GLOBAL DIGITAL SPECIAL ISSUE

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# Signs of Traction for Global Digital Radio

## Though Standards Vary, the Past Year has Been a Positive One for Digital Radio in Several Nations

BY T. CARTER ROSS

In many nations, 2010 is looking like the year where digital radio finally is gaining some traction.

While HD Radio was getting a boost (literally) from regulators in the United States, Digital Radio Mondiale's DRM30 system has gained significant support in Russian and India, and the Eureka-147

**SPECIALREPORT**

family of DAB standards is seeing good growth in Australia (see story, page 10), as well as continued acceptance in Europe and new projects in Asia.

This is not to say that any digital radio system is in danger of completely replacing traditional analog broadcasting in the near future, but some broadcasters and regulators are reaching the

(continued on page 6)

# Enhanced EAS Moves Ahead

## Equipment Tests to Begin; National EAS Test Is Slated for Q1

BY RANDY J. STINE

**WASHINGTON** — Government agencies and their private partners say that, although there are complications in the rollout of the improved Emergency Alert System, all elements of their plan appear to be moving forward.

For example, the Federal Emergency Management Agency expects lab tests at Eastern Kentucky University — to make sure EAS equipment conforms to the Common Alerting Protocol — to begin late this summer.

However, broadcasters are asking many questions that are yet unanswered.

Among them: When will the Federal Emergency Management Agency accept a final standard for the Common Alerting Protocol? Will a planned national test of legacy EAS in the first quarter of 2011 reveal unforeseen problems? Will broadcasters receive any kind of financial assistance for any mandated EAS equipment they'll have to purchase? Will the 180-day clock for broadcasters to possess CAP capable equipment be extended?

Stakeholders in the enhanced EAS say they continue to press forward

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## CANADA SEEKS TO REDESIGNATE DAB'S L-BAND ALLOCATIONS FOR SHARED USES

A change is afoot that may signal the end of the Eureka-147 DAB technology used for digital radio in Canada *(see story below)*. It's the government's drive to find more spectrum for broadband. Sound familiar?

I don't believe this has received much attention in the United States; however it's notable that Canada too, is wrestling with the growing demand for broadband access.

In January, Industry Canada, which handles frequency assignments, released a proposal for repurposing its L-band frequencies for other uses, rural broadband access, and aeronautical mobile telemetry. Specifically, it proposed rescinding the designation for DAB in the middle of the band, to be replaced by a designation for flexible use licenses (fixed, mobile and broadcasting).

Industry Canada stated in its proposal: "As noted in the May 2007 letter to the CRTC, Industry Canada is developing technical standards and operational parameters for hybrid digital HD Radio services in the FM bands. Recently, the department published technical guidelines to allow experimental authorizations of hybrid digital HD Radio in the FM band. It is to be noted that the CRTC has expressed its willingness to license HD Radio when the department eventually issues technical certificates."

Comments on the L-band changes were due March 31 of this year.

The Canadian Association of Broadcasters, which dissolved earlier this year because its TV and radio members couldn't get along, opposed the plan.

The CBC conditionally okayed it if all or a portion were reserved for new types of broadcasting services, such as mixed media. CBC stated: "CBC/Radio-Canada conditionally supports Industry Canada's proposed policy of making the frequency range 1452–1492 MHz available for the delivery of multimedia services by broadcasters — but it opposes making mobile and fixed wireless uses co-primary with broadcasting uses in the same frequency range."

It continued: "CBC/Radio Canada urges the department to recognize that co-primacy with fixed and mobile radio will effectively foreclose use by broadcasting undertakings in this range, thereby giving rise to the need to make other comparable spectrum available for their use."

The broadcaster suggested that analog TV Channels 5 and 6 might be repurposed for digital radio in Canada.

The CAB said the current L-band frequencies designated for digital radio should remain exclusive to broadcasters. It held low expectations that a Channel 5 and 6 solution could be achieved anytime soon, stating: "It would be impractical for Canada to proceed unless the U.S. agrees to remove its existing DTV services from Ch. 5 and 6, which could take years to negotiate."

I'm intrigued that at least some Canadian broadcasters support repurposing analog TV Channels 5 and 6 for radio and wonder if that gives more gravitas to the Broadcast Maximization Committee proposal *(www.broadmax.org)* that we've been telling you about. CBC specifically mentioned using those for FM as well as AM frequencies.

## CANADIAN BROADCASTERS START TURNING OFF DAB TRANSMITTERS

The Canadian Broadcasting Corp. told its regulator, the Canadian Radio-television Telecommunications Commission, it was shutting down four digital transmitters in Montreal that had been broadcasting the Eureka-147 DAB signal since 1998. The signals are CBME-DR-1, CBM-DR-1, CBF-DR-1 and CBFX-DR-1 Montreal, Quebec.

The CRTC revoked the licenses June 15 at CBC's request.

There were 73 licensed DAB stations in Canada as of March, according to the DAB website *www.worlddab.org*.

The CRTC itself recognized the DAB rollout in Canada had stalled by 2006 for several reasons, including what it said was a lack of affordable receivers, and that the buildout had only been in large markets.

Contributing to the receiver issue is that most of the countries using DAB are broadcasting on Band III (174–230 MHz), a VHF band, while Canada is using L-band. Both English

*(continued on page 8)*

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# Remaining Relevant in a Radio World

## I Aim to Provide Useful Content for Technical Managers & Engineers. How Am I Doing?

FROM THE EDITOR

Paul McLane

"When I left my former place of employment and set out as a contractor, I also left my Radio World subscription behind."

Thus started a blog post I spotted recently. Now coming back to RW, the blogger commented on the smaller number of pages compared to some years back. He acknowledged that he finds some interesting things to read here, yet he griped about the ads, the HD Radio content and the number of stories that are not what he considers engineering-specific.

He wondered whether RW is the best way to stay abreast of things in the technical end of the business. "Is it worth the price?" he asked.

★ ★ ★

I am proud of Radio World, though humbled by its challenges. If anything I'm prouder than ever as I reflect on how it has remained relevant, welcomed like a friend into many a reader's physical or virtual mailbox. I'm pleased that we produce more pages in more issues, winning more market share, than any of our competitors.

Yet an editor should be able to answer questions like those the blogger raised, and also not be afraid to acknowledge that his or her publication is imperfect.

I wrote and thanked him for his post. I told him that as editor I think every day about the questions he raised; that I aim to provide thoughtful, useful articles for technical managers and engineers; and that, while demand for subscriptions seems to suggest we do it well, this doesn't mean we can't improve.

I explained that to get the most out of Radio World, he should read both the website, which includes content that may never appear in an issue, as well as our print or digital editions, oriented toward analysis, news trends, commentary and tech tips. He also should check out Radio World Engineering Extra, which we launched "for engineers only" to give them a much deeper technical discussion.

The blogger intimated that he wasn't interested in some of the topics we cover; yet judging by the content of his very own website, he's interested in tech tips, avoiding copper theft, how engineers can improve their skills in non-technical areas, humor, business ... topics that could have been lifted from any RW.

**Our content mix has evolved, with good reason. The world of radio engineering itself has evolved.**

Our articles have explored timely subjects like digital radio interference, "Franken FMs," profiles of NAB engineering award winners and the relevance of the FCC, of AM, of shortwave. Our history articles by James O'Neal are very popular. No radio engineering column is more respected than John Bisset's *Workbench*.

Reader reaction suggests strong ongoing involvement. We have the best letters section anywhere; meantime, more and more readers use the "Comment" function below our online articles to publish their thoughts and reactions.

The blogger beefed about advertisements; but the ads are among the most important things you'll find in RW. Those ads not only make it possible to bring our content to you; they constitute a news story in themselves. Want to know what some of the smartest engineers and designers in radio think will be important in years ahead? Want to identify which companies remain strong and supportive of your industry, are putting forth new solutions and investing in the future of broadcasting? Watch our ads. They'll tell you a great deal.

RW advertisers are industry leaders and deserve our appreciation and patronage.

★ ★ ★

If there is a question I hear most, it is "There was a time when RW consisted entirely of tech content written by engineers; why isn't it anymore?" Looking back through the archives, that generalization was never true; RW has had a broader editorial mix from its earliest days. But I understand the remark.

Our content mix has evolved, with good reason. The world of radio engineering itself has evolved; RW recognizes this better than most trade media.

Technical execs today need to think beyond the workbench and breadboard. They need to know how to ask for a raise, how to talk to investors about trends, business, regulation. They need IT expertise and technical certification. They need to understand mobile apps, data services and why a PD is making some "ridiculous" demand.

Without question, though, these times are challenging for publications; all media face concerns when infinite information is available online. That's generally a good thing, so I am not embarrassed to say that we too confront tough choices. We try to make them wisely; I believe we deliver great value.

Radio World remains a strong, relevant brand in print and online. Top radio engineering executives read it; field engineers read it; FCC staff read it; manufacturers read it. Our publication held up very well during the recent harsh business downturn, when others were scaling back the number of times they publish. I'm proud that we *have* a print edition and continue to support it. Many readers tell me, "Online stuff is fine but there's still a place for a good, physical publication; I prefer it that way."

I believe our content mix is better, our journalism and our columnists are better, than in any other radio technical trade publication. Is it worth the price? To me, if you can get all this through a free subscription, that's a no-brainer.

So: My goal is to support working engineers and technical managers with content to help them do their jobs better. We want to help engineers stay abreast of news and trends. Can I do it better? Tell me at *pmclane@nbmedia.com*.

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# 'No More Choices, Please!'

## Consultant Says Europe Is Splintered By So Many Digital Radio Platforms

BY DANIEL MANSERGH

If you're interested in keeping tabs on the international radio industry, developments and trends in Mexico, Canada or the Caribbean are relatively easy to understand. Here in North America, the radio landscape is fairly consistent across the region, with similar regulatory conditions and many independent commercial and non-commercial broadcasters.

In Europe, however, the situation is much more complex.

Dozens of countries with significant variations in population and market influence share borders, each adopting their own spectrum plans and deploying new technologies with an eye toward balancing tensions among large public-service broadcasters, large private broadcasters and smaller private and community stations.

According to one longtime observer, this has created a challenging environment for the rollout of digital radio services across the continent, with only limited success in listener adoption after two decades of work and significant investments by both public and private broadcasters.

Markus Ruoss, a media consultant and owner of Radio Sunshine, a private commercial FM station in central Switzerland, has been involved in radio policy and technology issues for decades. As a broadcaster, he has hosted Swiss trials of iBiquity's HD Radio system and is a strong advocate for the interests of independent private stations in a regulatory structure he feels is dominated by the public operators.

### DIGITAL BUFFET

He presented his assessment of Europe's digital radio progress to the attendees of the Broadcast Engineering Conference at the NAB Show this spring.

Ruoss has a simple message for technology developers interested in providing the next great platform: "No more choices, please!"

In his estimation, the sheer number of standards may actually be leading to delays in widespread adoption of digital radio across Europe, since the experience of broadcasters and equipment manufacturers has been that any given technology will be competing with a newer, more sophisticated alternative every few years.

Ruoss identifies nearly a dozen technologies available for consideration by European broadcasters and regulators seeking a platform for digital delivery of broadcast programming, ranging from multiple variants of the Eureka-147 DAB standard, to Digital Radio Mondiale's DRM30 and DRM+ systems, HD Radio and FMeXtra.

Photo by Daniel Mansergh

Markus Ruoss

He also includes RAVIS, a digital narrowband system proposed by the Russian Federation, as well as Internet-based options and a satellite-based technology from Madrid called Ondas Media, which proposes to launch an S- and L-band satellite radio

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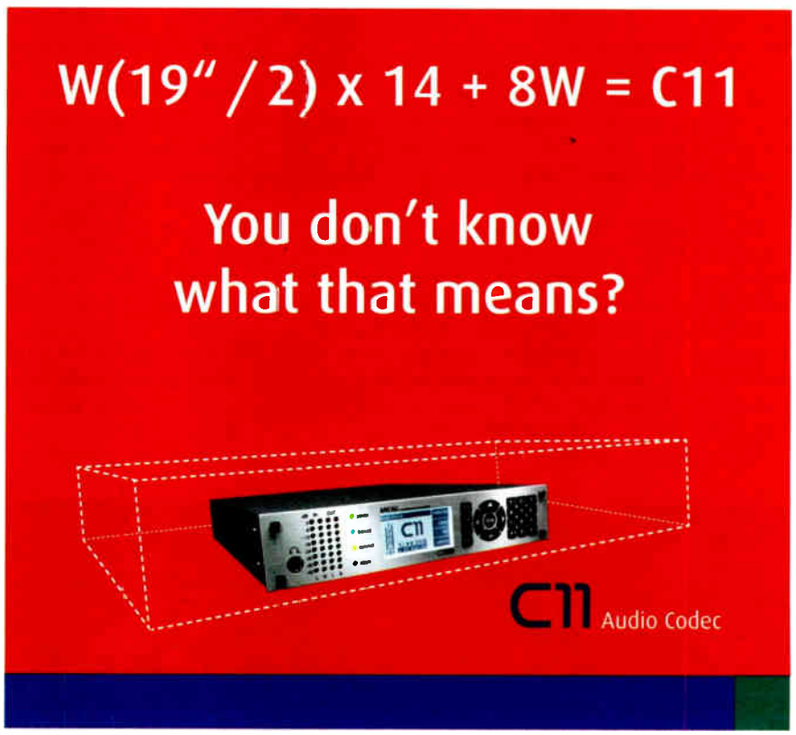
DIGITALRADIO

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# WORLD

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point where talk of planning for a digital switchover is reasonable.

The **United Kingdom** has the best established digital radio market in the world. According to first-quarter 2010 figures released in May by the audience research consortium RAJAR, nearly a quarter of all U.K. radio listening is through a digital platform, which includes via DTV platforms and the Internet, although the bulk of the listening (15.1 percent) is via a DAB digital radio receiver. The same report found that 17.7 million people, about a third of the U.K. population, report living in a household with a DAB receiver.

Although the figures are good and show reasonable year-over-year growth, there have been some stumbles for U.K. DAB this year.

The BBC moved to shutter the national DAB-only Asian Network and 6 Music networks earlier this year as part of a cost-saving endeavor, but public outcry led the BBC Trust, which oversees the operations of the British public-service broadcaster, to grant a reprieve for 6 Music.

On the private broadcasting side, Absolute Radio has aggressively positioned itself as a multiplatform broadcaster, which includes full investment in digital radio. It has launched several DAB and Internet channels, including Absolute 80s, Absolute 90s and Dabbl, a station that listeners program via online votes. Bauer Media, on the other hand, decided to pull its Q Radio channel off DAB in favor of Internet streaming and distribution via the Freeview DTV platform.

In neighboring **Ireland**, the public-service broadcaster RTÉ is operating a DAB network that expects to cover about half of the Irish population by year-end. Research firm GfK reported in February that about 14 percent of all radio receivers sold in Ireland during 2009 included DAB support.

## NUMÉRIQUE TERRESTRE

**France** announced at the end of 2007 an aggressive push to adopt DMB-A (for audio), a digital radio system built off the Eurkea-147 T-DMB multimedia broadcasting standard. Despite a tender for licenses in early 2008, the choice of a variant standard has lead to some pushback and delays. Earlier this year, the Ministry of Culture reaffirmed the choice of DMB-A and called for the system to begin deployment by year-end 2010.

While French broadcasters in general agree with the need for swift deployment of what the French call "*la radio numérique terrestre*," there remains support for the adoption of DAB+ alongside DMB-A.

Jamil Shalak, president of the digital radio industry group Radio Numérique DR France, and Emmanuel Boutterin, president of SNRL, which represents the interests of local radio stations across France, sent an open letter to Culture Minister Frédéric Mitterrand calling for swift action in getting digital radio off the ground in the initial large markets of Paris, Marseille and Nice, as well as adding DAB+ to the mix of options for broadcasters.

DAB stalled last year in **Germany** when the KEF, which is responsible for approving the budgets of public broadcasters across the country, issued an opinion that it could not support funding a digital radio rollout as information about the scope and costs of implementing the technology could not be determined.

Photo by Marryn Green

**Multimedia Object Transfer Slideshow on DAB is being used by Korean radio station SBS to provide listeners weather and traffic information. The MOT protocol is part of the DAB standard.**

However, in June, that decision was reversed in the face of widespread support for the technology from public broadcasters, private broadcasters and transmission services providers. The new KEF decision allows broadcasters to begin negotiating with transmission services provider Media Broadcast for use of its growing network of DAB/DAB+/T-DMB multiplexes. Under the terms of its licenses, Media Broadcast must roll out

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In Chile, it was business as usual for the BIO-BIO LA Radio team. They'd been using ACCESS to cover the presidential elections as well as international broadcasts of the Libertadores Cup from Argentina, Brazil and Venezuela. Then tragedy struck in the form of a devastating earthquake. The team was there, with journalist Maria Carrasco reporting live as well as working with the police to help enable communications using a Comrex ACCESS.

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at least 35 transmission sites by September 2011 with a final minimum of 110 sites by year-end 2015. By 2021, Media Broadcast projects to have 172 DAB/DAB+/T-DMB transmitters in place across Germany.

### PLUS

DAB+ is also gaining ground in **Switzerland**, where four DAB/DAB+ multiplexes are operated by public-service broadcaster SRG SSR idée suisse, and a private DAB+ multiplex was launched by SwissMediaCast last October, and in **Malta**, where a March 2010 audience assessment report by the Awtorità tax-Xandir found that 12.2 percent of radio listening is via DAB, up about 2 percent since the end of 2009.

At the end of 2009, **Italy** approved regulations allowing for the commercial launch of DAB+ following an industry-wide consultation period. Concurrently, the **Holy See** has launched DAB services from its Vatican Radio transmission site near Rome.

In the Nordic region, transmission services provider Teracom has been coordinating an industry-wide DAB+ trial in the Stockholm, **Sweden**, area. In August, a new radio and television law goes into effect, providing regulations for the licensing of commercial digital radio services.

In June, four more stations joined the digital radio network in **Norway**. Eighteen stations are now of the national DAB network there, which reaches about 80 percent of the country's population.

In **Denmark**, DAB is also well established with about 90 percent of the population within the coverage area of a DAB multiplex; a consumer survey in 2009 found that about 34 percent of Danish households have at least one DAB receiver.

Although digital radio remains a curiosity in most of Eastern Europe, **Poland** and **Hungary** are both pushing ahead with DAB+ trials with an eye toward enacting regular services in 2010 or 2011.

In April, **Russia** finalized legislation ordering the country's regulators to determine a framework for rolling out DRM30 services. The Digital Radio Mondiale system for digital broadcasting on the short-, medium- and long-wave bands is considered a good fit for the vast country. An additional digital radio system, RAVIS (Realtime AudioVisual Information System), is being considered for testing this year.

**South Korea** is where the T-DMB variant of Eureka-147 was developed, and the technology is being integrated with a range of devices, including handheld devices, navigation systems and mobile telephones. In addition to video and data services, the devices can receive digital radio signals from and several radio broadcasters supplement their radio services with Visual Radio services using DAB's MOT Slideshow technique.

In the second most populous nation in the world, **India**, All India Radio has opened a global tender notice for the procurement of DRM30 digital transmitters to achieve its goal of nationwide digital radio broadcasting.

The public-service broadcaster is looking for 34 new medium-wave and five new shortwave transmitters, along with associated equipment. It is also looking to upgrade 36 existing medium-wave to DRM30 operation. Bids will be opened in August and September.

*T. Carter Ross is editor in chief of the international edition of Radio World. James Careless, Martyn Green and Emmanuelle Pautler contributed to this roundup.*

## EUROPE

*(continued from page 5)*

service for Europe in late 2012.

Ruoss said he believes a significant rethinking of expectations for digital radio is warranted. Rather than trying to find one technology for all broadcasters in each country, he suggests that the choice be made separately for national, regional and local broadcasters, but with a common set of technologies used across the continent.

In Ruoss' view, the public broadcasters and large national commercial stations should consolidate their national DAB/DAB+/T-DMB multiplex operations, while regional and local broadcasters would use the existing FM band and migrate to digital using HD Radio.

Other European broadcasters have made similar arguments, albeit using DRM+ or DRM30 instead of the iBiquity system.

Ruoss dubbed such a multistandard approach "The Swiss Way of Digitalization." Switzerland has an established public-service DAB/DAB+ multiplex network in place and a new private DAB+ multiplex network is being rolled out.

At the same time, Ruoss and four other broadcasters have filed a joint application with the Swiss Federal Office of Communications to begin broadcasting HD Radio signals in Argovia, Bern, Basel, Lucerne and Zürich. Pending regulatory approval, they plan to begin operations of the digital service on Sept. 1.

# EAS

(continued from page 1)

despite numerous formidable technical obstacles.

In June, the Federal Communications Commission, FEMA and the National Weather Service hosted a workshop in Washington called "21st Century Emergency Alerting: Leveraging Multiple Technologies to Bring Alerts and Warnings to the Public."

The purpose was to gather feedback on outstanding issues related to enhanced EAS and to identify any potential obstacles.

IP and broadband technologies increasingly are playing larger roles in public warning, said Jamie Barnett, chief of the FCC's Public Safety and Homeland Security Bureau.

"Broadband, broadcast, cable, satellite, wireless and wire-line phones, the Internet, e-mail and social networking sites are all capable of playing a role. How we get there is the question," Barnett said at the workshop.

The FCC continues to evaluate updates to its Part 11 rules to allow for the full implementation of CAP v1.2. The agency is now reviewing public comments on proposed changes necessitated by CAP (Radio World, July 1).

CAP will become the standard for FEMA's Integrated Public Alert and Warning System; IPAWS will become the framework for aggregating and disseminating messages for the enhanced EAS.

A number of changes will be coming to Part 11, FCC officials say, including a mandate for the class of alerts known as "Governor's Must Carry," which will be generated by state agencies. FEMA has acknowledged it is making recommendations to the FCC on rule changes to exploit broadband and broadcast warning capabilities.

FEMA, which is ready to adopt CAP v1.2 formally by this fall, has said it continues to work on developing solutions for a broad-based warning system that can target specific geographic locations and deliver warning in multiple languages.

### COMPATIBILITY ISSUES

"We are living in an applications-based world and we have many companies in the private sector right now working on potential applications for CAP and EAS," said Damon Penn, assistant administrator for National Continuity Programs Directorate at FEMA.

Penn said the test lab at Eastern Kentucky University, contracted by his agency, is functional and ready to perform conformance testing on manufacturers' CAP equipment once FEMA gets formal approval from the Organization for the Advancement of Structured Information Standards. At press time, the agency was hoping this approval would happen in July.

However, "Many compatibility issues are yet to be settled. We expect initial aggregator, infrastructure and final integration testing of the CAP standard by the FEMA data center to be brought online over the next several months," said Wade Witmer, deputy division director for FEMA's IPAWS program.

"This will include the beginning of the gateway functionality and how to push messages out through the system. The first building block is being put in place."

The EAS-CAP Industry Group, or ECIG, has released a CAP-to-EAS Implementation Guide (*www.eas-cap.org*).

After FEMA adopts CAP, broadcasters will have 180 days to purchase equipment or update current equipment so that they can accept alerts in the CAP format. That countdown to CAP compliance remains an issue.

Kelly Williams, senior director of engineering and technology policy for

(continued on page 10)

# AUSSIE DAB ROLLOUT EXPANDS

**SYDNEY, NEW SOUTH WALES** — The Australian government expects to develop a DAB roll-out policy for regional broadcasters by January.

Large-market Australian radio broadcasters in Sydney, Melbourne, Brisbane, Perth and Adelaide began turning on their DAB+ transmitters in July of last year.

AM and FM analog services are to remain on-air for the foreseeable future.

### BEST NEWS

According to the 2010 Digital Radio Industry Report from Commercial Radio Australia, there are 450,000 people listening to digital radio in this country, amounting to 3.7 percent of radio listeners.

The CRA report details the reasons why Australians are buying DAB+ receivers. Seventy-one percent did so to get better sound quality, while 61 percent were attracted by features such as on-screen information, easy tuning, pause and rewind.

Fifty percent of those surveyed also wanted access to DAB+ -only stations. There are 16 so far in Australia; counting AM/FM simulcasts 65 DAB+ stations are on the air.

Forty-two percent of respondents were typical early-adopters, saying that they wanted DAB+ because they like owning the latest technology, and 20 percent saw DAB+ as a remedy to poor analog AM/FM reception quality.

The best news, according to Russell Stendell, head of technology and digital radio planning at the public-service broadcaster Australian Broadcasting Corp., is that 80 percent of digital radio owners would recommend it to a friend and 40 percent of people in the capital cities indicated they would purchase a receiver in the next 12 months.

"Seventy-five percent of people are prepared to pay up to about $170 (U.S.) for a receiver and, with the average price at about $126 — and falling — they are already seen as reasonably priced," Stendell said.

In contrast to earlier Eureka-147 DAB-supporting nations, such as the United Kingdom and Canada, Australia has adopted DAB+, the new standard that is not fully backwards compatible with the original DAB standard. DAB+ receivers can decode DAB signals, but older receivers need to be replaced or upgraded to handle DAB+ transmissions.

*— James Careless*

# BRAZIL FORMS BODY TO CHOOSE STANDARD

**BRASÍLIA, BRAZIL** — Brazil has established a new body, Sistema Brasileiro de Rádio Digital, and charged it with determining the best digital radio technology for the country.

Both the U.S. iBiquity HD Radio and the European Digital Radio Mondiale systems are being tested in Brazil. In the initial tests, the DRM30 system proved the more favorable for AM transmissions in the medium-wave and tropical bands.

The SBRD will consider both systems, as well as their FM versions, as well as recommend adaptations suggested by local researchers from Brazilian universities involved in the trials.

The Ministry of Communications ordered the SBRD to recommend a solution for both AM and FM services that allows simulcasting, low-power transmissions and one that makes efficient use of the radio spectrum.

The SBRD was also told to look for a system that provides opportunities for technology growth within the Brazilian economy, such as for transmitter and receiver manufacturers, in addition to promoting other social and political goals for the betterment of Brazil.

A decision by SBRD is not expected before early 2011.

*— Carlos Eduardo Behrensdorf*

# LESLIE

(continued from page 3)

and French must be accommodated in DAB receivers; the U.S. decision to go with a different digital radio technology meant that receiver makers needed to manufacturer or adapt units solely for the Canadian market, an expensive proposition.

The large-market-only rollout complicated life for the auto industry, which hoped that more stations between the metros would go digital; when that didn't happen, automakers in Canada switched their support to digital satellite radio, the CRTC said.

Noting the stalled DAB rollout, in 2006 the CRTC made a number of changes to spur the DAB effort, like allowing stations to air programming that differed from analog on the digital channels. That's also when it began allowing FM IBOC test transmissions on, ironically, the CBC in Toronto and Peterborough, Ontario, and it now allows stations to use FM IBOC on a voluntary basis.

Broadcasters beyond the large border markets have resisted installing the new equipment required to be part of a transmission "pod" in which five stations occupy no more than 20 percent of the bandwidth of one 1.5 MHz channel. Each station enjoys roughly the same coverage area and power level.

I've heard for a while that Canadian broadcasters were waiting to see what the U.S. was going to do with IBOC before officially committing to a digital technology other than DAB.

Two key differences between DAB and IBOC may help IBOC's cause in Canada. The DAB technology is digital-only, using L-band, with no fallback to analog like the iBiquity system. Canadian broadcasters aired simulcasts of their analog programming on their digital channels, unlike HD Radio's multicast channels. Still, the issues of needing to invest in new digital transmission equipment remain in an economy that's still getting back on its feet.

World Radio History

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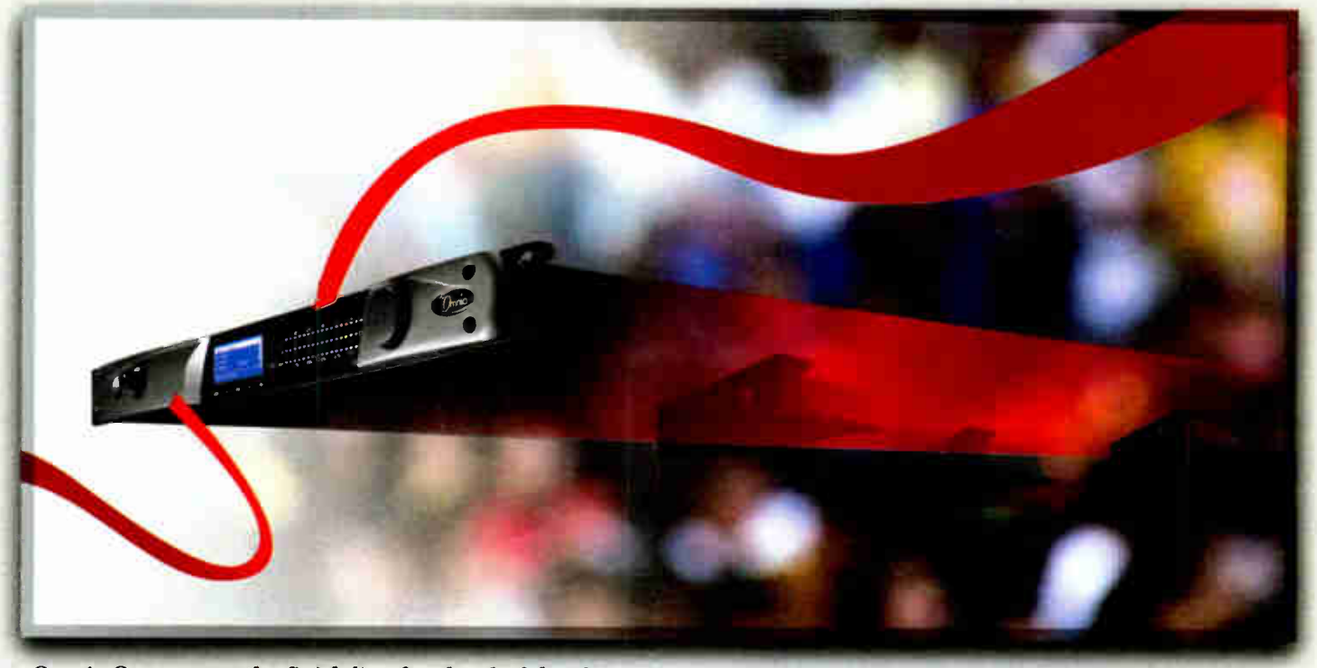

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# EAS

(continued from page 8)

NAB, said at the workshop the consensus among planners is that 180 days is not enough time.

"We need a more realistic trigger. It seems that 180 days will barely be enough time to get product to market," he said.

One equipment manufacturer believes it doesn't matter how many days broadcasters are allowed to reach CAP compliance since they will likely procrastinate and wait until the end of the mandate period to order their new EAS equipment.

"Broadcasters won't likely take action until the last possible moment," said Harold Price, co-founder of Sage Alerting Systems, who attended the workshop and asked questions of the panelists. "No one is going to build anything until we start getting orders and that won't happen until FEMA adopts the CAP standard."

FEMA will launch the IPAWS program, with CAP as the protocol, sometime after the 180 day clock passes for broadcaster compliance, FEMA officials said.

Photo courtesy FCC

**Harold Price of Sage Alerting Systems, left, asks a question during the emergency alerting workshop.**

## NEW GEAR?

NAB's Williams said there are 27,000 EAS participants and approximately eight EAS equipment manufacturers. Not all participants would have to purchase new equipment, he said, because several EAS equipment makers have been shipping CAP-compliant gear since late 2008. In some cases those newer encoders/decoders will be able to receive downloadable software updates.

He did warn broadcasters to move carefully when purchasing new EAS encoders and decoders until FEMA adopts the final CAP standard.

"History is replete with examples of companies who have started selling equipment before a standard is set and then things get changed when finalized," Williams said.

Meanwhile, the FCC continues to move ahead on the Commercial Mobile Alert Service (CMAS), which will use cell telephone companies to route and collect mobile alerts. CMAS could be ready for testing by early 2012, and EAS experts expect it eventually will become an integral part of the enhanced EAS.

Network congestion of cell networks and hard-wire phone networks during emergencies remains a concern, said Brian Daly, director of core and government regulatory standards for AT&T Mobility Services, who was also on the workshop panel.

"The explosion of data we are seeing over wireless is very demanding, and then you add in an emergency and data transfer will bog down," Daly said. "That is why we stressed broadcast capability in legacy 2G and 3G and introduced it in LTE." Long-Term Evolution is a new 4G wireless mobile data network technology that is competing with WiMax.

A national test of legacy EAS capabilities is expected to take place in early 2011. Results from a statewide test of existing EAS in Alaska last January has moved some EAS equipment manufacturers to call for a pre-test before a national test; several manufacturers discovered program errors in their EAS encoders/decoders.

EAS planners also worry about the effects of overuse of an enhanced EAS as more messaging platforms come to market.

Art Botterell, a public warning consultant and CAP standards architect, expressed concern at the meeting that people would become desensitized by being bombarded by messages and their irrelevance over time. "We must keep public alerts relevant."

Broadcast engineers have said anecdotally the weakest link in the current EAS is relying on DJs with the daisy-chain distribution method of monitoring, alerting and testing for broadcasters.

With CAP-enabled EAS, the web of station-to-station alerts will still exist, say experts, who point to the versatility of CAP-enhanced EAS and new redundancy from fresh elements like wireless broadband and CMAS.

## NEWSROUNDUP

**FCC DATA REFORM:** The FCC has begun a data initiative meant to further streamline and modernize how it collects, uses, and disseminates data. The agency now has its first-ever Chief Data Officer, Greg Elin, who had been associate managing director of New Media at the FCC. The Media Bureau seeks input on what current data collections should be eliminated, what new ones should be added, and how existing collections can be improved. Submit comments to MB Docket 10-103 by Aug. 13.

**KPFT VANDALIZED:** In June, vandals cut the power line to the tower of Pacifica station KPFT(FM) in Houston, leaving it off the air for 36 hours. GM Duane Bradley said site manager and tower owner Crown Castle estimated damages at around $10,000. He said the thieves were probably looking for copper.

**EEO:** The Minority Media & Telecom Council wants the FCC to suspend enforcement of its broadcast EEO rules for three months while the rules are re-vamped. In a letter to the chairman, MMTC Executive Director David Honig cite a 2009 MMTC study of 20 radio markets found that 40 out of 141 reporting units — or 28.4 percent — did not use minority sources, yet "virtually all licensees pass."

**SBE:** The Society of Broadcast Engineers added nearly 200 members from March to May for a total of 5,664. Of those, 62 percent of members are in TV, while 50 percent are in radio; the overlap comes because some members work in both.

**FCC:** Douglas Sicker is the new chief technologist of the FCC. He recently worked on the FCC's broadband initiative working on matters related to R&D.

World Radio History

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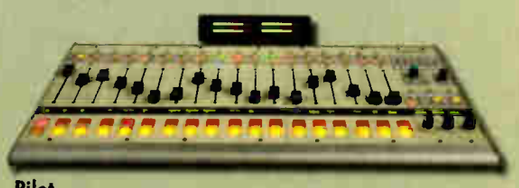

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World Radio History

# Bruce Gives STL the Bird-X

## Blanchard Finds Humane Resolution to His Osprey STL Problem

Regular readers of this column will remember last year that Bruce Blanchard, engineering manager for the Salisbury University stations, solicited ideas to keep a nest of ospreys from using the dipoles of his STL dishes as dinner tables. He was losing his digital links to the transmitter sites. Readers provided a number of great suggestions.

**WORKBENCH**
by John Bisset
Read more Workbench articles online at radioworld.com

The latest update on the osprey problem is that the plastic spikes from Bird-X that Jack Elmore wrote about did the trick. Bruce bought them and had Terry Dalton and his crew from Stellar Communications Systems, based in Delaware, install them. The ospreys have not landed on the feed horns since.

Fig. 1 shows the installation in progress, with one of the birds circling. The ospreys did not like the crew on the tower at all, Bruce reports, but there were no incidents.

Bird-X supplies both metal and plastic spike strips, along with a variety of other items to deter birds or pests humanely. Bookmark *www.bird-x.com*. (Editor Paul McLane tells me he enjoyed reading on the website about some of the more imaginative solutions offered by the company for unwanted birds and pests, including a life-size alligator head, a "Terror Eyes" monster, a 3D coyote and "the World's First Indoor Laser Bird Repellent Device.")

Terry Dalton, owner of Stellar Communications System, can be reached at *50j0@comcast.net*. Bruce Blanchard can be contacted at *bdblanchard@salisbury.edu*.

Here's a request and a tip, both from Chief Engineer Kevin Larke of the Mid Michigan Radio Group.

Kevin has two of the early '90s Dolby DSTL still in service. They have been extremely reliable but one of his systems just starting having problems.

**Fig. 1: As osprey watches as plastic Spike Strips are installed on STL dishes.**

The forward and reverse power readings for the transmitter are stable, and the received signal strength reading on the receiver stays steady. But the bit error rate reading on the receiver jumps up intermittently, and the audio mutes for as long as 10 to 15 seconds.

Kevin and his staff took this pair out of service and switched to the backup Dolby system. That has been operating fine, so he can probably eliminate antenna problems or interference as the cause.

He called Broadcast Electronics, which had acquired the Dolby line sometime back, but he found that the line is no longer supported due to parts obsolescence. The technical manual has block diagrams but doesn't have detailed schematics or an alignment procedure.

Kevin asks *Workbench* readers if they have any suggestions or know of a reliable repair depot for these systems. It would be interesting to know how many are still in service, so let me know if you still have the DSTL.

And now, the tip:

More than a year ago, Kevin sent in a suggestion about using an MP3 player as a cheap and easy source of test tones and audio to keep in a toolbox. He also mentioned that white and pink noise can be saved on the player. Several readers reported that random noise couldn't be saved as an MP3 file.

Kevin didn't specify the file type when he sent in his tip, and he has three different Sansa-brand MP3 players that are all capable of playing MP3s, WMAs and uncompressed CD-quality WAV files.

Kevin can generate white noise and pink noise using Adobe Audition, then save the files to his players as uncompressed 44.1k WAVs. A one-minute mono file only takes 5 MB of memory, so even the test tones can be saved as WAV files, without hogging memory.

What's nice about using the MP3 player is the player can be set to repeat, so a one-minute tone can play for as long as you need it. Uncompressed CD-quality 44.1k stereo music WAV files can also be played on the players.

Even a cheap 1 GB capacity player can hold plenty of audio for testing. Kevin likes to use the wideband pink noise when nulling analog telephone hybrids. He says he gets better results using pink noise instead of a single-frequency tone to achieve the deepest null possible.

Kevin Larke can be reached at *klarke@mmrglansing.com*.

From our "You won't believe this" file: Fig. 2 is a great reminder to consider your FM transmitter's harmonic filter when planning an installation layout.

*(continued on page 14)*

TOP VALUE FM Monitor

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# WORKBENCH

(continued from page 12)

Today's designs usually incorporate the harmonic filter inside the transmitter, so its placement is not a worry. But what do you do when the transmitter room is too small to house the transmitter and its harmonic filter?

In the case of Fig. 2, you stick the end of the filter out of the building. But then there's a directional coupler that needs to be connected. In this case, the coupler is outside with no protection; it's been this way for a long time. A roof extension would be nice!

Exposure to the elements is just another example of the resiliency of broadcast equipment, I guess.

Do you have a photo for our "You won't believe this" file? Your confidentiality is assured.

Here's a sad but fascinating set of videos, produced in HD by Connections Film and Video. The company used six camera angles to capture the demolition of the LORAN station in Port Clarence, Alaska. The demolition took place at the end of April; Connections Film and Video shared the footage on YouTube. Simply search for "Port Clarence LORAN demolition." Thanks to the many engineers who brought this video to our readers' attention. Radio World contributor Frank McCoy adds that the video is a good demonstration of the manner in which guyed towers fall.

*John Bisset marked his 40th year in radio in broadcasting recently. He is international sales manager for Europe and Southern Africa for Nautel and a past recipient of the SBE's Educator of the Year Award. Reach him at* johnbisset@myfairpoint.net. *Faxed submissions can be sent to (603) 472-4944.*

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

Fig. 2: Who knows what evil the elements will do to this directional coupler, mounted outside?

Fig. 3: Connections Film and Video used six camera angles to capture the demolition of a LORAN tower in Alaska.

## WHO'SBUYINGWHAT

Photo by Brandon Davis

**Audio-Technica** mics are used in the new mobile studio for the "Folk Alley" live streaming web radio program from **WKSU(FM)** in Kent, Ohio.

The mics are for announcement/voiceover applications, live music broadcast and in-studio guests/performances in the broadcast vehicle, which launched last summer and was used during the National Public Radio stream from the 50th Anniversary Newport Folk Festival.

The mic locker includes AE5400 Cardioid Condenser Handhelds, AE5100 Cardioid Condenser Instrument Mics, Pro 35 Cardioid Condenser Clip-on Instrument Mics and AT875R Line + Gradient Condensers. ...

The 33 radio stations owned by **Pamal Broadcasting**, based in Albany, N.Y., are using SDS Symphony.

The broadcast management system is made by **Specialty Data Systems Inc.** in Canada. Pamal's stations are in New York, Vermont and Florida; its flagship is WFLY(FM) Albany.

The move creates a common database for the company's stations and markets, rather than separate "silos," the company said; this makes administrative processes more efficient. Michael Dufort is assistant secretary treasurer of Pamal. ...

**Comrex** shipped several large orders of its IP codecs including a multipoint project for Netherland's **National Broadcast Organization**. Comrex IP codecs were also shipped to **CBS Radio** in New York, the **Michigan Radio Network**, **Sirius XM Satellite Radio**, **Astral Media Radio Quebec**, **Malar Global Media** in Dubai, **Nile Radio** in Egypt, and **Bio Bio Comunicaciones** in Chile among "many others."

Comrex also provided digital telephone hybrids for a "significant" tender to **ABS-CBN** in the Philippines. And Access codecs were used to cover the Winter Olympics in Vancouver and the Super Bowl in Miami as well as for other major news events such as the earthquakes in Haiti and Chile. ...

**Jampro Antennas** said the **Kenya Broadcasting Corp.**, the largest broadcaster in that country, ordered three JCPB sidemount broadband antennas and three RCCC constant impedance combiners for network sites. ...

Chicago station **WLS(AM)** is using a **25-Seven** Audio Program Manager on its news/talk/information format. The senior technical producer is Michael Garay, who said WLS uses the ATM to hold off syndicated programs and newsfeeds, allowing rejoins from breaks in syndicated shows without local content stepping on syndicated hosts. ...

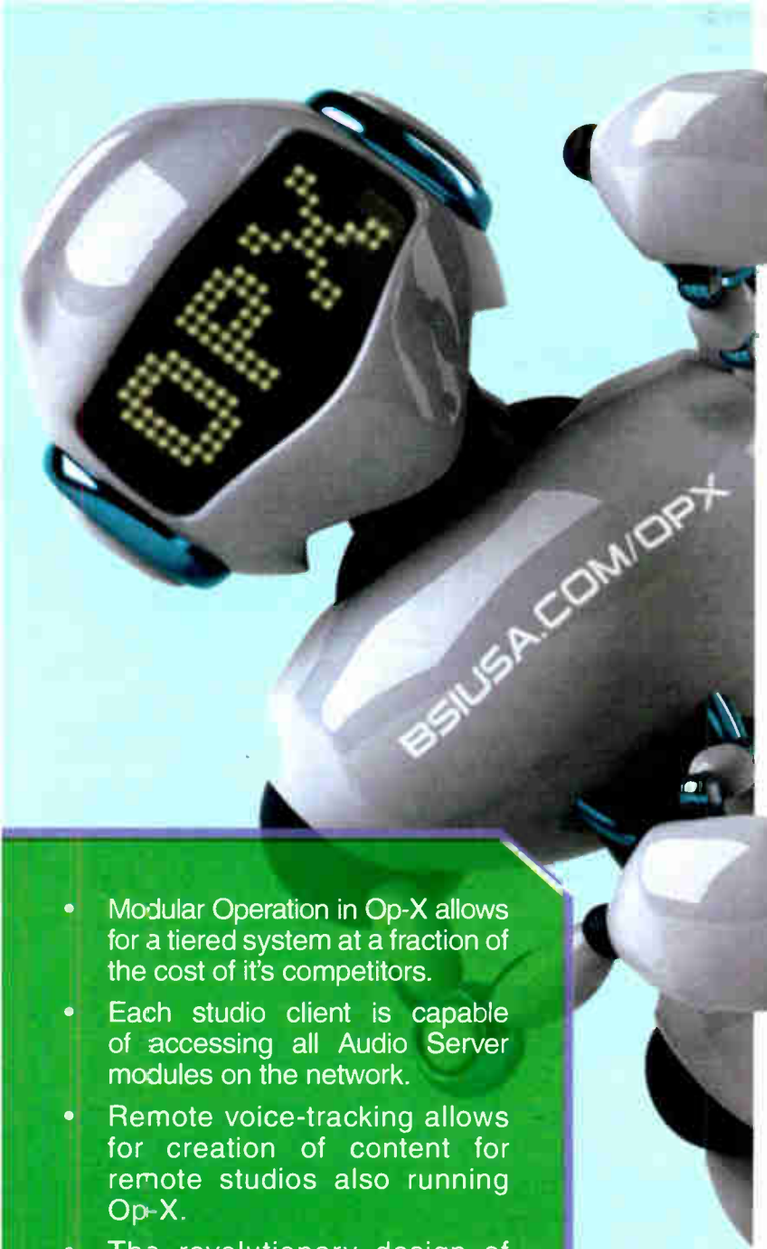
**Broadcast Electronics** said **Eurozet**, the largest radio group in Poland, is using the AudioVault FleX automation system to synchronize commercials and centralize the management of its diverse network of radio stations. ...

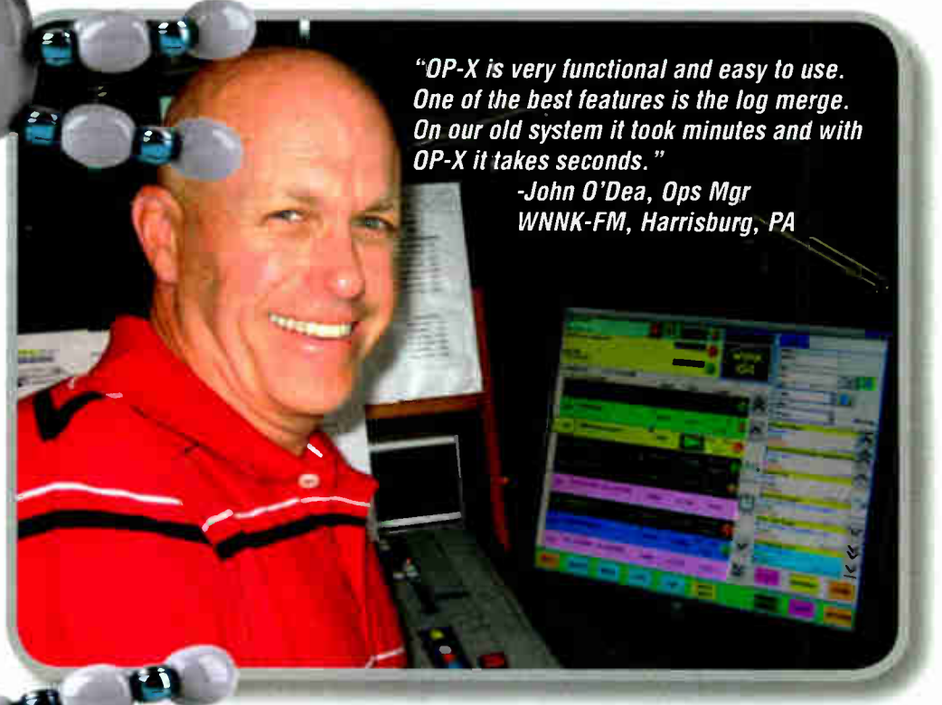
Emergency notification company **viaRadio Corp.** helped launch a **Florida** statewide RDS-based emergency alerting infrastructure project. With the support of state emergency management officials, viaRadio provided HEARO Local Alert Receivers to every county. The system delivers messages to specialized receivers, desktop alerts and other media. ...

**OMT** said that **Saga Communications** purchased iMediaTouch radio automation systems for four radio markets. Saga was already using iMediaTouch is in 43 of its 91 stations. The latest headed to Springfield, Ill., and Charlottesville, Va. Tracy Cleeton is Saga director of IT; Greg Urbiel is corporate director of engineering.

*Send product and project news to* radioworld@nbmedia.com.

World Radio History



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*-John O'Dea, Ops Mgr*
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World Radio History

# The Belkin TuneCast Auto Live

## An In-Car iPhone-to-FM Radio Solution That Disappoints

BY JAMES CARELESS

*One in a series of occasional articles about radio receivers and new-generation devices used to consume radio/audio content.*

I have tested many Belkin products over the years and generally have been impressed by them. So when I got the chance to test the company's TuneCast

**MOBILEMEDIA**

Auto Live, a device that allows you wirelessly to broadcast iPhone (and iPod) audio into your car's FM radio, I jumped at the chance.

After all, the TuneCast/iPhone combination effectively brings Internet radio into the car. Now, thousands of broadcast and Internet-only stations that were only available on the Web could now be heard whenever I am driving. The TuneCast sells for $79.99 at *www.belkin.com*.

With the help of Belkin and a new iPhone 3GS from Apple, I gave the TuneCast a road test. Unfortunately, the results were not what I had hoped for.

### NUTS AND BOLTS

The Belkin TuneCast Auto Live comes prominently displayed in a cardboard and plastic box, emblazoned with the words "ClearScan Live: Automatically find the clearest radio station."

If you are connected to an iPhone 3GS, as I was, the TuneCast can tap into the iPhone's GPS data to select open frequencies in your immediate vicinity.

The TuneCast unit is a single device, with an iPhone adaptor at one end, a standard card 12 VDC plug on the other, and the capsule-shaped 3-inch-long long TuneCast itself in the middle. The cord on each side of the TuneCast is about 20 to 21 inches. This means that you should have enough length to plug the TuneCast into your car's cigarette lighter comfortably, and then plug it into an iPhone/iPod.



The TuneCast will not operate unless it is plugged in. While connected, it will charge the iPhone/iPod it is connected to.

This device comes with a large illuminated LCD display that clearly shows what frequency it is tuned to. To operate it, you first plug in the TuneCast's male 12 VDC plug into the car's cigarette lighter. Next, you plug the male Apple adaptor into the base of a powered-up iPhone, which activates the TuneCast.

You can now search for a clear FM frequency in two ways. You can push the big ClearScan button on the right side of the TuneCast, allowing the device to find a clear FM frequency automatically. Or you can use the +/- toggle button to the left of the ClearScan button to search manually.

The TuneCast also comes with two memory buttons, marked M1 and M2, so that you can preset two clear frequencies. This means you don't have to rescan every time you turn off the car. (The TuneCast has a "Pro" button that cycles through various audio input levels for loud and soft music, plus mono audio books.)

The first time I turned on this rig, I had to surf to the iTunes store online to download the necessary software. This I did via my home WiFi network, necessitating that I enter my WEP key into the iPhone using its QWERTY touchscreen keyboard.

(Now I know why men have pinky fingers. They are the only male digits small enough to touch an iPhone's onscreen keys accurately. Apparently God anticipated the existence of Steve Jobs.)

This required me to set up an account; a nuisance for testing, but something that any iPhone user will likely do before they buy the TuneCast. It took a while, but eventually I got the free TuneCast app loaded onto my iPhone. Once activated, it provided touchscreen access to the TuneCast's controls.

### TEST TIME

Okay; now for some audio. For a quick initial test, I accessed YouTube and selected an Alicia Keys PSA. The audio came through my FM radio loud and clear, with good audio quality.

Of course, YouTube is YouTube; I needed something better to fully test the TuneCast's audio response. So I downloaded Peter Gabriel's take on David Bowie's "Heroes" and played it through the system.

At first, I tested it indoors using a PowerPack 150 12 VDC backup power source with a Sangean WFR-1 FM/WiFi radio (previously reviewed in Radio World, see *www.rwonline.com/article/74922*).

Then, having ensured that everything was working properly, I took the TuneCast/iPhone 3G outside and plugged it into my trusty 2008 Mazda MPV van. This is where the rubber hit the road, so to speak.

On the positive side, the stereo audio transmitted by the TuneCast into my car's FM radio came through the van's speakers with clarity and optimal frequency response. In plain English, it sounded really good.

On the negative side, the TuneCast's ClearScan Auto relentlessly tuned to FM frequencies that were slightly

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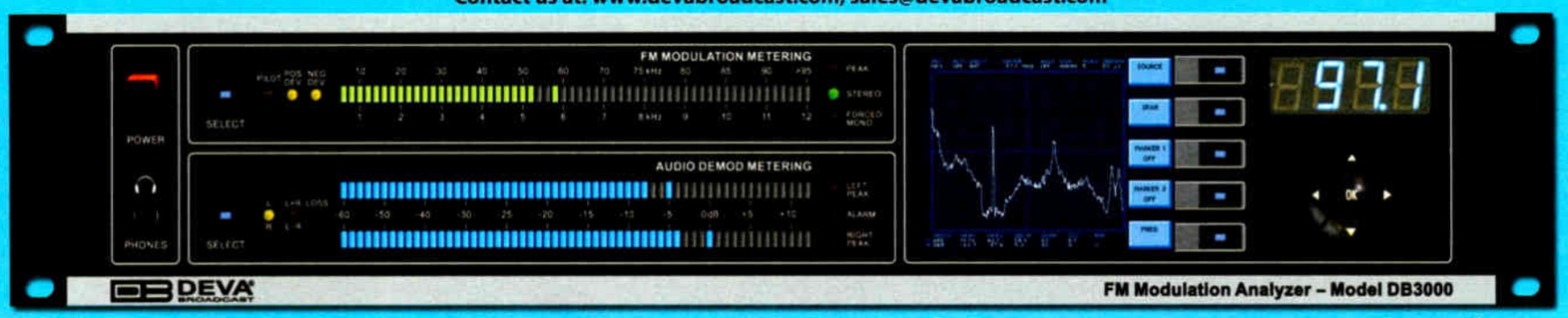


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impaired by adjacent stations, namely 88.1 and 107.5 MHz. This resulted in a significant problem: Background static.

What was the cause? From what I could tell, the TuneCast's FM transmitter appears to be somewhat directional. If I shifted its location inside the minivan by moving the connected iPhone around — I was sitting in the driver's seat — the signal power dropped. I know this happened because I would start to hear low-level static on 88.1 and 107.5 when the music playback was paused.

By the way, I did not notice any difference in static levels when the car motor was on powering the TuneCast, and when I was just running off the Mazda's car battery.

In contrast, the TuneCast Auto never tuned to 90.3 MHz, a frequency that is truly quiet and which I use regularly for in-car wireless FM connections.

Eventually, I manually tuned the TuneCast to 90.3, and the background static noise was greatly reduced. But it would increase depending on where I moved the TuneCast transmitter in space.

### NOT A HAPPY TESTER

I am disappointed. For years, I have used a C. Crane Digital FM Transmitter (*www.ccrane.com*, $69.95) to broadcast my MP3 player's audio into my car radio (via 90.3 MHz). The C. Crane unit has never had this problem with background noise, presumably because it transmits delivers a higher-powered FM signal.

(On the downside, the C. Crane Digital FM transmitter does not have an auto-tune feature; and it uses a standard mini plug to connect to the MP3 player, rather than a custom Apple connection. However, the C. Crane does allow you to adjust the gain on the incoming audio signal, using a LED to see when it is peaking to distortion levels. It is also battery powered, and does not need the car's 12 VDC source to run.)

Considering that the TuneCast is a newer, more advanced and expensive solution to the problem of in-car FM transmission, I expected better. Logically, the ClearScan function should find the clearest unused FM frequency easily; it's just a matter of detecting ambient signal strength. Meanwhile, the unit's onboard FM transmissions should be sufficiently omnidirectional and powerful enough to withstand minor changes in physical location, the kind that happens when things get jostled during an average morning commute.

The bottom line: The Belkin TuneCast Auto Live does not deliver what it promises: hassle-free, reliable and easy-to-execute FM transmission of iPhone/iPod audio to a car's FM radio. The TuneCast concept is a good one, but so far, Belkin has not faithfully translated this concept into reality.

## PEOPLENEWS

The board of the **Society of Broadcast Engineers** elected **Sterling E. Davis** and **Robert W. Locke** as SBE Fellows. Davis is vice president of engineering for Cox Media Group in Atlanta and a member of SBE Chapter 5 in Atlanta. Locke is chief engineer for KPTS(TV) in Maize, Kan., and a member of SBE Chapter 3 in Kansas.

Mary Ann Seidler

**Tieline Technology** hired **Mary Ann Seidler** for sales work in the U.S., Canada and Latin America. She has held senior roles with Musicam USA, Wheatstone Corp. and Telos/Omnia.

**Kevin Clayborn** joined **RF Specialties of California** as sales engineer. He'll be based in Phoenix and will handle Arizona, most of southern California and southern Nevada. He started as a chief engineer of KTUC(AM) in 1992 in Tucson after a 10-year stint in the Air Force as an avionic communications and navigation systems specialist. He helped KRKN(FM) on the air and did freelance work for stations in Buckeye, Ariz., and Mobile, Ala. In 1993 he joined CRL as customer service manager; he became product manager, worldwide TV sales manager and finally North American sales manager.

**Broadcast Connection** named **John George** as representative of its line of RF equipment. He will work the Southeast and Middle Atlantic states. George began as a DJ and has worked in programming, sales, engineering and station ownership. He has sold for Harris, Dielectric and LBA Technology.


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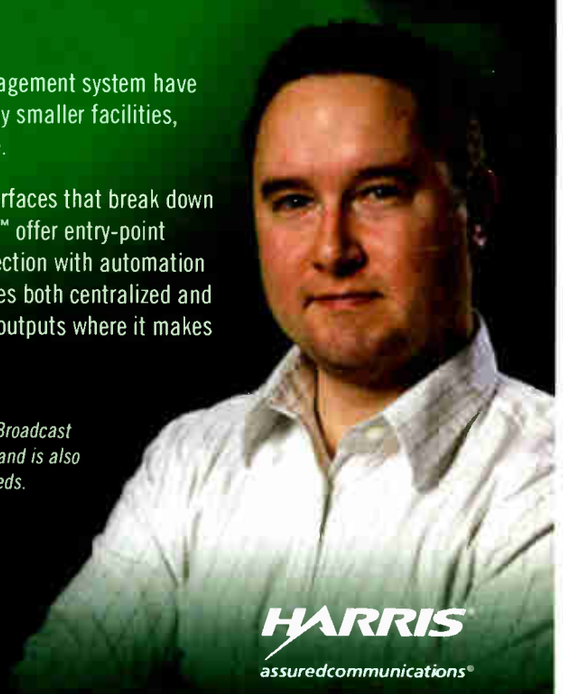
*Joe Marshall, Product Line Manager for Radio Studio Solutions at Harris Broadcast Communications, is a key member of the PR&E product design team — and is also on the front line, helping customers choose the best systems for their needs.*



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# Radio's Future May Be in the Clouds

## Cloud Computing Is in Its Infancy But Could Bring Benefits to Broadcasting

BY TOM VERNON

Cloud computing is a disruptive technology that may have a strong impact on how broadcasters do business and design data centers. Recent activity includes a presentation on the subject at NAB and the early adoption of the technology by several organizations.

**RADIO IT MANAGEMENT**

As radio moved from analog technology into the digital age, it has redefined itself. Once thought of as a medium that provided news and entertainment in audio form, it has been restructured as a multimedia content provider.

As the digital age matures, it again may need to redefine itself, this time as a data center.

Such a transition may be a leap for some; but according to A.J. Janitschek, director of program and operations support for Radio Free Asia, who talked about cloud computing at the recent NAB Show, coming to grips with this concept gives some direction to radio's future IT operations.

### SAAS, PAAS, IAAS

Cloud computing is simply defined as using the Internet for tasks you usually accomplish on your computer.

The end user in a cloud environment need not be concerned about the location of applications or data; he or she only needs to know that they exist and they work.

Advantages for developers include efficient resource utilization, on-demand scalability and minimal capital investment. For consumers, working in the cloud provides software/server-free computing, along with access to your data wherever you have Internet access. Business users can outsource the computing infrastructure and focus on their core competencies.

The bottom line is higher efficiencies with lower costs. The growth of netbook computing is one validation of the concept.

Essential characteristics of cloud computing include on-demand self-service, broad network access, resource pooling, rapid elasticity and measured service. It provides the opportunity for small to medium-sized stations to have access to applications and services they otherwise could not afford.

Cloud computing usually is delivered in one of three ways, described as *Software as a Service* (SaaS), *Platform as a Service* (PaaS) and *Infrastructure as a Service* (IaaS).

With SaaS, vendors license applications to customers for use on-demand. Examples include Google Apps and SalesForce. Janitschek adds that anyone using Gmail has one foot in cloud computing already.

SalesForce.com is another example. It distributes business software via subscriptions and is hosted offsite. It is probably best known for its Customer Relationship Management (CRM) products.

With PaaS, the provider delivers a computing platform where users can develop, test, deploy, host and maintain applications in the same integrated environment. Examples include BungeeLabs and Microsoft Azure.

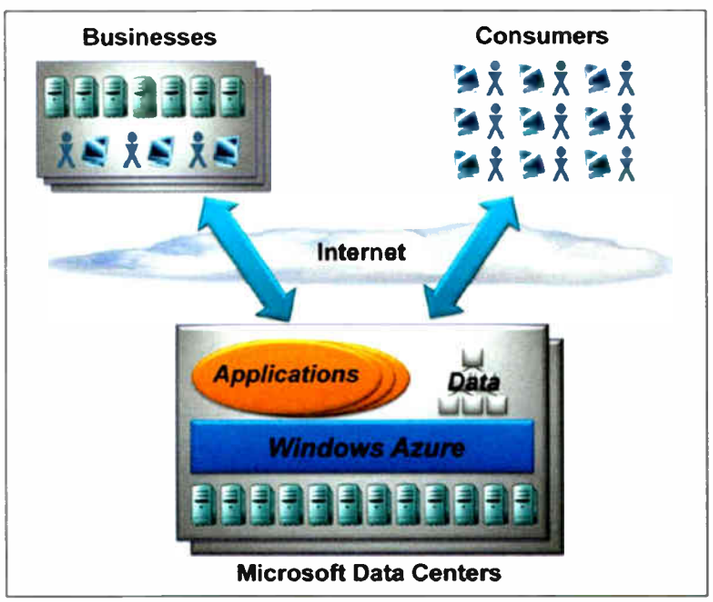
Janitschek quotes Microsoft CEO Steve Ballmer, who declared: "We're betting our future on cloud computing."

Infrastructure as a Service means the buyer relies on the service provider's equipment, and the vendor provides virtual machines and storage.

With IaaS, users may realize an economy of scale through volume operations. There is no IT facility, no maintenance and applications and servers stay current. Operating costs are reduced through pay-per-use, and finally, stations can focus on the core activities of broadcasting while outsourcing IT operations.

### A FULL RETHINK

Embracing cloud computing requires a complete rethinking of the design, operation and planning of a station's data center.




**A Microsoft graphic explains Windows Azure, a cloud services operating system.**

**Anyone using Gmail** has one foot in cloud computing already.

While the broadcast community is just waking up to cloud computing, other industries such as financial services, utilities, technology, healthcare, insurance and government are already there. One example Janitschek cites is the city of Orlando, which reduced its e-mail costs by 60 percent using Google Apps. It is also one of the first cities to switch all of its employees to Gmail.

While cloud computing appears to offer many advantages over the traditional data center model, it is not a perfect world.

Photo by Jim Peck

**A.J. Janitschek of Radio Free Asia discusses cloud computing at the recent NAB Show.**

Issues that users need to understand include abuse and ill-intended use; insecure application programming; malicious insiders; shared technology vulnerabilities; data loss and leakage; account, service and data hijacking; and unknown risk profiles.

Bandwidth limitations may prevent moving very large media files in and out of the cloud quickly. More intangible concerns with cloud computing include a loss of control as well as trust issues around security and privacy.

Some of these intangibles can be addressed by using a hybrid model with a private cloud built within a company's firewall to provide greater data security. Some applications are outsourced to the public cloud, while more sensitive areas are kept in-house.

Janitschek notes that the traditional alternative to cloud computing is designing and building a large data center in-house. This entails painstaking work with 3D CAD programs for space utilization, and predictive analysis software for energy and cooling data.

He described an Uptime Institute study that found power consumption in data centers has increased more than 600 percent in just seven years. The trend for increased heat load is also expected to rise in the future. The option of switching to cloud computing may not only be faster, but cheaper.

### INTEREST VS. DEMAND

NPR and Sirius Satellite are using Isilon's NAS (Network-Attached Storage) for media storage. Both organizations employ large numbers of media production workstations and media processing servers. NAS allows centralized storage of large amounts of media that can be accessed via the Internet at broadcast centers across the country. In the case of NPR, Isilon also provides replication software for disaster recovery preparedness.

Radio Free Asia is venturing into this new technology with Ubuntu Enterprise Cloud (UEC) to develop a private cloud

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to link RFA's global operations. UEC is Linux-based open-source software that is compatible with Amazon's EC2 public cloud applications.

Broadcast manufacturers are also looking to the clouds.

Don Backus, vice president of sales and marketing at ENCO Systems, said, "We've been doing some R&D on cloud computing, especially in terms of resource sharing.

"Two issues concern us. The reliability of the infrastructure may result in unacceptable latency delays. Also, rights management can be a problem if content is delivered across multiple platforms.

"With time and effort, these issues can be addressed," Backus continued. "Some of our customers have expressed an enthusiasm for the concept, but there does not appear to be demand for a product yet."

At RCS, President/CEO Philippe Generali said two of the company's products, MediaBase and Media Monitors, use the cloud to make data about radio stations and advertising available to its customers in near real-time. A third product that uses the cloud, MusicPoint, is due out later this year.

"As costs for bandwidth and storage continue to drop, we see more opportunities for broadcasters to take advantage of this technology," he said.

Generali noted that security is an ongoing concern, and there is the potential for data to be accessed illegally; but so far, "the techies are ahead of the gangsters."

Rights management is another issue; Generali recommends users develop a policy for copyright management as part of the planning process if they do not own all the content they are planning to make available.

## DISRUPTIVE

Jim Roberts, product manager for datacast systems at Broadcast Electronics, thinks cloud computing could be the next disruptive technology to hit radio broadcasting.

"Eventually, the cloud will be where broadcasters store and share most of their data. It definitely makes sense for status and control of transmitters, and for stations to share news stories and actualities."

Enabling program directors to program stations from the cloud is also promising. Other areas may be problematic.

"Groups of stations have discussed combining music in a single database. Issues often arise about which versions of songs to include and whether EOM tones are attached."

He said that storing financial or playlist data in the cloud can raise some concerns over confidentiality.

"There are two facets to the trust issue. First you need to believe in the integrity of the organization you are dealing with. Second, you have to believe in their security measures so that no one can access or use your data without consent."

Roberts said BE's product line called "The Radio Experience" was an early adopter of cloud computing, beginning five years ago with its Message Manager program.

"At first stations didn't like the idea of having their data in the cloud. Over time they have warmed up to the concept."

Cloud computing is also on the air. "Cloud Computing Radio" delivers an ongoing series of podcast interviews with cloud computing newsmakers. CCR is produced and hosted by broadcast journalist and technology consultant Tom Tucker. Podcasts are available at iTunes and distributed to targeted groups across social networks such as LinkedIn, Facebook and Twitter.

Cloud computing offers the potential of freeing broadcasters from the constraints of operating from a single geographic location by making its content available wherever an Internet connection is available. It remains to be seen if the cloud can deliver the high quality-of-service essential for production and delivery of content to today's critical audiences. While cloud computing is still in its infancy in the broadcast industry, its benefits, especially financial, mean that it may be set to grow quickly.

*Tom Vernon is a long-time contributor to Radio World. He wrote about Arno Meyer of Belar in the June 16 issue.*


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# BBC Explores 'Mixed' Radio Ecology

BY JAMES CARELESS

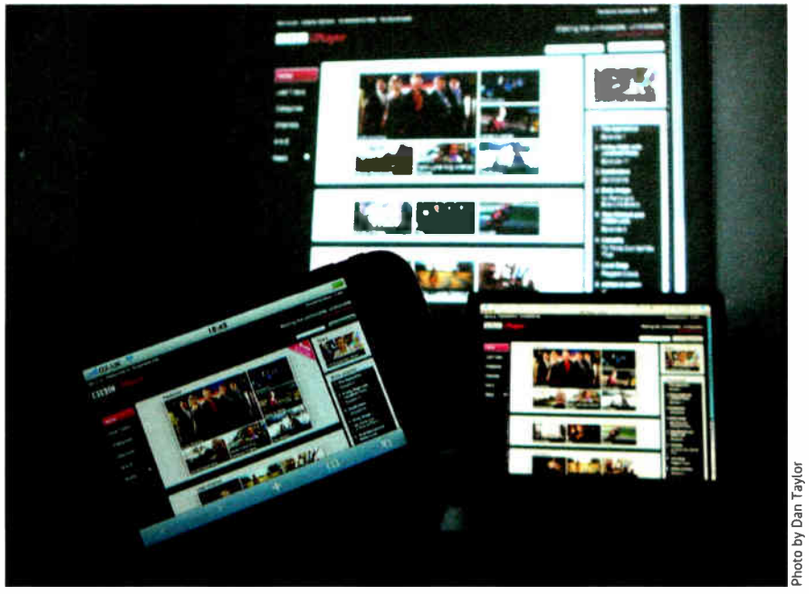

Photo by Dan Taylor

When it comes to DAB in the United Kingdom, the BBC is a committed supporter. In addition to making its established networks available on DAB, "the BBC has invested in DAB through creating a number of digital-only stations such as BBC Radio 1Xtra and BBC Radio 7, offering a wider choice of output to listeners," said Talia Hull, its strategic communications manager for audio & music.

NEWMEDIA

"The BBC's DAB broadcasts are enhanced by additional data services delivered to screens on DAB radios, such as EPGs, news headlines, 'now playing' and other information."

At the same time, the Beeb is pushing aggressively into other digital distribution media. "The BBC supports the idea of a mixed ecology of digital technologies to deliver radio programming," Hull said. "This includes DAB, online streaming (encompassing Wi-Fi and 3G streaming to mobile devices) and digital television."

## WHERE AUDIENCE IS

This model is in line with that of a growing number of broadcasters: Rather than placing all their eggs in one digital basket — be it DAB, mobile or online — the strategy is to distribute content on every available medium to maximize reach and potential audience.

The strategy conforms to the reality of U.K. digital radio listener, based on data from research and ratings agency RAJAR.

"According to RAJAR (Q1/2010), more than 38 percent of U.K. adults (15+) tune into radio digitally each week, with DAB currently the most popular digital platform," said Hull. "That is followed by DTV, with online streaming the third most popular.

"DAB ownership in the U.K. is growing strongly," she added. "According to RAJAR, 34.5 percent of adults live in a home with a DAB set. The BBC is continuing to build out its DAB coverage, and this will reach 90 percent of the United Kingdom by mid-2011."

To spur this growth, the BBC, Digital Radio UK, British commercial broadcasters and receiver manufacturers/vendors promoted and backed a "Radio Amnesty" program in which people who handed in old analog receivers to retailers got discounts on DAB sets made by Alba, Bush, MagicBox, Philips, Proline, PURE, Roberts and Sony. (The analog radios were refurbished and donated to the Children's Radio Foundation in South Africa.)

"This is the first time that on-air trails running across both BBC and commercial radio have been developed," said Hull. "We will be working with the DRUK to develop further campaigns over the next 18 months."

As for mobile handsets? "Development in streaming to mobile devices has seen significant growth in the past year in the United Kingdom, and the BBC's network radio services are now available via mobile. As of last month, mobile users with Internet connectivity can now listen live on pretty much any phone to all of the BBC's national radio networks directly via our mobile Web pages."

In addition to its live streams to mobile, the BBC has revamped its websites so that they work on mobile browsers. It has developed a number of apps to provide direct one-touch service for iPhones and similar devices. At press time, these were on hold pending review by the trustees who monitor the BBC's expenditures on the public's behalf.

## CANNIBALIZATION OR MAXIMIZATION?

Could supporting so many media result in online cannibalizing some of DAB's audience, and vice versa?

According to Talia Hull, the "more media" approach does work; right down to including long-wave, medium-wave and FM as part of its overall reach.

> **'Different platforms will meet the user's needs, depending on the circumstances.'**

"We're learning is that whilst every platform (digital or analog) has its advantages and disadvantages, when they work together the combined offer is superb. DAB remains a true free-to-air broadcast technology where a single transmitter can serve hundreds of thousands, if not millions of people in an extremely robust and cost-effective way. Meanwhile, online streaming supports enhancements to programs and a crucial back channel allowing audiences to interact in a much more sophisticated and instant way that used to be the case."

As for the future and the planned 2015 analog switch-off date, Hull said the BBC is progressing apace.

"After a period of uncertainty in the U.K. radio industry, both the BBC and its commercial sector partners have agreed on a plan for migration to digital that will provide a sustainable mix of technologies.

"The ratio of consumption by DAB, online and mobile and by DTV may vary over time, but the core message is that no single digital platform can meet the evolving needs of today's and tomorrow's audiences — different platforms will meet the user's needs, depending on the circumstances."

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# MARKETPLACE

**DENON DIGITAL:** The DN-F400 is a digital audio player capable of playing WAV or MP3 files from SD or SDHC Flash media cards with up to 32 GB

and 1,000 audio files per card.

Balanced and unbalanced audio outputs are standard along with external RS-232c and GPIO control. It can store music beds, jingles, sounders, voicers, music or any files that may be needed.

The companion RC-F400S Hot Start Remote features assignable hot start buttons and an OLED display. Play modes include Random, Repeat One and Repeat All Modes as well as Single File Play.

The DN-F300 is a 1RU digital audio player. Audio files can be stored on SD/SDHC Flash media cards or external USB interfaced media.

Pitch and tempo can be adjusted ±20 percent. Control is accomplished by front panel or included RC-1135 IR remote control. Two microphone inputs with level control and ducking allow voice over playback material.

Features include Random, Repeat All, A-B Repeat and Repeat Directory playback modes. Auto Cue and Cue to Music functions with audible, frame accurate search capability and front-panel LCD display allow flexible operation.

Both the DN-F300 and DN-F400 have front-panel headphone jack with volume control. www.d-mpro.com

**COMLABS & CAP:** Comlabs offers the PAC (Public Alert Controller), a CAP-enabled EAS Encoder/Decoder.

The device is IP-based and features three programmable radio inputs (FM/NOAA Weather), three audio inputs and the ability to simultaneously monitor up to four CAP sources.

The system can be set up to run in manual or automated modes for all alert and test functions, and all logs can be saved, exported and printed automatically.

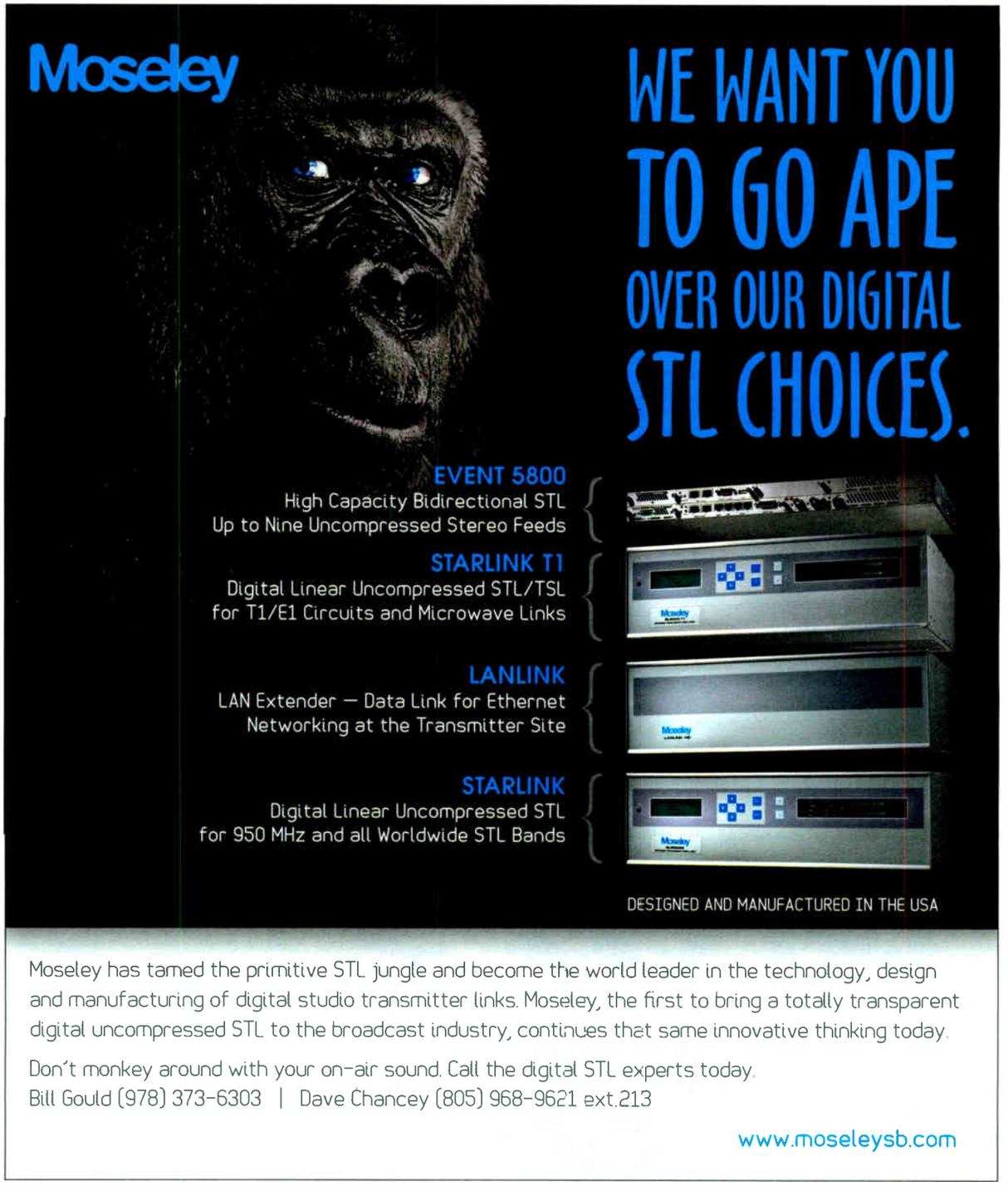
PACs include Text-To-Speech software for English and Spanish, and a notification wizard that allows operators to forward alerts and system information to pagers, cell phones and e-mail.

Comlabs also has added native support for its CAP-based EAS network called Emnet (Emergency Management Network). PAC can connect to Emnet via any available Internet connection or optional satellite receiver. Shipping is expected in the third quarter. www.comlabs.com

**EXPERT PANELS:** PolyPhon panels from Acoustical Solutions are constructed from polyester (60 percent PET-recycled fiber and 40 percent virgin fiber) and are recyclable.

Acoustical performance has an NRC value of .75. In addition to environmental friendliness, the PolyPhon panels can be painted or screen printed with little degradation of acoustical performance.

The panels are Class A fire rated. Formaldehyde-free and containing no binding agents, they offer no risk of skin irritation or respiratory problems. The color options are white, beige and grey; offered on panels measuring four by eight feet, one inch thick. www.acousticalsolutions.com



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# WUIS Takes the Digital Leap

## With PTFP Support, Public Station Builds Around a WheatNet-IP System

BY GREG CHARLES MANFROI

*The author is chief engineer of WUIS(FM).*

WUIS is a Class B FM public radio outlet for Springfield, Ill., and the surrounding area. The studios are on the

**FACILITYPROFILE**

campus of the University of Illinois at Springfield. Situated in the state capital, the facility also operates the Illinois Public Radio Network, serving Illinois public radio stations.

In 2006 General Manager Bill Wheelhouse had plans to move WUIS forward in all areas, including the technical setup. The CE position was open; I applied and was hired in April of that year. I'd known Bill for 10 years and knew we would have a good working relationship.

The genesis for the project was the questionable condition of the facility. When I arrived I was asked to make an evaluation of the studios and transmitter sites. The station was to receive equipment to install HD Radio at this same time.

The staff was top-notch; the facility was not. The complement of equipment was fine, but the wiring resembled spaghetti. The existing mixing consoles were 10 years old.

If we were going to rebuild from scratch, my preference was to install a digital routing system if possible.

Sinta Seiber-Lane works in the new Studio A at WUIS in Springfield, Ill.

Photo by Matt Penning

About a year later the National Telecommunications and Information Agency's Public Telecommunications Facilities Program (PTFP) had grant money available for public radio stations to upgrade. We made our case with PTFP and they awarded a grant to us. It took nearly a year to come up with matching funds.

I was interested in an IP-based system, in part because I had to rebuild studios that were in place, and I would be working alone to save labor cost. Construction time could be shortened by using Cat-6 cable and jumpers with Radio Systems StudioHub adapters. Also, at the time of my arrival, work on a performance studio was starting.

### PROJECT SCOPE

The scope of the project included five radio studios, a performance studio and a Technical Operations Center.

At the time of our grant application there were only two IP systems shipping; I choose to go with Wheatstone and its WheatNet system. Everything but the circuit boards are manufactured in their factory. The power supplies are overdesigned rather than acquired from an outside source for reliability.

WheatNet-IP Audio consists of five hardware Blades; four handle I/O in various configurations and one is a digital mix engine. Blades are linkable units that talk to each other via Cat-5E/6 over Gigabit/1000Base-T protocol using Layer 2 or 3 Ethernet switches. I liked that each Blade contains the configuration of the entire system, for built-in redundant backup.

The WheatNet IP Navigator GUI is where users set up the Blades, AoIP drivers, system sample rate and NTP time source. The application installs on a computer that is plugged into the switch. This is also where sources and destinations for routing are created. The GUI setup includes logic I/O, the virtual utility mixers, silence sense and salvos. The GUI is intuitive. Configuration changes automatically are backed up on every Blade.

Wheatstone had recommended HP ProCurve or Cisco switches. I chose to use Cisco switches because the university receives favorable pricing on those products.

I needed a cable management system on a beer budget. I fabricated cable hangers from angle iron and garage hooks. I bolted each hanger to the steel truss members that support the building roof. I wanted to ensure none of the gigabit cables made any sharp bends that might cause performance loss. I used the EZ-RJ45 system of connectors and tool to terminate each Cat-6 home run.

I wanted to replace our old Electro-Voice RE20 microphones. They had aged to the point where each one had a different sound. I have a preference for condenser microphones but our old studios were not soundproof, and there were no funds to correct this.

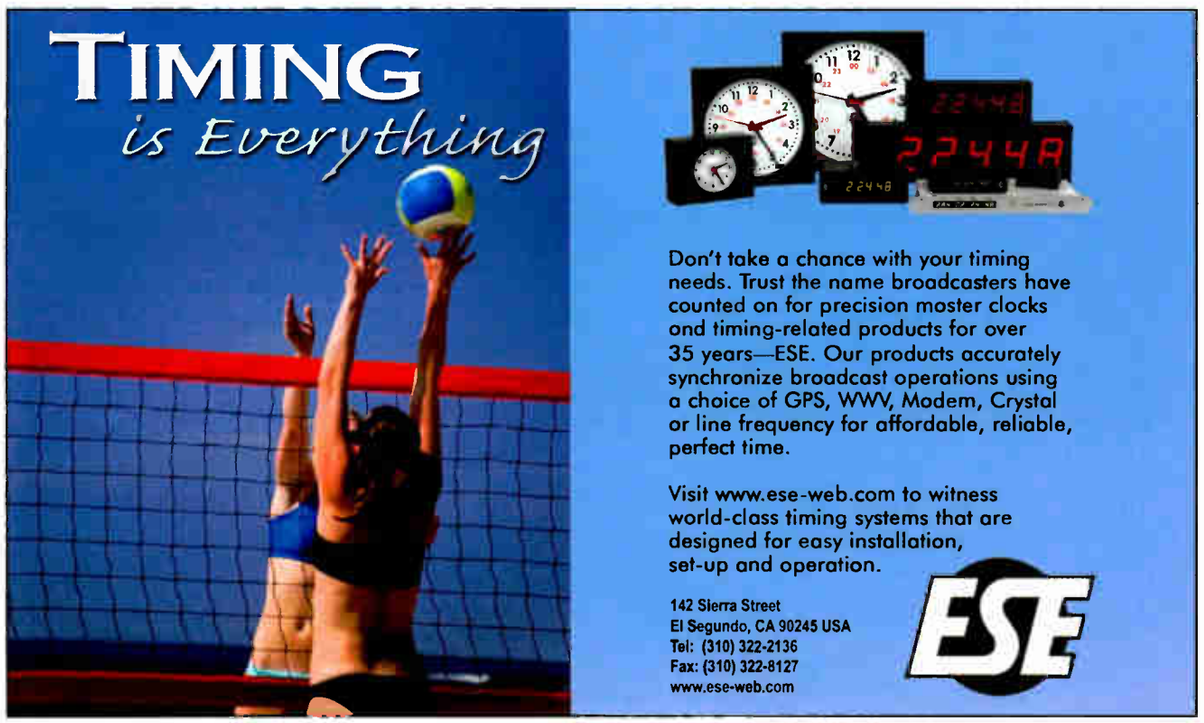
Condensers would have picked up noise external to the studios. I e-mailed Heil Sound and inquired about the PR series of microphones they produce. In a few minutes Bob Heil himself called me and offered to send me a PR 30 and PR 40 microphone to try out. The PR 40 had good side and rear rejection that would be essential in our less-than-ideal rooms.

My plan was to make the performance studio control room a radio studio as well. This would allow me to get a tech core setup and one studio to go on-air with while I gutted the old studios.

### PUNCHING CABLE

I pulled and terminated my cables, punched down my logic and plugged in my StudioHub components. Then I followed instructions written by Wheatstone Systems Engineer Kelly Parker to set up the Catalyst 3560G Cisco switches. The

(continued on page 24)

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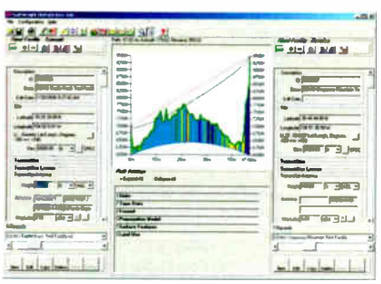
# MARKETPLACE

**ROUTING THE LIVEWIRE:** Axia Audio is now shipping routing controllers for its Livewire digital audio network. There are three units available; all allow routing any source to a destination on the Livewire network. Each rackmountable box offers a control knob and routing screen(s).

The XY controller takes any Livewire source and routes it to any Livewire output. The X1 serves as an input switcher for an output whose source changes frequently. For example, the user may wish to switch what's fed to an output named "WXXX Program." He or she would map the X1 to WXXX Program using a web browser. Then the user could use the X1 to feed WXXX Program with the output of Studio 1, Studio 2, Studio 3, directly from the automation system, or any other source. Model X2 puts 2 X1s in a single box. www.axiaaudio.com

**SOFTWRIGHT PROMO:** SoftWright, a developer and marketer of terrain analysis programs, said it will increase TAP software prices by about 10 percent on Aug. 1, and it let would-be purchasers know so



they can buy before the increase. To sweeten the deal, SoftWright extended a promotion in which it will take 50 percent off any one TAP module added to existing systems when you also sign up for a one-year maintenance subscription. Separately, the company has announced dates for upcoming TAP Engineering Seminars at its conference center in Aurora, Colo.: Oct. 18–19, 2010, and Jan. 24–25, 2011. The cost is $1,300 per student. www.softwright.com

**MD 421 MAKES 50:** Sennheiser knows what it has with this classic. The latest version, MD 421 II, keeps all of the good features while making the mic more serviceable, durable and reliable, the company says. The

MD 421 II has a five-position bass roll-off and the 421's not-too-high, not-too-low frequency response of 30 Hz–17 kHz has proven popular. The Sennheiser MD 421's sleek "razor" design is highly recognizable and belongs to a long-ago era infused with "technology." The dynamic large-diaphragm cardioid has done legendary tours for decades and at the same time kept a home in studios due to its loving handling of sounds such as guitar cabinets, Leslie cabinets and drums. Not to mention voice work. www.sennheiser.com

**COMREX CONNECTS:** Comrex has okayed an application for iPhone users that will allow them to

connect to Access and BRIC-Link codecs. Media5 Fone is a SIP Client softphone app that runs on the Apple iPhone or iPod iTouch. It is available from the iPhone App Store as a free demo download that will allow calls of one minute in duration. For unlimited call duration, the Media5 Fone app can be downloaded for $4.99. www.comrex.com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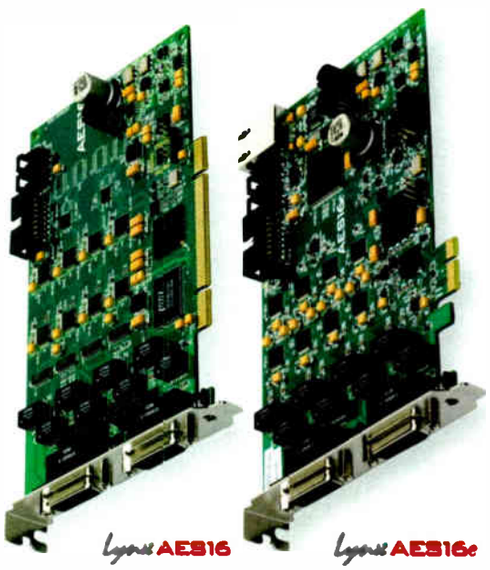
Why is this important to you? First, most of the audio applications that power your radio stations now have extensive DSP built into the app or available as plug-ins. These software tools give you more control, customization and recallability than comparable hardware tools. Plus they are easily updatable.




Second, how would we know what DSP would be ideal for you? AM, FM, online, digital, analog, talk programming, type of music genre? You have all those answers, we don't.

Third, why should you pay for the cost of DSP that you probably don't need and won't use? At least that's what they think at companies like Dalet, Harris Broadcast, Sirius/XM Radio, National Public Radio, HBO, CBC (Canada), TSA Telefonica (Spain) and many, many others. Lynx audio cards' sound quality, driver stability and rock-solid reliability are the crucial elements for these discriminating customers.

The AES16 and AES16e digital audio cards offer 16 channels of pristine AES/EBU digital input and output at sample rates from 44.1 to 192 kHz. Sixteen channels of reliable, clear digital audio. Optional sample rate conversion and AES50 connectivity starting at $695 US suggested retail price.

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World Radio History

# INSIDE THE NEW WUIS

## STUDIO A

1 Wheatstone E6 console surface
1 Wheatstone 88e Blade
1 Wheatstone 88d Blade
1 Wheatstone 88a Blade
2 Wheatstone GP headphone panels
2 Genelec 8020A powered speakers
3 Heil PR 40 microphones
1 Focusrite OctoPre mic preamp
3 M!ka YT3205 mic booms with light
3 M!ka MSS YT-3240 poles
3 M!ka MSS YT-3230 monitor arms
1 Henry Engineering Superelay utility controller
1 Behringer Pro-8 headphone amplifier
1 Comrex STAC control surface
2 Denon DN-640 CD players
2 Sony MDS-D11 MiniDisc recorders
1 Lexar FireWire CF card reader
1 Luxo task light
5 BetaBrite Signs
Auralex Sonoflat panels
Auralex 422 panels
Auralex Studiofoam wedges

## STUDIO B

1 Wheatstone E6 console surface
1 Wheatstone 88e Blade
1 Wheatstone 88d Blade
1 Wheatstone 88a Blade
2 Genelec 8020A powered speakers
1 Heil PR 40 microphone
1 Focusrite OctoPre mic preamp
1 M!ka YT3205 mic boom with light
3 M!ka MSS YT-3240 poles
3 M!ka MSS YT-3230 monitor arms
1 Henry Engineering Superelay utility controller
1 Comrex STAC control surface
2 Denon DN-640 CD players
2 Sony MDS-D11 MiniDisc recorders
1 Lexar FireWire CF card reader
1 Luxo task light
Auralex Sonoflat panels
Auralex 422 panels

## STUDIO C

1 Omnirax custom table
1 Wheatstone 88a Blade
1 Wheatstone GP-3 panel
2 Genelec 8020A powered speakers
5 Heil Sound PR 40 microphones
1 Focusrite OctoPre mic preamp
5 M!ka YT3205 mic booms with light
6 M!ka MSS YT-3240 poles
1 M!ka MSS Fleximount
1 Henry Engineering Superelay utility controller
1 Lexar FireWire CF card reader
1 BetaBrite Sign
Auralex Studiofoam Metro 2-inch panels

## TECHNICAL OPERATIONS CENTER

6 Middle Atlantic MRK-4431 racks
3 Wheatstone 88d Blades
2 Wheatstone 88a Blades
1 Wheatstone HBx8-R hot button panel
2 Cisco Catalyst 3560G switches
1 Cisco Catalyst 3560 switches
1 NetGear 24-port ProSafe 10/100/1000 GS7247 SmartSwitch
1 Moseley Broadcast SL9003Q Starlink STL
1 Moseley Broadcast 6010STL transmitter
1 Moseley Broadcast DSP 6000E digital encoder
1 Orban Optimod-FM 8500FM processor with HD option
2 Orban PC1101 DAB processor cards
1 Orban Optimod-FM 8000A
1 Omnia A/X software
1 Aphex 320A Compellor
1 dbx 1066 compressor/limiter
1 Broadcast Tools ADMS 44.22 analog/AES switcher
1 Broadcast Electronics XPI-10 HD exporter
1 Broadcast Electronics IDI-20 importer
1 DaySequerra M2.2R modulation monitor
1 Symetrix 420 monitor amplifier
2 JBL Control 5 speakers
1 Comrex Hotline
1 Comrex STAC hybrid
1 Telos XStream ISDN codec
1 Loftec tone generator
1 Dayton Industrial AFC3 receiver package
6 Dell PowerEdge 2950 servers
1 Dell PowerEdge T610 server
4 Systemax rackmount computers
4 Broadcast Electronics AudioVault suites
5 International DataCasting SR2000pro satellite receivers
2 International DataCasting SFX2100 Storage Receivers for Content Depot Programs
2 ComStream CM701 modulators for C band uplink
2 ComStream DAC700 codecs for C band uplink
10 IOGear Model GCE250 KVM extenders
1 Adderview Prism AVP4 four-port KVM switch
2 Avocent Switchview four-port KVM switch
1 Avocent Switchview 1000 eight-port KVM switch
5 Newnex FireNEX-800 optical FireWire repeaters
4 KaVoom KM licenses
1 Sine Systems MBC-1.5 sign controller
Auralex Studiofoam 2-inch Metro panels
Auralex Studiofoam wedges

## STUDIO D

1 Wheatstone E6 console surface
1 Wheatstone 88e Blade
1 Wheatstone 88d Blade
1 Wheatstone 88a Blade
1 Wheatstone GP headphone panels
2 Genelec 8020A powered speakers
2 Heil PR 40 microphones
1 Focusrite OctoPre mic preamp
2 M!ka YT3205 Mic booms with light
3 M!ka MSS YT-3240 poles
3 M!ka MSS YT-3230 monitor arms
1 Henry Engineering Superelay utility controller
1 Behringer Pro-8 headphone amplifier
1 Comrex STAC control surface
2 Denon DN-640 CD players
2 Sony MDS-D11 MiniDisc recorders
1 Lexar FireWire CF card reader
1 Sage Alerting Systems Endec
Auralex Sonoflat panels

## STUDIO F

This room serves as a combo radio production and air/performance control room.

1 Omnirax custom furniture
1 Wheatstone E6 console surface
1 Wheatstone 88e Blade
1 Wheatstone 88d Blade
1 Wheatstone 88a Blade
3 Wheatstone GP headphone panels
4 Genelec 8020A powered speakers
2 Denon DN-640 CD players
4 Marshal MXL550 microphones
1 Focusrite OctoPre mic preamp
4 M!ka YT3205 mic booms with light
5 M!ka MSS YT-3240 poles
3 M!ka MSS YT-3230 monitor arms
1 Henry Engineering Superelay utility controller
1 Behringer Pro-8 headphone amplifier
1 Comrex STAC control surface
2 Denon DN-640 CD players
2 Sony MDS-D11 MiniDisc recorders
1 TASCAM DA-20 DAT recorder
1 Revox PR99 MKII reel-to-reel recorder
1 Technics SP-15 turntable
2 Luxo task lights
1 TASCAM DM-3200 digital mixer with FireWire and meter bridge option
1 Apple PowerPC G5 Macintosh computer
2 On-Stage Stands 19-inch rack stands
2 Crown Audio XLS 202 amplifiers
1 Lexar FireWire CF card reader
1 BetaBrite Sign
Auralex Elite B22 panels
Auralex LENRD bass traps
Auralex Studiofoam wedges

## SUGGS PERFORMANCE STUDIO

2 Electro-Voice Zx5-90 speakers
4 Galaxy Audio Hot Spot stage monitors
1 MOTU 896 MK3 FireWire interface
1 On-Stage Stands 19-inch rack stand
1 Whirlwind analog snake
13 Heil Sound PR 40 microphones
5 Heil Sound PR 20 microphones
1 MXL Microphones V67Q stereo microphone
4 MXL Microphones 551 microphones
4 MXL Microphones 604 microphones
2 AKG C1000S cardioid/hypercardioid microphones
2 Sony C-37P microphones
7 Electro-Voice RE20 microphones
3 LP Mic Claw drum mic clips
1 Atlas Sound SB36W mic boom
1 K&M 23510 adjustable stereo mic bar
12 On-Stage Stands mic stands
6 Samson BL3 mic stands
2 Pro-Lite recording warning lights
Auralex Elite B24 panels on walls
Auralex MetroFusors on ceiling

*Shown in Studio C: General Manager Bill Wheelhouse and Development Director Randy Eccles. Technical Ops Center: Greg Charles Manfroi. Studio F: Intern Brandon Eckhoff. Performance Studio: The musical group Jodyboss including Development Assistant Jessica Jolly, Robert Burtnett and Nate Blesse.*

Photos by Matt Penning

Story continues on page 26

World Radio History

# If print is dead, then welcome to the afterlife!

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World Radio History

The Technical Operations Center, before (above) and after (right).

Photo by Matt Penning

# WUIS

(continued from page 22)

commands to set up the switches were simple using HyperTerminal software. I gave each Blade an ID number.

On the Wheatstone Evolution E-6 control surface, I simply typed in the ID number of its engine Blade and programmed my sources and destinations.

I encountered a problem in which any dynamic microphone I used in the new studio had a 60 Hz hum picked up by the mic element. I located the source of the hum, a large transformer in a utility room across the hall. It seemed the coils in the dynamic mics were picking up an electromagnetic field from this transformer.

I tried a transformerless condenser mic. The condenser was clean. I purchased four transformerless condenser microphones for this room.

Fortunately this room was constructed properly and does not suffer from exterior noise leakage. Since the condenser and PR 40 mics had different frequency response curves, I needed to add some equalization to each mic. The Wheatstone E6 surface provides you with EQ, expander and compressor that you can apply individually to each source.

I locked the E-6 control surface display clocks to NTP provided by one of our NPR stream receivers.

There are two handy virtual mixers in each 88e and 88a Blade. I utilize one with our BE AudioVault automation. I also use one in a talk studio controlled by a Wheatstone GP-16P panel to switch different sources to the monitor speakers.

Several days before the new Studio F was to go to air, a power strip shorted in the old air studio, taking it down completely. Suddenly morning host Karl Scroggin was thrust into the new studio. I pressed a button on the bypass switcher and he was back on-air.

Karl, an accomplished musician, liked the studio. He was impressed by sounds in the CD recordings he had never noticed in the old studios.

Then it was on to gut each of the old studios, and wire the furniture with conduit and junction boxes. (No consumer power strips allowed.) Next I dropped in the surfaces, Blades, cabling and sources, and punched down the logic connections. Each studio came up as planned.

I needed to turn a channel on and off on an E-6 surface automatically at the same time each night during construction and was able to have AudioVault do that through the Wheatstone network easily without any physical logic wiring.

All of the production computers use the Wheatstone AoIP driver. You can select up to eight stereo channels of I/O.

Anyone who has set up a peer-to-peer network and used HyperTerminal and an FTP client could set up this system. Now we have a facility that helps instead of hinder us.

In the middle of the project I added an HD2 channel carrying WXPN's eXPoNential format. Adding services and functions is easy now. University of Illinois students will have the opportunity to use present-day technology and be better prepared.

Radio World welcomes your facility story. Write to us with your idea at radioworld@nbmedia.com.

## OLD IS NEW AGAIN

Studio F is equipped to recover archived audio from legacy analog formats using equipment not quite lost to the ages.

I picked through the station's remaining reel-to-reel machines in storage. I found a Revox PR99 MKII with the heads still in decent shape, though the pinch roller had hardened and was falling apart. I found a new roller from an eBay seller in Germany.

In the course of this rebuild, our first news director Rich Bradley announced he was retiring. Rich started with the station in 1974 and instituted a reel-to-reel archive from the day the station went on the air in 1975.

In the midst of installing IP technology I dug out a copy of a Radio World article on tape baking by Rich Rarey of NPR. I used an old food dehydrator, lowered the temperature to 122 degrees F with a light bulb in series with the heat element and started baking tapes. For the first time in 13 years I was aligning a reel-to-reel machine to the dulcet tones of Robert Morrison. (I still have a head degausser.)

I installed a Wheatstone AoIP driver on the recording computer for this studio and started saving audio to a new server while I continued the construction project. The archive audio was used to create a retrospective broadcast of Rich Bradley's 35 years of service to the station.

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World Radio History

# WSLR: The Opposite of Slick Radio

## Sarasota Listeners Get a Dose of Community Radio at 96.5 FM

BY KEN DEUTSCH

The station's front door opens into a storage area; enter the side door and you're standing in the middle of the air studio.

## STATIONPROFILE

A rickety window-mounted air conditioner almost drowns out the announcer. Sometimes the station dog, Rascal, wanders through the room.

Welcome to low-power community radio for Sarasota, WSLR(LP).

Located in a cramped one-story house in a poor neighborhood of this Florida city, WSLR operates on a total budget of $80,000 per year, with more than 100 volunteers and just one full-time employee.

The closet-sized bathroom doubles as a repository for a large collection of car batteries, an experiment in solar power that hasn't quite worked out yet. The walls of what used to be the living room hold racks of albums and CDs, and there is enough room for seven people to work in the building at once. Maybe.

Some funding for the station comes from corporate sponsors like Rick Arcaro's law firm, but the majority is derived from listeners around the world and local

Mr. Rhythm, Rascal, Arlene Sweeting and David Milberg

fund-raising events held twice a year. Concerts are also staged to raise additional cash for the cause. While the station gets no money from government, it has received grants from several foundations.

A sign planted in the yard amongst a pile of rocks and weeds reads, "R.I.P. Corporate Radio."

### MORE THAN ONE CHALLENGE

"It's a balancing act between trying to have quality programming on one hand and still maintaining a lot of inclusivity," said Arlene Sweeting, station manager and ex-officio board member.

"And we get pressure from both sides. Our mission is to give a voice to those that don't have one elsewhere, and when we consider new show applications from volunteers we try to give everyone an opportunity. Maybe not everyone gets a show of his or her own, but we can provide a segment on someone else's show."

At WSLR, which airs at 96.5 MHz, each producer is required to go through two hours of training. That is followed with a sit-in session with a programmer during his or her shift, then a trial show during which the "newbie" runs the show under the supervision of an experienced programmer.

Technical instruction is only part of the requirements at WSLR. Each programmer also is expected to volunteer off the air at least two hours per month at the station.

"Anyone who is not willing to do these things is weeded out," said Sweeting. "If people are going to make that commitment, we are willing to give them some extra help, especially if they are a little below our technical standards."

Sweeting, a former public school teacher and political candidate, said the station operates as a democracy.

"It's not like I'm on top and everyone else works for me. It's an open process, all station meetings are open, and the listeners are invited to attend. We have an all-volunteer programming committee, and because we understand mistakes can be made we are always looking for feedback."

What's her biggest challenge, other than keeping donations flowing?

(continued on page 28)

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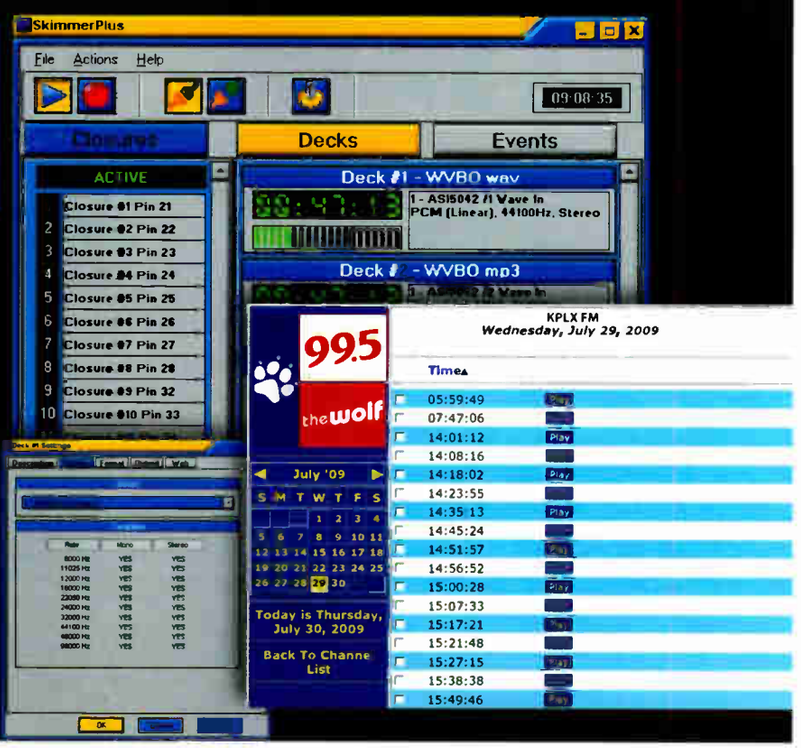



World Radio History

# WSLR

(continued from page 27)

"It's a challenge to stay in compliance with the FCC," she said. "One issue is profanity. I get an occasional e-mail from a listener telling me someone slipped, in spite of our training and guidelines. We have written consequences built into our policies, but it happens.

"We believe it is important for everyone to stay on top of things and screen their music, because one wrong record can take us off the air. WSLR is a family-friendly station and our rules are stricter than those of the FCC. There is a programmers' handbook, and we go through it with each person, and everyone has to sign a contract saying he or she will follow those rules. In addition, each person on the air has to repeat this process every two years."

There is a delay device in the control room, and Sweeting asks that everyone use it whenever calls from the public are aired. As long as there are no "language malfunctions," programmers have a great deal of autonomy, and Sweeting says most of them really appreciate the opportunity to have a voice on the air.

Arlene Sweeting is the station manager. 'It's a balancing act between trying to have quality programming on one hand and still maintaining a lot of inclusivity.'

The group is kept current on changes in the studio equipment, volunteer opportunities and other station notes via weekly e-mail messages sent out by Sweeting.

WSLR does not have a full-time engineer but is consulted by Sara Allen, who had previously worked for KTAO(FM) in New Mexico, a station with a solar-powered transmitter.

The on-air board at WSLR is an old Radio Systems console pulled out of a defunct Clear Channel station. Also at the station are a Nicom Jupiter audio processor, Nicom NT 250 transmitter and a Shively Labs 6812B FM antenna. The automation system, used mostly in the overnight hours, is Megaseg, a Mac-based package. Audacity is the station's audio editing software.

Dave Milberg at work. 'I am willing to bet that WSLR will be in the eye of the storm while the commercial stations in town are running pre-programmed music and pre-recorded voice-overs that were not even locally produced.'

### WHAT GOES ON?

There is a tiny production room and a non-working control console in another room, but there is just one air studio, and it would be a horror to behold for anyone who is by nature compulsively neat.

The walls are festooned with eclectic arcana including a ukulele, a Janis Joplin album cover, a fish, a bulletin board with various exhortations aimed at the show producers, and one random license plate. A bare fluorescent tube and a thrift shop floor lamp provide the only illumination.

The equipment is a ragtag collection of vintage analog and digital gear that works most of the time, so show hosts have to learn to keep it running in spite of an engineering budget that wouldn't buy a box lunch.

Programmer David Milberg is by trade a high-priced Chicago attorney. He spends half his time up north and the other half in the sunshine state where he volunteers on the air. Milberg, known as "Radio Dave," also provides pro bono legal advice to station management when needed.

His show is called "Liner Notes" and it is carefully planned and timed in advance, although he does allow a moment or two of air time for anyone who walks through the studio with something to say. The show consists of stories about the artists who created the music of the last 60 years, and often the original version of a hit is played, followed by a more widely-known contemporary version. An example: "Mambo No. 5" by band leader Perez Prado from 1949, followed by the 1990s track of the same name by Lou Bega.

"WSLR is a vital local resource," said Milberg. "Just wait for the next big hurricane and scan the Sarasota radio dial for up-to-the-minute emergency news and information. I am willing to bet that WSLR will be in the eye of the storm while the commercial stations in town are running pre-programmed music and pre-recorded voice-overs that were not even locally produced.

"I take the same pride in being at 100-watt WSLR as I did when I was at 50,000-watt WLW(AM), Cincinnati and WBBM(AM), Chicago."

Other shows on WSLR reflect the passions and diversity of the programmers: "The Fabulous Food Show," "History of Bluegrass" with Dr. Nik, "Louisiana Gumbo Show," "Africa Unite," "Truly Sustainable Sarasota," "The Jumping Mullet Report," and a healthy dose of local news and community events.

Underwriting and public service announcements are logged by hand in a three-ring notebook kept near the console. The station's mighty 100 watts cover about a five-mile radius, at least when the cable lines to the transmitter are operating properly.

A visitor tried to stay out of the way because of the rather limited space. One of the volunteers replied, "Everyone is underfoot here, and no one is underfoot here."

*Ken Deutsch says he started his so-called radio career at a small station at which the bathroom doubled as the repository of the FCC public file.*

## MISSION STATEMENT

"WSLR is an innovative, listener-supported, non-profit, non-commercial FM radio station dedicated to serving the Sarasota community. WSLR features locally produced programming and presents cultural, artistic and political perspectives currently underrepresented in the media. Our goal is to inform and empower listeners to play an active role in WSLR and in their community. WSLR's programming promotes *equality, peace, sustainability, democracy and social and economic justice.*" (Original emphasis.)

## A BRIEF HISTORY OF WSLR

WSLR is licensed to the New College Student Alliance. New College of Florida is an arts & science school in Sarasota, founded in 1960. Radio World asked Station Manager Arlene Sweeting how the station came about and its current relationship with the school. She provided this summary:

**2000:** Five non-profit groups filed applications for low-power frequency 96.5 during the FCC's four-day window.

**2003:** Bo Bentele and Sarah Kell, acting on behalf of the New College Student Alliance, negotiated a settlement agreement with David Beaton, acting on behalf of the Gulf Coast Sanctuary. In this agreement, the Gulf Coast Sanctuary agreed to withdraw its application in exchange for creation of a governing board that would consist of community members and student representatives. This settlement agreement allowed the NCSA application to prevail.

**2004:** The NCSA was awarded a construction permit for a low-power station. An interim board was established. It was agreed that we would form a new organization, WSLR, and that this board would govern the station. The board met for a year and a half establishing bylaws and procedures by which the station would be governed, and raised money to get the station on the air. The bylaws approved on Oct. 20, 2004, called for a simple majority of the board seats to be reserved for New College affiliates: students, alumni, faculty or staff.

**2005–06:** WSLR applied for and received 501c3 status in June. Until we were formally recognized as a 501c3, the New College Foundation set up a Radio Fund to which people could make tax-deductible contributions.

Bo Bentele formed a radio club on campus to generate interest in the station. At the end of July 2005, Prometheus Radio sent three technical people down from Philadelphia to help us get the station on the air. With the help of 20 volunteers, the studio and the transmission site were constructed in one weekend. In August, WSLR tested its first live broadcast and filed for a license to cover.

From August 2005 to May 2006, we ran two studios, one at New College and one at Royal Palm. Due to technical issues, lack of consistency and New College concerns with community members coming on campus late at night, this studio was shut down and New College students became one with community members, operating out of the same studio. We also eliminated specific slots for New College students in the programming schedule, opening up any slot for them.

Because of the elimination of the "us" and "them" mindset, the requirement that a majority of the board be New College Representatives was also dropped. We have attended the New College Job/Volunteer Fair every year to try to recruit student programmers.

World Radio History

# Management 101 for Program Directors

## How You Can Help Your Staff to Communicate, Confront and Negotiate

PROMO POWER

Mark Lapidus

Aside from having a great ear for talent and an amazing eye for content, what do young program directors require but rarely display these days? If you said "effective management skills," you hit the jackpot.

With few mentors and fewer consultants, program directors obtain management acumen primarily under fire. While some take to managing people as if they were born with a gift, many PDs learn only through mistakes. With a better focus on this subject, it is possible to improve this rapidly deteriorating situation in our industry.

Before I offer direct advice on the subject, it's important to point out that there is no substitute for formal management education. Program directors should be encouraged to take management classes at a local university or community college, on site or online.

As preparation for the start of course work, a general manager or market manager should begin discussing a few concepts with a program director to make an immediate improvement in style and substance on a daily basis, while laying the groundwork for learning.

### BEEN THERE, DID THAT

It should be obvious that performing a job for a substantial period of time doesn't necessarily mean knowing how to do it well.

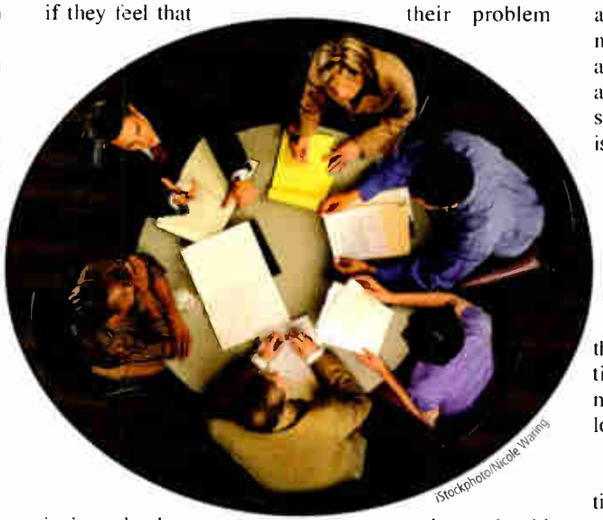
However, people, especially young ones, have tremendous facility of convincing themselves that they already know how to do something well just because they've performed the task.

The longer someone does that task, regardless of formal training, the more likely it is that they've decided that they know all they need to know.

Calmly and diplomatically discuss the importance of managerial skill with your PD. If he insists that training wouldn't be helpful, ask him to define the study of "organizational behavior" and the classical styles of management. You may get something like, "I don't need to know that stuff to know what I'm doing!"

Next is a series of conversations about improving communication, confrontation and negotiation.

*Communication:* It's vital that staff members know that the door is always open to discuss issues and that if they feel that their problem isn't solved, they should feel free to bring that concern to the general manager without fear of retribution. Many lawsuits by employees could be avoided if they simply felt that someone was actually listening to what they were saying and might take action to resolve a conflict. Does your program director consider herself a good one-on-one listener? Ask her to give examples of how she reacted when a staff member successfully approached her to discuss something of great importance to that person. If she can't cite an instance of this happening, you've got a major concern to deal with right away.



iStockphoto/Nicole Waring

*Confrontation:* This word has come to have an ominous ring to it, but what it really means is that good managers know how to be direct without being obnoxious, negative or threatening. It's common for managers to avoid confrontation because it makes them uncomfortable. Expressing and dealing directly with concerns, or simply motivating people — especially on-air talent — is not easy for most people.

*Negotiation:* While this behavior may seem almost second nature to a general manager, especially those who came up through the ranks in sales, it is a hard-earned, hard-learned skill for most folks.

As kids, we are natural negotiators but get so hammered during our formative grades that we mostly lose the ability and have to re-learn as adults. PDs often negotiate contracts, including salaries, bonuses, vacations and more, without any training. When this happens, you're losing money, time and possibly even talent.

I can almost hear the response to my plea for education: "We have no budget!"

I don't know of anyone who has done this, but it's not unthinkable that a community college in your area would trade you course credits for advertising. Option two is budgeting properly now for 2011, so it can happen next year. Option three is to encourage your program director to pay for the course himself.

Everyone involved will thank you for encouraging the investment.

*The author is president of Lapidus Media. E-mail* marklapidus@verizon.net.


PRODUCTS & SERVICES SHOWCASE

World Radio History

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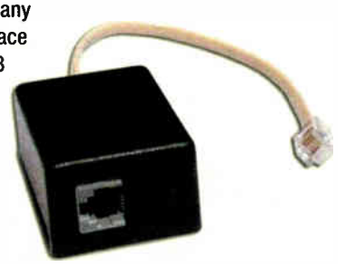

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World Radio History

# How Community Radio Can Grow

## Clyburn Talks Up HD Radio, a Possible Spectrum Move and Online Initiatives

*Excerpts from prepared remarks by FCC Commissioner Mignon L. Clyburn to the 35th Annual Community Radio Conference, held by the National Federation of Community Broadcasters in St. Paul, Minn., in June.*

I have the pleasure of appearing before you today knowing that the commission is trying to do its part to assist in the growth of community radio. ... One great example is the strides we are now making in tribal radio. ... The commission is also finally plowing ahead with the 2007 NCE FM window. It is safe to say that you can expect a flurry of point system orders from the commission over the next six months. ...

Finally, work on the low-power front seems as likely as ever to pay off. Currently, there is an order circulating among the commissioners at the FCC regarding whether to reconsider the previously imposed translation application cap of 10. I will continue to advocate swift movement on this order, as it is a key step toward the next LPFM window. ...

I am also optimistic that Congress will act to permit the licensing of new community stations under extremely flexible FM translator-type protection standards. Should Congress pass the Local Community Radio Act, we could realize a unique opportunity to license a great number — many hundreds — of new low-powered community-oriented radio stations.

The House of Representatives passed this legislation in December, and a companion measure has been reported out of committee and is pending before the full Senate. The proposed rules would create the first opportunity to bring LPFM stations to major markets. ...

With all of these positive developments underway or in the works, I wanted to touch on three additional areas that I believe can lead to growth in community radio. ...

### DIGITAL PARTNERSHIPS

I do not believe that community broadcasters should be tied only to your medium. ... The sooner you are able to harness other avenues, such as the Internet, to round out what you offer, the more potent you will be. As trusted sources in your community, you will have a leg up in developing local content online to complement your bread-and-butter work on the air.

A second area that may represent an opportunity for community broadcasters is HD Radio. Now I understand that limited receiver penetration and the cost of digital transmission equipment may make owning an HD Radio station an unappealing option for community radio groups. However, in addition to current NCE FM new station licensing efforts and the upcoming LPFM window, HD can provide yet another way to promote broadcast diversity and expanded programming options.

Based on the commission's 2007 order, we have imposed virtually no limits on the use of HD2 and HD3 channels. And the FCC's Media Bureau routinely permits FM translators to rebroadcast these channels. No prior staff approval is required.

In my view, NFCB should explore with its members the possibility of entering into partnerships with commercial and NCE stations to program HD2 and HD3 channels, and to acquire or enter into agreements to use translators to rebroadcast community station programming as analog signals. These are avenues that can expand your reach or create space for new stations simply looking for their first opportunities to get out there.

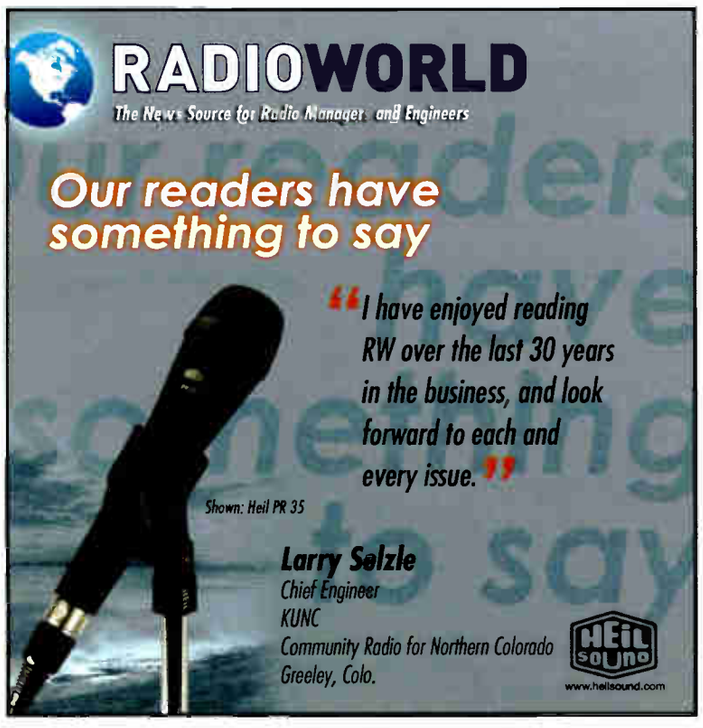
A final thought on where community radio might grow involves work on our part at the commission. The National Broadband Plan makes clear that this nation needs a comprehensive and thoughtful spectrum plan. Much of our approach over the course of our history of managing the public airwaves has been ad hoc, and without any overarching vision.

Now that the commission has made spectrum policy a centerpiece of its agenda, I believe it is time that we consider the fate of Channels 5 and 6 as they relate to current radio service.

These channels have proven difficult for television broadcasting, and I have a hard time imagining that they would fare much better as additional spectrum for mobile broadband use. This spectrum is not well-suited for digital transmissions. It certainly is possible that this spectrum could be used for LPFM, expanded NCE use and AM broadcasters.

I am not suggesting that the commission move today to reallocate this spectrum for such uses. What I am suggesting, however, is that it is time for us to take a serious look at where these services fit within the overall spectrum plan, and that Channels 5 and 6 may be a good home. I will be encouraging my colleagues to take a look at this issue as we move forward with a long-term spectrum program, and I urge you to continue to weigh in about how the services you provide are worthy of a hard look when it comes to this spectrum in particular.

*Mignon Clyburn was nominated for a seat on the Federal Communications Commission by President Obama on June 25, 2009. She subsequently was unanimously confirmed by the Senate and was sworn in on Aug. 3, 2009.*

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World Radio History

# A Strong Connection to Your Audience

## Journaline Digital Radio Data Service Enhances the Traditional Radio Experience

**COMMENTARY**

BY ALEXANDER ZINK

*The author is project manager for Journaline at Fraunhofer IIS.*

Keeping up with the trend towards personalized and instantaneous content for users is key to gaining the attention of today's radio audience.

With classic radio advertisements declining, we have entered an era where the listener expects, and typically has access to, versatile information whenever and however they want. The radio industry must keep pace by delivering an enhanced user experience.

**Program-independent topics can cover subjects such as sponsored hotel and restaurant recommendations.**

How do you keep listeners connected to your station? Opening a Facebook site, writing a blog or starting a Twitter channel all cost extra time and money. And, perhaps most importantly, those tactics force listeners to switch to other media channels and away from the radio dial.

To solve this problem, broadcasters must consider implementing a modern digital radio data service that can re-use content currently available online to enhance the user's traditional radio experience.

With the correct system in place, broadcasters can repurpose and deliver content to their audiences directly through the radio they already use, in an immediate, clear and structured way.

Journaline is one of the most powerful tools to keep radio audiences connected. This new information service for digital radio enables users to receive information tailored to the specific needs and wants of the listener. The content is accessed easily by the user and designed to be useful in many types of radio sets, whether it's a high-end radio with a graphical screen or an entry-level radio set supporting only a few lines of text.

**JVC recently announced its first in-dash receiver to support Journaline for in-vehicle applications, the KW-NT3HDT navigation system.**

This service allows the broadcaster to choose how to tailor content to the interests and needs of its specific audience.

Examples of this content include the station's listener contact information, or recently played songs with the option to purchase. Other features might include program-related topics such as show background information, or the phone numbers to dial into a radio show.

Program-independent topics cover a number of subjects including current news, stock market tickers, sports results even beyond mainstream sports, the latest airport arrival and departure times and sponsored hotel and restaurant recommendations.

### HOW IT WORKS

Journaline delivers textual information with easy and immediate access through hierarchically structured topic menus by extending the program content and broadcaster triggered short text information messages currently available for all digital radio systems (RDS radio text, DAB Dynamic Labels and DRM Text Messages). Its core functionality resembles that of an electronic newspaper or magazine.

Designed with simplicity and efficiency as primary goals, broadcasters can reuse existing data sources such as RSS feeds and XML data. Content is encoded in a binary form and compressed to minimize the required transmission bandwidth. In fact, Journaline services have successfully been launched at 200 bits per second.

Journaline can also deliver dynamic ticker messages for multiple topics and in various languages simultaneously.

While a main radio program can deliver its content and advertisements to only one language group at a time, Journaline targets the accompanying textual information offerings in numerous languages simultaneously. Multi-language capability is also a prerequisite to utilize Journaline broadcasts in case of emergencies, when listeners need to be informed about an emergency in several languages.

In addition, this feature could enable

**Journaline, shown at work in the Clear Channel Total Traffic Network Plus environment. On a main screen of the JVC unit, not shown, the user clicks on a TotalTraffic icon to gain access to news; local and national weather including forecasts and current conditions; and sports scores, including game updates every five minutes. These images are courtesy Clear Channel and JVC.**

broadcasters to reach hearing-impaired audiences via the service's caption subtitle capability.

On the receiver side, both the decoder footprint in terms of CPU and memory as well as the minimum required user interface functionality are very small, enabling the integration of a Journaline decoder into the full range of digital radio receiver types from price-sensitive alarm clocks and kitchen radios, to high-end multimedia devices with graphical displays. To support special environments such as car radios, Journaline provides speech hinting information for high-quality text-to-speech playback.

The Journaline specification is an open ETSI standard (*www.etsi.org*). Its standardization was a joint effort of major broadcasters, receiver manufacturers and research institutes, including Fraunhofer IIS.

### IN ACTION

Journaline-based services are on-air from major broadcasters including Radio Vaticana, Deutsche Welle, BBC, and now for the first time in the United States on Clear Channel's Total Traffic Network Plus service.

The service enables enhanced real-time news information available based on the open Journaline standard and is currently being rolled out throughout the United States. The new content offerings available to users comprise local and national weather conditions, sports scores and news headlines.

Total Traffic Network is the leading source of current traffic and news information for 125 metropolitan areas in four countries, supplying real-time traffic data to more than 125 million users through partnerships with automotive manufacturers as well as navigation device makers.

The popularity and demand for Journaline is growing, as demonstrated earlier this year when JVC announced its first in-dash receiver to support Journaline for in-vehicle applications. This receiver is the first of many to come with Journaline and Total Traffic Network Plus implementation. Of course, additional broadcasters can deploy the open Journaline standard to enhance their digital radio offerings while benefitting from the growing support in receivers.

On a global scale, Journaline is featured on-air by many international broadcasters, particularly over the DRM (Digital Radio Mondiale) and DAB (Digital Audio Broadcasting, Eureka-147) platforms.

In addition, Uniwave recently launched its Di-Wave 100 DRM radio featuring a graphical color screen and Journaline capability. Analog Devices has integrated Journaline support into their DAB and DRM receiver reference design platform.

Journaline encoder solutions as well as decoder implementations are available at Fraunhofer IIS for chipset and software based commercial radio receivers, as well as for non-commercial GPL based open-source projects.

*Comment on this or any story to radioworld@nbmedia.com.*

World Radio History

# READER'S FORUM

## AM POWER: WHY STOP THERE?

Richard Arsenault is substantially correct when he say that an AM power increase of a factor of 10 is what AM radio needs to become competitive again ("How About a Hike in AM Power," May 19).

I believe I can provide a number of other suggestions which will enhance the position of these AM broadcasters:

1) If a 10 dB power increase would be good, a 20 dB increase would be 10 times as good. Why stop at only 10 dB? And why only daytime? We can certainly overcome skywave interference issues with enough power.

2) Eliminate the directional antenna rules. At least half of the AM directionals now licensed are operating substantially outside their licensed values. Why should impoverished broadcasters have to pay to repair and maintain these antiquated, real estate-consuming money pits?

3) The FCC should also mandate that all cell phones, iPods, iPads and every other electronic device covered by Part 15 rules must act as an AM radio in initial power-up mode, and can only be used for some other function when the users pay a fee to their local AM station to get a password to unlock their device.

4) The government should immediately ban high-efficiency flourescent lighting, Internet over power lines, neon signs, microwave ovens and spark plugs. Nobody needs that stuff anyway.

5) Obama stimulus money should immediately be distributed to each AM broadcaster, to be used not to technically upgrade or enhance programming but to send the owners on cruises.

6) All AM stations should immediately be issued CPs for Class C FMs, and FEMA will pay to build them.

Many years ago, Walt Kelly did a "Pogo" cartoon whose message was a joke on the John Paul Jones quote: "We have met the enemy and he is us."

There are AM stations around the dial, not just in major markets, that function as businesses and have audiences. Many stations have achieved a dysfunctional state because their operators gave up years ago. This is happening to many FMs too.

Mr. Arsenault's proposal is a restatement of the popular fallacy that every problem has a simple solution. This is not true. The problems that had simple solutions have all been solved. What we're left with are tricky problems that will require carefully crafted, often case-specific solutions.

All of this discussion, of course, ignores market demands. If you put a product out there that people see some value and desirability in, you'll be successful. If not ...

*James Walker*
*Broadcast Engineer and Programmer*
*Liberty, Ind.*

## DO IT, AND NOW!

500 kW = good; but no HD with that kind of power.

Also, manufacturers of radios to put variable bandwidth and noiseblankers on AM, even the AMAX standard option = good.

Most important, the FCC enforcing the switching power supply manufacturers, LED traffic signal boys, dimmers, and even pump motors to put the kaibosh on the RF noise generated on MW.

Heck, I'm all for 750 kW clear-channel 1A stations for the original batch of stations: i.e., if your call letters are just three letters, and you're omni, then you get 750 kW as soon as you want it.

Case closed. Let's do it, and do it now!

*John Pavlica*
*Toledo, Ohio*

## THE COSTS OF DAYTIME POWER

There are many things I basically like about the idea of increased power on the medium-wave bands in the U.S. radio market.

I grew up in the era of CBS-Murrow/Edwards/Cronkite et al., NBC-Monitor Radio and Mutual Radio News on the hour; it is my long-held view that "national" radio voice(s) are needed in America in addition to the most excellent National Public Radio network. Super-power AM stations would go a long way to fulfill that dream mission for nighttime broadcasts.

However, I am not so enthusiastic about a daytime increase in power for the following reasons (I am not addressing the proposed increase in early-morning hours for Class B stations, which is beyond my area of experience):

An increase in daytime medium-wave power would yield unquestioned benefits but at a very high cost-to-benefit ratio. The FCC and NAB Ground Wave Field Strength Curves tell a very interesting story.

A 50 kW station on 940 kHz operating into a quarter-wave antenna will deliver approximately 0.5 mV per meter field strength at a distance from the station of approximately 75 km at 10 mS/m ground conductivity. An increase of station power to 500 kW would increase this distance only to approximately 120 km. (The vagaries of daytime groundwave propagation!) This is equivalent to an increase in area, mostly rural area for most stations, of 2.6 for an increase in power of 10.

Modern AM transmitters have remarkable power efficiency of roughly 90 percent. However, the cost of power and operating personnel for these large powers is not insignificant.

A 50 kW transmitter at 90 percent efficiency consumes approximately 60 kW of power under program conditions. At $0.12 per kWhr, this represents an annual cost for power of $63,000. By simple ratio, a 500 kW daytime transmitter would cost an additional $283,500 per year (based on 12 hours per day at each power level) — not including the substantial cost of initial investment not only for the transmitter but for the antenna system as well.

In addition, larger transmitter and antenna systems would require more operational and maintenance expense.

To repeat, the increase in coverage area for most stations would be rural — perhaps including some otherwise uncovered small metropolitan areas, but nevertheless mostly rural, making the 2.6 increase factor in area covered even less attractive in terms of population density.

This story would be quite different for nighttime skywave propagation. In my view, there are network Class A stations that could provide the nation a real service if the government would allow them to increase their nighttime power ... 500 kW would be a start!

*George Woodard*
*McKinney, Texas*

## POWER VS. POWER

Your piece about AM power fits nicely with my article "Environmental Effects of the Widespread Deployment of High-Speed Power Line Communication." It was published in "The EMC Journal," Issue 87, March 2010, and may be found at *www.theemcjournal.com*, click on "PLT."

It calculates in Section 3 that the world's shortwave broadcasters will have to increase power at a rate equivalent to commissioning 30,000 wind turbines per year to maintain their signal/noise ratio against PLT/BPL alone.

Thank you for providing the first documented step in this direction!

*Richard Marshall*
*Harpenden, England*

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*Rick Hunt, Vice President and Director of Radio Engineering at Entravision Communications Corporation, with one of their Wheatstone G5 consoles.*

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