our organization.

AudioTX STL-IP

We've been uplinking program content on satellite from our Tucson studio to each of our stations for some time. The cost of satellite, however, eats up a good portion of any savings we might realize in personnel and real estate, which is why we looked into the AudioTX STL-IP as an alternative for sending shared programming over IP networks to our various stations.

Family Life has stations in Michigan, Wisconsin, Georgia, Florida, Texas, Kansas, New Mexico and Arizona.

We were introduced to the STL-IP by Broadcast Electronics.

Missing link

AudioTX STL-IP uses the latest codec technology to transmit and receive up to 24 bit, 96 kHz broadcast quality audio. It can be set up as single- or bi-directional, stereo or mono, linear (uncompressed) or compressed audio using a variety of algorithms, including MPEG Layer 2, Layer 3, J.41, ADPCM, G.722, AAC, AAC Low-Delay and HE-AAC v2.

The STL-IP is described as a "transmission grade unit for live audio over IP," so it is made for performance in 24/7/365 live audio distribution applications like STL and, in our case, program distribution between stations, and even for remotes. It can be used as needed over private networks (managed and unmanaged), dedicated point-to-point connections, wireless networks, satellite and Internet.

The great thing is that once you get into working over IP, the method of delivering the network is irrelevant as long as it reliably transports IP packets (just like a computer network).

One AudioTX STL-IP unit can transmit audio on six simultaneous connections, each using different audio coding and network protocols if desired. Audio can even be sent to an unlimited number of destinations using UDP Multicast. These features will be important to Family Life when we move into HD Radio data and multicasting in the near future.

There also are larger models in the range: the STL-IP-16 and STL-IP-8, which have up to 16 inputs and outputs and can be used to send multiple audio channels between sites, or can be installed in central locations (Tucson in our case) and can then send any number of different audio channels to each of our radio stations.

Compared to satellite, the AudioTX STL-IP offers far better audio quality too. Our satellite feed ran at 128 kbps. We can send audio over IP, and increase the bit rate per stereo channel to 256 kbps — and at the same time cut costs. With the AAC Codec Pack option, using MPEG4 AAC allows for studio grade stereo program from only 64 kbps (and actually works right down to 14 kbps).

Another draw is that this audio-over-IP unit offers an individually addressable way to deliver audio to each station, which makes it easier to prioritize traffic and communicate over WAN, plus customize feeds as needed.

As for connections, the unit has ample audio, network and data connections; XLR for both analog and digital audio input and output; BNC for external wordclock if required; and RJ-45 for the IP network connection.

It also can send serial data (RS-232) and GPIO (logic level TTL signals) alongside the audio.

So we decided to try the unit, and I installed the AudioTX STL-IP between our Tucson and Phoenix stations as a test run early this year.

Corporate engineers in Tucson set up the unit at our Tucson studio to convert linear audio to a 256 kbps bit stream, which then passes through our network firewall and out a fiber link for distribution. A T1 drop at each station receives the audio, each individually addressed and decoded by an AudioTX STL-IP unit.

A notable benefit of this audio-over-IP system is its bi-directional capability, which gives us two-way communication between our main studio and stations for on-air monitoring and EAS and transmitter reporting. We also are pleased with the units audio delay, which spec'd out at 5 ms or less.

The AudioTX STL-IP retails for $2,800.

For more information, contact Broadcast Electronics in Illinois at (217) 224-9600 or visit www.bdcast.com.

Orban Makes Audio Pop for SomaFM

by Rusty Hodge
General Manager
SomaFM Internet Radio
SomaFM.com

SAN FRANCISCO SomaFM is an Internet-only "radio" station broadcasting since 1999.

We have always been concerned with sound quality, so when we first went on the air, we were broadcasting in MP3 formats, which I thought sounded better than the other formats (Real Audio and Windows Media) at the time. We have always strived to have the streams with the best sound quality, but this historically has come at a cost tradeoff. Higher quality meant higher bandwidth, which meant higher costs for streaming.

However, that all changed with the advent of aacPlus. The first time I heard a 32 kbps aacPlus stream, I was amazed. It almost sounded as good as 128 kbps MP3, and it is one quarter the bandwidth. Bandwidth is one of our biggest costs, so transitioning our listeners away from 128 kbps MP3 to 64 kbps, 48 kbps or lower bit rates, we can save substantial money in our bandwidth costs.

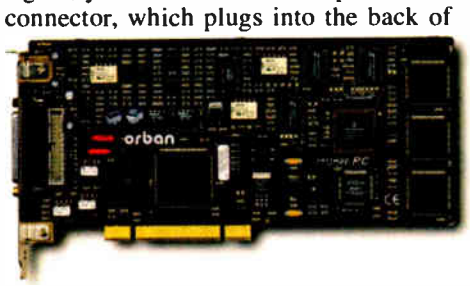
For example, during our peak listening time (around noon Pacific time), our most popular channel will have more than 2,500 concurrent 128 kbps MP3 listeners. Each concurrent 128 kbps listener we can transition to 64 kbps or lower bit rates will save us over $10 a year. By transitioning just half of those 128 kbps listeners to 64 kbps aacPlus, the bandwidth savings more than pay for the **Orban** 1100/1010PE system in a single month.

The 1010PE is part of a system that includes the Optimod-PC 1100 card and the 1010PE encoder, which interfaces with the 1100 card. Together, the audio quality is great.

Side-channel solution

I rushed to get one of the 1010PE/1100 encoders and Optimod-PC cards and started broadcasting our most popular channel in aacPlus. Installation is easy. The 1100 looks like a sound card to Windows, so you can even run a playout system and encoders on the same machine; this is great for Internet-only stations and an inexpensive way to run side channels.

The 1010PE software is tied to the serial number of the 1100 card, so no hardware dongle or online registration is needed to activate the software. If you're driving the 1100 card from an external signal, you'll need to solder up a DB-25 connector, which plugs into the back of



Optimod-PC 1100

the 1100 card. The 1100 comes with software that lets you control its internal mixer to select between the Windows audio input, the balanced analog input (on the DB-25) or the AES-3 or S/PDIF digital inputs (also on the DB-25).

Initially, we started with a 40 kbps stream and added a 48 kbps stream and invited our listeners to compare them. Most people agreed that the 48 kbps stream sounded better than the 128 kbps MP3 streams, and that the 40 kbps streams sounded about the same as the 128 kbps MP3 streams.

The biggest problem with aacPlus is that there haven't been enough players that supported it. Winamp 5.04 was the first, but now Orban has released a free plug-in for Windows Media Player that gives it support for aacPlus. Also, the open source VLC player plays aacPlus on Windows, Mac and Linux. More and more players are supporting aacPlus, the notable exception being iTunes.

One of the biggest problems with most Internet radio broadcasts is the lack of proper audio processing, and the lack of a "board op" riding levels. So song-to-song level differences will be significant, especially when being listened to in a noisy environment such as an office or on a mobile device. The Optimod 1100, which is basically an Orban 6200 DAB processor on a card, is a wonderful solution to this.

Another important feature of the 1010PE is that you can encode multiple simultaneous streams at bit rates from 8 to 320 kbps using both HTTP and RTSP 3GPP mobile streaming formats. 3GPP mobiles are not deployed widely in the United States, but are internationally.

Orban's free aacPlus decoder for Windows Media Player handles aacPlus as well as AAC streams in both HTTP (Shoutcast/Icecast format) as well as 3GPP RTSP formats. This means you could stream in a single 3GPP format, and cover phones as well as listeners with Windows Media Player. We prefer the flexibility of encoding in multiple formats, so we offer 32 kbps, 40 kbps and 64 kbps versions of the aacPlus streams.

We also use the 1010PE to encode a 128 kbps AAC stream for our listeners who want the highest fidelity possible. We do this more as a novelty than anything else, we only offer limited stream capacity for the 128 kbps AAC stream, but we are considering offering it as a premium level service to our subscribers.

We used the 1010PE with both Shoutcast (free, but not open-source) servers and the open-source Darwin Streaming Server on Linux. It also works with the commercial Quicktime Streaming Server, which is part of OSX Server from Apple. If you are buying OSX Server just for the streaming server support, you can get away with buying the $495 "10 user limited" version as it has no limits on the number of streaming server connections.

Darwin Streaming Server can exhibit some quirks with some flavors of Linux, and I'm told it works best under FreeBSD. But it works flawlessly under OSX Server, so if you have a spare $500 and want a turnkey solution, the limited version of OSX Server is the way to go. For HTTP streaming, you can also use the open source Icecast servers.

The 1010PE software has been reliable. As I write this, our system, which is running under Windows XP SP2, has been up without a reboot for 245 days.

For more information, including pricing, contact Orban in Arizona at (480) 403-8300 or visit www.orban.com.

World Radio History

DSPXtreme

AUDIO PROCESSOR

Extreme PROCESSING

The DSPXtreme is the newest addition to BW Broadcast's DSPX range of audio processors and we've included a few new features you wouldn't normally expect in an audio processor.

The first thing you will notice is the 2RU form factor which now includes two colour screens - one of which is touch sensitive. As well as looking great, the touch screen removes the need for jogwheels, joysticks and buttons allowing you to navigate, setup and control the DSPXtreme with a touch of your finger.

Behind the stylish front panel you'll find we've included more of the features that have made the DSPX range of processors among the best in the world. If you don't need all the features, no problem, the DSPXtreme is available in four different versions with tailored hardware and programming features: FM, AM, CD, HD.

For quality FM stereo broadcasting, the DSPXtreme-FM includes the world class stereo encoder found in the DSPX and DSPXtra. As well as the standard processing features you'd expect in a top-line processor. the DSPXtreme-FM has dual output paths allowing HD and FM services to be processed simultaneously without compromise. Simulcasting of FM and HD service is not a problem using the diversity delay feature.

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Remote configuration and monitoring is simple with numerous connectivity options. These include an Ethernet port for LAN or WAN access, an RS232 serial port and an 802.11 (WIFI) Wireless interface. If you don't require a full user interface a remote trigger port is available that allows preset selection through contact closures.

You want more? No problem. The DSPXtreme has a flexible 'flash' upgradeable architecture which means that as we continue to make enhancements and add features, you can continue to reap the rewards. You can simply download the upgrades from our website.

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World Radio History

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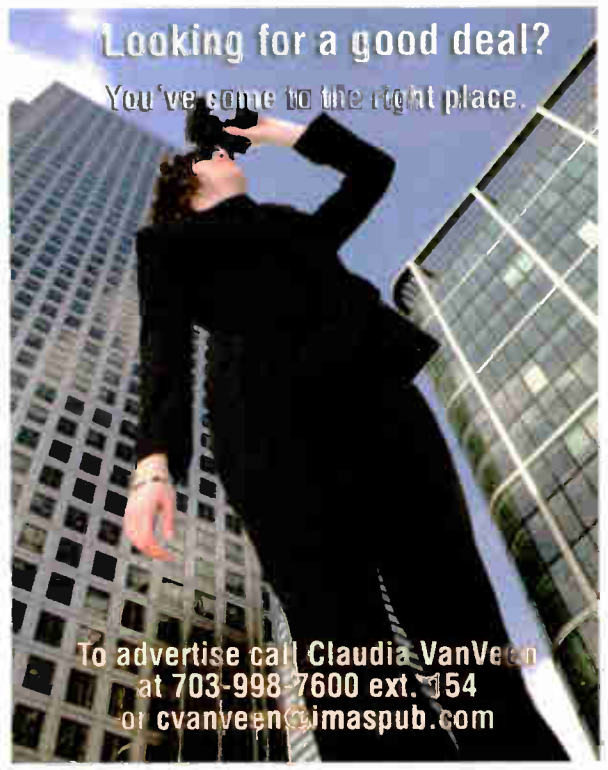

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World Radio History

USER REPORTS

Access Portable Takes on 'Global Adventure'

Codec Enables Live Radio Signals, Recorded Videos And Photos To Be Sent From Sea to Web, Phoenix Station

by Keith DeGreen
Owner
The Global Adventure

PALAU Question: What is smaller than a loaf of bread, weighs less than two pounds and can transmit a broadcast-quality radio show from a small ship thousands of miles out to sea, or from anywhere on land around the world? Answer: **Comrex**'s Access Portable.

I am a radio talk-show host, world explorer and owner of The Global Adventure, a 55-foot Nordhavn full-displacement trawler. Comrex sent me its first production unit. After a 10-minute phone tutorial, I was up and running from our ship at sea.

As an attorney and Certified Financial Planner, I have broadcast a weekly personal finance radio show on talk giant KFYI(AM) in Phoenix for 19 years. When I sold my investment advisory business last fall, I wanted to continue my program while traveling around the world aboard my ship.

It took nearly a year, but I was able to piece together the latest and best technology to accomplish my goal of converting my Nordhavn into a floating communications beacon — capable of sending live broadcast-quality radio signals to KFYI (or any station for that matter), and recorded videos and photos to my Web site www.theglobal-adventure.com.

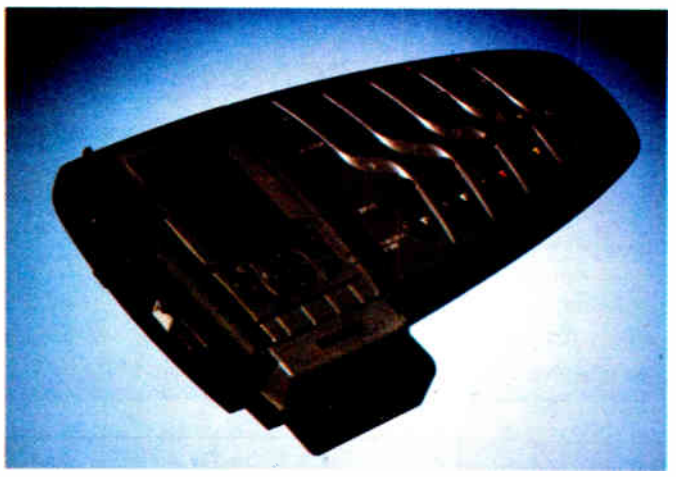
Anywhere at sea

Broadcasting with the portable Access unit while at sea starts with a KVH Fleet 77 SAT-COM unit, mounted in a dome high on the stack of The Global Adventure. I use this system to access the Stratos satellite system.

The satellite time is expensive — about $6 per minute before discounts for usage — but currently the only system with global coverage for ships at sea. We view the approximate expense of $1,000 for a three-hour show to be a cost of doing business.

But the secret to producing broadcast-quality transmissions for our radio show is the Access Portable.

The Access unit digitizes my voice and interfaces with the on-board KVH Fleet 77 system. The data signal is then beamed to one of Inmarsat's geostationary satellites. When the Inmarsat signal rains down on the United States it is picked up by an Inmarsat earth station and transmitted via the public Internet to a receiving Access unit at KFYI. The receiving unit "unwinds" the digital conversion and interfaces with the station's transmission equipment in the studio control room. From there it is broadcast live to radio listeners.



Access Portable Seated in the Access Mixer

The broadcast actually sounds as if I am in the KFYI studio. It's so clear I sometimes wonder if people might think I'm really still in Phoenix and making up the whole trip.

I keep two Access units on board: the older rack-mounted version, which I now use as backup, and the portable version.

Comrex literally sent us its first portable unit off the production line. It's no larger than a small loaf of bread. As long as I can connect to the Internet with either a hard-wire plug, by WiFi or by directly by satellite, I can literally broadcast from anywhere in the world.

Meanwhile, I have already made extensive on-land use of my Comrex Access Portable.

I've used the system to broadcast the show from hotels, yacht clubs and homes in Honolulu, Majuro, Pohnpei and Palau. And the Internet speed in the Pacific Islands is slow. I even brought it with me when I flew back to attend my high school reunion in Chagrin Falls, Ohio.

The system may be used by connecting directly into a hard-wired Internet outlet, or by using the WiFi capabilities of a laptop.

For good measure, I also have invested in a B-Gan unit, the portable SAT-COM transmission equipment used by reporters in remote locations. The Access Portable is capable of interfacing with the B-Gan, again providing broadcast-quality signals from the most remote locations.

For more information, contact Comrex in Massachusetts at (800) 237-1776 or visit www.comrex.com.

Digifon Bridges Connectivity Gap With Suprima

by Dave Immer
Founder/ISDN Production Specialist
Digifon

FAIRFIELD, Conn. Digifon is a broadcast audio bridging service providing connectivity between incompatible equipment and networks to production and post-production studios, broadcasters, ad agencies, talent, etc.

An example would be enabling a live two-way connection between an ISDN codec facility and an IP codec user. Every day we connect a multitude of different facilities. Digifon also sells ISDN/IP codecs.

I received two of the **Musicam USA** Suprima codecs in June and eagerly set them up. I always like trying out new stuff in hopes of finding a better/faster/more organized approach to the various and sometimes-complicated connections I need to manage daily. After plugging in the cables and powering up I spent a short time checking out the front-panel LCD screen menus and options.

Performance review

Due to the 2 x 20 character screen, one must often go four or five levels down into the menu tree to set the desired parameter and even more to create speed-dial entries. But common functions like initiating/dropping ISDN or IP connections are done easily with minimum button-pushes and the sequence of menus and responses to selections seem to be intuitive and thoughtfully laid out.

Then I launched my Windows Internet Explorer browser and logged into the local IP address I set on the Suprima. Alas, it only works within the ActiveX environment on Windows PCs. I hope that support for other browsers and Macs will be a future upgrade.

Dave Immer and the Musicam USA Suprima

What the front-panel LCD screen lacks, the browser remote control interface makes up for. The text and graphic objects are large, color-coded and can be seen from across the room. Configuration and data entry are managed conveniently with a series of sub-windows and drop-down menus.

The configuration window is particularly nice with an index on the left always visible and a large space to the right with plenty of info pertaining to your index choice. Needless to say, entering data from a computer keyboard is vastly easier than using the limited button set on the front panel, which cannot enter letters.

Active button objects on the main screen highlight in red when you cursor-over, a useful feature if you are a distance from your monitor. There are large VU meters for left and right input and output, a system health window for voltage, temperature, fan RPM and relay I/O status.

When you select IP as the connection mode, a streaming meter pops on that shows you packet activity. This gives you a moment-to-moment report on whether the packets are arriving either before or after predicted. If there is too much jitter, resulting in an unreliable transmission, the far-end unit can increase the "time between packets" to smooth it out. You can accomplish a similar result by adjusting the receive buffer locally.

A nifty feature in the configuration window is the Streaming Test section. Here you can run a graphic analysis of the download and upload rate between the local and remote units to give you a bit rate report, and observe the severity of the jitter of the connection. You can then use this information to help you select your optimum settings.

While all the interface and control features are nice, what happens when you actually use this thing?

The audio quality is great, especially when you can operate at the higher bit rates via IP. Local area and private networks will be able to use the PCM mode for linear uncompressed audio. The range of available codec algorithms is impressive: G.711 (the Suprima auto-answers and senses an incoming POTS call via the ISDN); G.722, MPEG Layer 2 and Layer 3, MPEG AAC LC, Low Delay and HE, Standard and Enhanced apt-X.

In ISDN mode, the Suprima accepts one BRI line and is compatible with them. Using the apt-X mode with ISDN, you are able to connect to any of the existing APT units out there, albeit at 128 kbps (15 kHz mono). In addition to IP and ISDN, X.21/V.35 network interfaces are standard features.

We expect the Internet to eclipse ISDN as the preferred connection method in the future and although the telcos in the United States slowly are phasing it out, ISDN still remains the most reliable (due to its circuit-switched, synchronous nature) and compatible (in light of all the installed ISDN systems out there) approach for broadcast audio. But looking toward that future, Suprima supports the EBU draft standard of SIP/SAP for compatibility with other IP codecs following the EBU standard.

The Suprima is a versatile codec system with numerous features making it suitable for many applications including production work, STL primary and backup, multicast, unicast and multi-unicast (permitting multicasting over the public Internet).

For more information, contact Musicam USA in New Jersey at (732) 739-5600 or www.musicamusa.com.

World Radio History

TECH UPDATE

WMVP Packs Commander G3 for Blarney Island

Recently, Chicago's WMVP(AM) ESPN Radio 1000 was faced with this question: If you had to do a remote from a small island, which codec would you choose?

Tasked with doing a four-hour remote from Blarney Island for "The Mac, Jurko and Harry Show," WMVP Engineer and Technical Producer Bob Boxer selected the **Tieline** Commander G3 to provide an audio over IP solution from an island to the mainland. Boxer says he was able to pull off the island remote twice, each with a different IP setup.

"I always said I'd use an IP solution when there was one as good as an ISDN connection, and this remote was as good as ISDN," said Boxer. "I see IP as a quicker way of getting last-minute events done at a lower cost.

"The question was how to get the audio off the island, as there were no phone lines," he said.

The Commander G3 on Blarney Island was hooked into the island's own Internet drop via a DHCP connection, and the audio was then sent to the studio where another Tieline received it.

Boxer and WMVP Chief Engineer John Hurni

"We had a nice stable connection with minimal delay and there were no apparent audio artifacts," said Boxer. The connection was at 96 kbps.

Boxer and the WMVP engineering crew are using the Commander G3 for a weekly radio remote done at Mike Ditka's restaurant in Chicago.

Tieline says its Commander G3 studio and field rack-mount codecs can be configured before they are sent to the remote broadcast site, as was the case for WMVP, so talent need only know how to plug in power, a telco line, an audio input and then dial a number. Additionally, Commander G3 now offers wireless broadband cellular connectivity.

For more information, contact Tieline Technology in Indianapolis at (888) 211-6989 or visit www.tieline.com.

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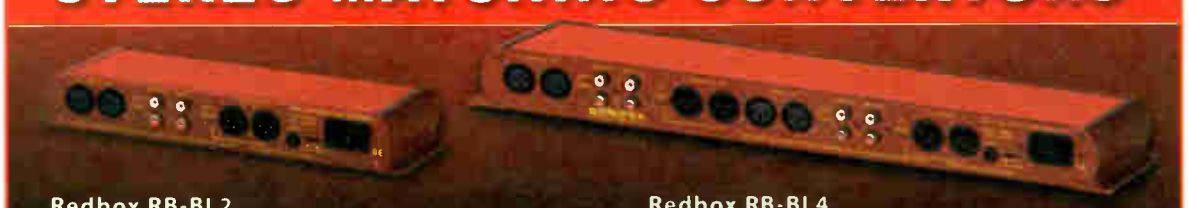

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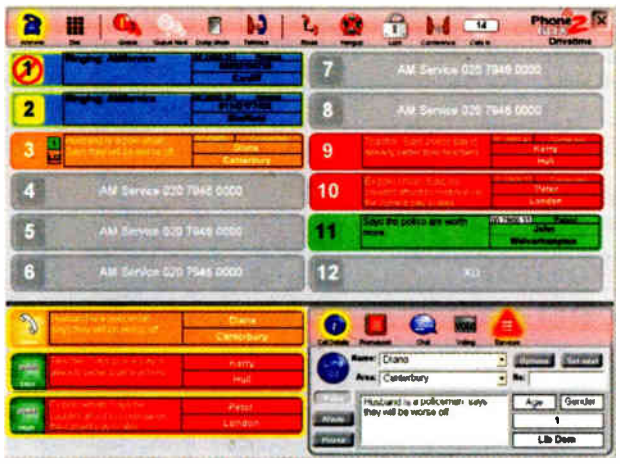
World Radio History

TECH UPDATES

PhoneBox2 Flags Troublesome Callers, Tracks Winners

Broadcast Bionics is shipping its PhoneBox2 studio call handling system, which captures Caller ID information from incoming lines. It has dynamic databases for prize winners, call history and troublesome callers. If a call comes in from a number that has previously been flagged with adverse call history, a warning is issued before the call is answered. New incoming calls are added to the database by default.

PhoneBox2 allows users to enter address and other details for prize winners. The system can then prompt other staff to dispatch prizes using e-mail.



PhoneBox 2 Drivetime Screen

The phonebook facility enables users to call listeners back quickly. Users pick the number from the caller database that captured their details when they called, and hit the dial button. The company says there also is ample room for information about the caller and what they want to discuss.

PhoneBox2 counts all calls: incoming, outgoing, answered and routed to air. The counters can be reset when desired.

A statistical analysis package is available as an option, allowing users to process the call history database and produce reports on call levels throughout a specified period. Analysis by geographical area, time of day and day of week are available, as is the ability to produce a report of callers and topics from a given period.

When screening calls, particularly for competitions, operators can automatically dump the previous call when taking the next so the process of screening competition entrants is facilitated.

As an option, PhoneBox2 also can handle automated voting. Callers are answered by a voicemail system and routed through a user-defined menu structure. The total number of votes for each option is displayed live on screen in the studio.

For more information, e-mail sales at sales@bionics.co.uk or visit www.bionics.co.uk.

Nx12 Supports 8 Consoles, 4 Hybrids

Telos Systems introduced the Nx12, a self-contained 12-line talk show system with support for up to eight control surfaces and which includes four hybrids. Each hybrid has its own Omnia AGC noise gate for caller-to-caller consistency.

Along with hybrid functions, Nx12 includes echo cancellation for VoIP and cellular callers. Two Program-on-Hold inputs and two analog (or AES) outputs allow for the Nx12 to handle the telephone needs of two stations simultaneously.

Features include long-tail echo suppression; caller ID support for POTS and analog; digital dynamic EQ; pitch shifter for feedback control; adjustable caller override; call screening and remote control using Assistant Producer 3; and function buttons and parallel outputs for remote control of delay and recorders.

For more information, contact Telos Systems in Cleveland at (216) 241-7225 or visit www.telos-systems.com.

Barix Software Delivers Signal Without Delays

The **Barix** Real-Time Protocol software application is a low-latency streaming solution now available in its Instreamer and Exstreamer IP audio encoding and decoding devices. The company says it is designed for radio stations and broadcast groups that wish to deliver a live signal from one studio to multiple Internet radio outlets without the delays associated with audio streaming.

The Barix low-latency streaming application essentially reduces the usual 15–30 seconds of delay from PC-based encoders to approximately 200–500 ms, a benefit for live sports broadcasting, talk shows or other two-way interactive programming using Internet transport for radio. The application can be used over a standard broadband (DSL/cable) infrastructure and public Internet connection using compression ratios between 50–200 kbps to achieve high audio quality.

For more information, including pricing, contact Barix Technology in Minnesota at (866) 815-0866 or visit www.barix.com.

Sonifex Adds Latching Relay to Digital Hybrid

Sonifex says its DHY-03 digital telephone hybrid has been redesigned to include a latching relay for the handset. When a call is received on the TBU, the call may be diverted to the telephone hybrid by pressing either the front panel-mounted line connect button or by means of the remote connect switch.

Previously on the DHY-03, the telephone handset had to be replaced or the line would be double terminated, resulting in poorer performance. However, a latching handset divert relay has now been fitted to the DHY-03 to automatically disconnect the handset.

For more information, contact Independent Audio in Maine at (207) 773-2424 or visit www.sonifex.com.

Enhanced Low Delay AAC Added to Flashman II

The Flashman II portable recorder and codec from **Mayah Communications** enables reporters to record while on the air, or record and transmit later over various networks. Content transport is possible over IP/Ethernet or WiFi/WLAN, as well as over UMTS/3G networks.

In addition to the MPEG-4 HE AACv2 algorithm, which allows the perceptive transparent audio quality with low and very low bit rates, Mayah offers Enhanced Low Delay AAC (temporary name; a working item of MPEG-4; implementation from Coding Technologies) for the Flashman II. The company says it provides a much lower delay at comparatively low bit rates. Both algorithms are available along with other algorithms such as G.711/G.722, MPEG L2/L3 and AAC.

Additional highlights include a Li-Ion battery, USB 2.0 interface, PCMCIA slot for possible extensions and Web-based remote control for codec functionalities.

Mayah also offers the Sporty codec for reporters, which simultaneously records to USB sticks or SD cards. It sends and receives audio signals over IP/Ethernet, including such Internet access types as ADSL or SDSL, as well as over WiFi/WLAN or UMTS/3G/3.5G.

Using SIP in addition to SDP/RTP and other IP protocols, Sporty establishes IP-Audio connection to remote devices and can synchronize to the IP-Audio codecs of other manufacturers provided their SIP/IP implementation is based on EBU draft recommendations on Audio-over-IP, and their audio coding algorithms are standard-conform.

Sporty's interface provides control over audio, transmission and storage parameters. Additional highlights include a large display, control wheels, programmable function soft-keys and a numeric keypad amended by the Web-based remote control.

For more information, contact Mayah Communications' distributor Lamar Systems in Oklahoma at (918) 770-0941 or visit www.mayah.com.

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CRL Dynafex DX-2 - $350.00 "as is" plus shipping. Call Mike at (704) 523-5555 or e-mail mraley@bbnradio.org

Symetrics A-220 Stereo Amplifier - $115.00 "as is" email mraley@bbnradio.org for a picture or Mike at (704) 523-5555

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Audio Arts Model PS 6040 power supplies (Audio Arts R-60). Will let go for $200.00. Please contact mraley@bbnradio.org or call (704) 523-5555 for information.

Four (4) Audio Arts R-60 manuals for $20.00 each (price includes shipping). E-mail mraley@bbnradio.org or call (704) 523-5555 for more information.

LPB Blue 5c consoles – We've got about ten of them in good condition. We will let them go "as is" for $500.00 each plus S&H. Contact Mike Raley at (704) 523-5555 or e-mail mraley@bbnradio.org for pictures.

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Cablewave Systems pressurizer/ dehydrator APD-20 #587122 - $300.00 "as is" plus shipping. E-mail **mraley@bbnradio.org** for a picture.

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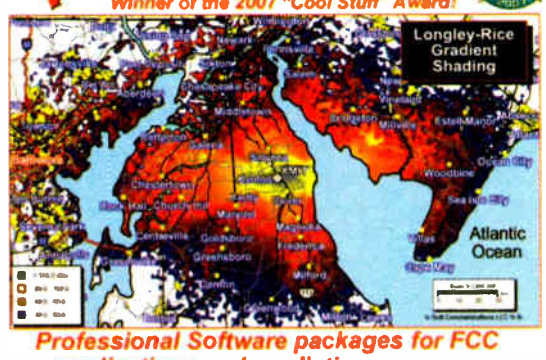

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Motorola Two -Way transmitter removed from service due to breach of lease agreement (company went bankrupt). Cannot find much information but if you are interested please send an e-mail to mraley@bbnradio.org

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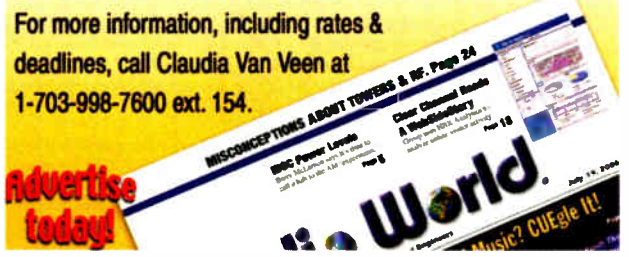

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◆READER'S FORUM◆

Sergeant Identified

There is an article about the AFN in the May 23 issue ("AFN, The Vanished Shooting Star"). At the bottom of page 27 there is a picture captioned, "Unknown sergeant from the war years."

Sgt. William (Bill) Atwood, described by a former colleague as 'a terrific guy and a damned good engineer.'

His name is Sergeant William (Bill) Atwood. I served with him in the mid-1950s at Fort Gordon, Ga. He was near retirement age and I was 21. We were working at the television branch making Army training films for the Signal Corps, and on our off-duty time we worked for WAUG(FM) in Augusta, Ga. He was an announcer and I did some engineering.

Thank you for the article.

Bob Brigham
Montrose, Pa.

From the Author

Among the e-mails I received in response to my article on the almost total absence of AFN recordings from the war years, perhaps the one that most hit the nail on the head was one from Trent Christman, himself an ex-AFNer and the author of "Brass Button Broadcasters," the story of 50 years of military broadcasting.

Trent makes two telling points.

First, during the war aluminum was in short supply and the government decided it was better used in aircraft production rather than as the base for acetate recording blanks. Glass was used instead and surviving unbroken recordings are rare indeed.

Second, when an acetate recording was made there was a good chance the DJ would lift it for his own personal use.

Even so, one would have thought that at least AFN's opening broadcast and the final close down from London would have been kept for the archives.

The e-mails I got solved one mystery: the name of the unknown sergeant whose photo I gave Radio World.

He was not in fact a wartime AFNer but from the post-war years. Master Sgt. Bill Atwood served in Frankfurt and Nuremberg from 1955 to 1959. He presented two popular shows, "Stickbuddy Jamboree" and "Hillbilly Gasthaus." One of his former colleagues describes him as "a terrific guy and a damned good engineer."

I had hoped the article might turn up some news of AFN's two most popular DJs, Johnny Kerr and George Monaghan, but sadly there was no word of either.

As I said in my article, AFN is still on the air on both television and radio. Anyone wanting to know more can find out plenty from AFN's own Web site, *www.afneurope.net*.

Patrick Morley
Somerset, England

Pass It On

The feature on AFN in the U.K. during WWII was very interesting. I am writing to request permission to republish it in a forthcoming issue of Medium Wave News.

Medium Wave News is the journal of the Medium Wave Circle (*www.mwcircle.org*), a not-for-profit radio club that was founded over 50 years ago in England. We now have members all over Europe and quite a few further afield. [Readers] can download a free sample copy of Medium Wave News from our Web site.

I'm sure this article will be of considerable interest to our members in general, but I also have an ulterior motive. We have some members who were involved in radio during WWII and the article and images may jog some memories and unearth archived material. I know that at least one member has notes and possibly some memorabilia relating to AFN and CFN radio in England.

I hope you'll look upon this request favorably.

Steve Whitt
General Editor
Medium Wave News
Luton, England

One would have thought at least AFN's opening broadcast and final close down from London would have been kept for the archives.

— Patrick Morley

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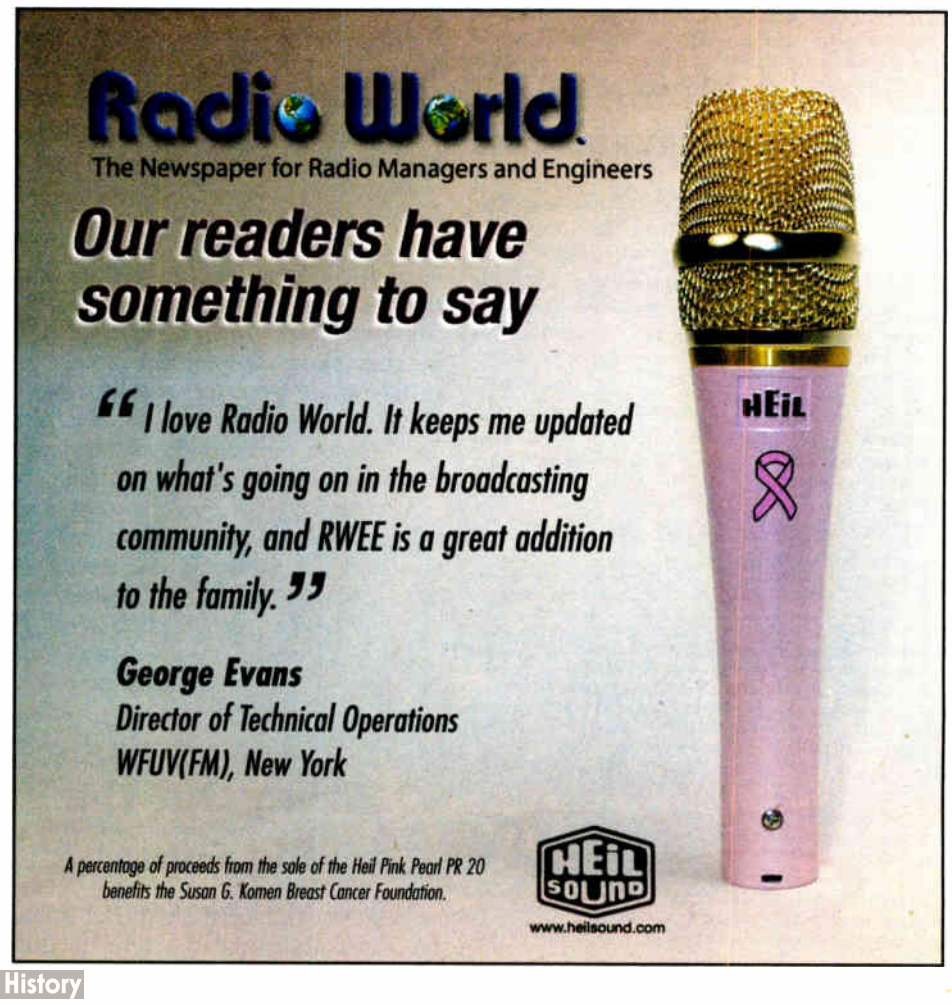

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Business Fax: (703) 998-2966
Editorial Fax: (703) 820-3245
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Asia-Pacific: Wengong Wang +86-755-5785161
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NewBay Media

Indecency Rules Need to Go

It's timely that a federal court has called into question part of the FCC's indecency policy.

In June, an appeals court overturned a ruling against the Fox Television Network, saying the commission's "fleeting expletive" policy was arbitrary and capricious. The court also included discussion of constitutional flaws in commission policy; this was seen by a number of observers, including RW, as an effort to send a clear signal to the FCC about serious infirmities in its policy.

The court rejected the FCC's policy imposing liability for the airing of a quick expletive or two. For three decades the commission had exonerated single, fleeting expletives. However it now flat-out prohibits the "F" and "S" words, finding them presumptively offensive, and has reserved the right to go after other words or expressions.

What really need to go are indecency rules themselves. They are a response to pressure groups who claim to support market forces as the best regulation but then go running to government when they don't like the outcome.

Regardless of how you feel about Don Imus, the public spoke up in his case. Advertisers and networks got the message and a change was effected without intervention from the FCC.

Chairman Kevin Martin feels it's his job to "protect families from that kind of language." Thanks, but we know how to change the channel and where the "off" button is. As Fox's Scott Grogin said, "Viewers should be allowed to determine for themselves and their families, through the many parental control technologies available, what is appropriate viewing for their home."

The FCC was not created to regulate content. Broadcasters are right to push back on attempts to curtail such freedoms.

The commission faces several choices. It can accept the court's remand and try (again) to justify its policy; seek a rehearing from the same judges or before all judges of the court; appeal to the Supreme Court; or accept the decision and revert to its former policy, which is in effect now.

Further complicating things, the Senate Commerce Committee as we write actually was considering a bill introduced by Democratic Sens. John Rockefeller, W.Va., and Mark Pryor, Ark., and co-sponsored by committee Chairman Daniel Inouye, D-Hawaii and Vice Chairman Ted Stevens, R-Alaska, to require the FCC to maintain its policy that the broadcast of a single word or image may be considered indecent.

Members of Congress are supposed to defend the Constitution, not cave in to special interests with lots of campaign money. It's time to put an end to the notion that the FCC can or should play the role of "Indecency Nanny" for all of us (though we're not particularly hopeful, given the record of Congress).

Separately, though it had been almost a year since President Bush signed legislation raising fines for indecency to $325,000 per occurrence, the FCC only recently adopted rules to implement those fines.

That timing is ironic, since the threat of big fines could be seen as blunted by the court's rejection of the fleeting expletive policy. The court's ruling technically does not conflict with increased fine levels; in fact, the commission could impose big fines for a wide range of "indecent" broadcasting that arguably does not fall into the "fleeting expletive" category; but it will be interesting to see if and how the commission decides to impose the larger fines while various aspects of its indecency regime remain under review.

That's another reason to call into question enforcement of the commission's indecency policies. What we really need right now is not extra large fines for brief utterances but a serious Washington debate about free speech and the inconsistent way it is protected.

As Ambassador Ogden Reid told broadcaster Bill O'Shaughnessy in a radio interview in 2006, "I don't like to see speech circumscribed in any way, shape or form. ... I'd rather have free speech up or down with a little obscenity, than lose free speech altogether."

—RW

◆READER'S FORUM◆

Rep to Protect

I recently read the article in Radio World regarding KKOL ("KKOL Fights to Keep Transmitter Site," June 20). It is hard to understand how Hatfield and Dawson could take this case after representing broadcasters over many years.

As the owner of high-powered stations in Central Florida, we have not heard of issues regarding RF causing sparks miles from the transmitter site. As a very competent engineering consulting firm, I cannot help but believe that this would be a case that H&D would avoid. Especially after representing an industry that has helped make the company the success it is today.

Salem is a very experienced company when it comes to building high-powered radio stations. I am sure that it would do whatever it takes to resolve matters concerning engineering issues. This looks to be an extraordinary case to hurt a broadcaster. Sounds like a lot of questions about what could happen, but no evidence on what has happened regarding sparks at U.S. Oil.

I do not know what the outcome of this will be, however I do know that H&D's reputation with broadcasters is now tainted.

Bruce Maduri
President/CEO
Genesis Communications Radio Broadcast Group
Atlanta

Bring Out the Big Guns

Paul, your editorial about HD Radio's lack of marketing was right on ("HD Marketing: Time to Go 'Big-League,'" June 20). Could not have been said any better.

Sad to say, but HD Radio is blowing it. It should have met or surpassed satellite radio by now, in my opinion.

Thanks for a well-written piece.

Frank Foti
Cleveland

No Room for RF

The lack of interest in RF ("Contract Engineers Upbeat About Business," June 6) is probably due to the fact that many young potential technologists don't get an opportunity to work with RF. In the past, amateur radio provided an initial experience and training with it. Today, more and more housing developments prohibit amateur radio antennas and amateur radio operation.

The radio field has to invent a new method for introducing young people to radio technology and providing a positive hands-on experience.

Nickolaus E. Leggett
Reston, Va.

About-Face

Paul, after what seems like years where Radio World appeared to take a position in favor of satellite and against terrestrial broadcasters, your editorial ("Give Sat Translators to Stations," June 6) is truly an about-face. You are to be commended in sharing this proposal to your readership.

After 33 years in broadcasting (engineering, station management and network regional management) I invested the last 10 years — before retirement — doing RF engineering with a wireless carrier, Sprint. I paid my dues with the wireless carrier in doing RF engineering, site surveying, facility planning and construction at literally hundreds of wireless sites in the New York City and Philadelphia markets.

What disturbed me was to see the satellite repeaters on rooftops in metropolitan areas. One of the initial justifications for satellite distribution was to provide audio services to areas that did not have reliable local service. Once the systems were up and running, the satellite groups complained that their signals could not get into the canyons of New York City. This certainly was no surprise to anyone who tries to use GPS in the canyons.

At the same time, commercial broadcasters had no way of filling in signals in areas where there were serious reception problems. Broadcasters had to "live with it." The commission was far too generous in allowing Sirius and XM to operate terrestrial repeaters.

By the way, for the past 12 years I also have been the co-owner of an AM station in a top 10 market. Hence, your article got my attention.

Now comes this suggestion from Jim Withers. Three cheers for Jim!

Rather than let this issue die, I encourage Radio World to carry this recommendation to the commission as a Notice of Inquiry with the hope that it develops into a Rule Making favoring AM broadcasters. I am sure that with just a reasonable effort on your part there will be a groundswell of affirmative and constructive comments from broadcasters, especially (as you state) AM broadcasters.

Please use Radio World to keep this critical issue before broadcasters until it begins to take on a life of its own.

Art Thompson
Westfield, N.J.

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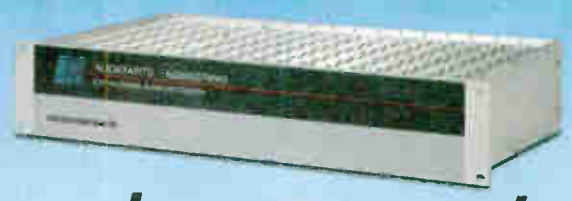

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