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Skip Pizzi says digital audio technology is entering its third generation.
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$2.50 The Newspaper for Radio Managers and Engineers July 4, 2007

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imas Publishing Group
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New Rules Provide IBOC Certainty

Next Questions Include Fees for Subscription Channels and, Maybe, 24/7 Staffing for All

by Leslie Stimson

Basic rules covering the terrestrial digital radio service now have been spelled out by the FCC, and AM IBOC at night has been allowed.

But future iterations of digital operation are just beginning to be examined. And the commission has tacked onto a new digital radio proceeding several broader topics under the umbrella of "public service obligations."

Some questions — like possible spectrum fees on digital subscription services and tightening of rules governing automated broadcast operations for all stations — are controversial and could have great impact at the station level beyond the digital conversion rollout.

At least one idea under scrutiny could make operations easier for small stations by allowing public files to be kept online, experts believe (see page 3).

The commission on May 31 released details of its digital radio rules. The text expanded on its vote in March that gave regulatory certainty to HD Radio operators, codified multicasting and allowed AM HD stations to turn on digital at night.

The agency calls these the final operational requirements and related licensing and service rule changes for terrestrial digital radio. The 74-page document released contains details many IBOC proponents and stations have been seeking for some time. The changes were to take effect 30 days after publication in the Federal Register. That had not occurred as of early June.

At the same time, the text touched on numerous questions that are likely to shape future debate. In the document, the commission makes clear that many decisions remain undecided.

For instance, in a Second Further Notice of Proposed Rulemaking, the commission asks whether it should limit the subscription channels a station may air, such as to 20–25 percent of a station's digital capacity. That FCC estimate is based on current FM SCA use.

The agency is asking whether such a limit on "conditional access" ensures that free portions of a station's digital channel are not compromised. The agency is also

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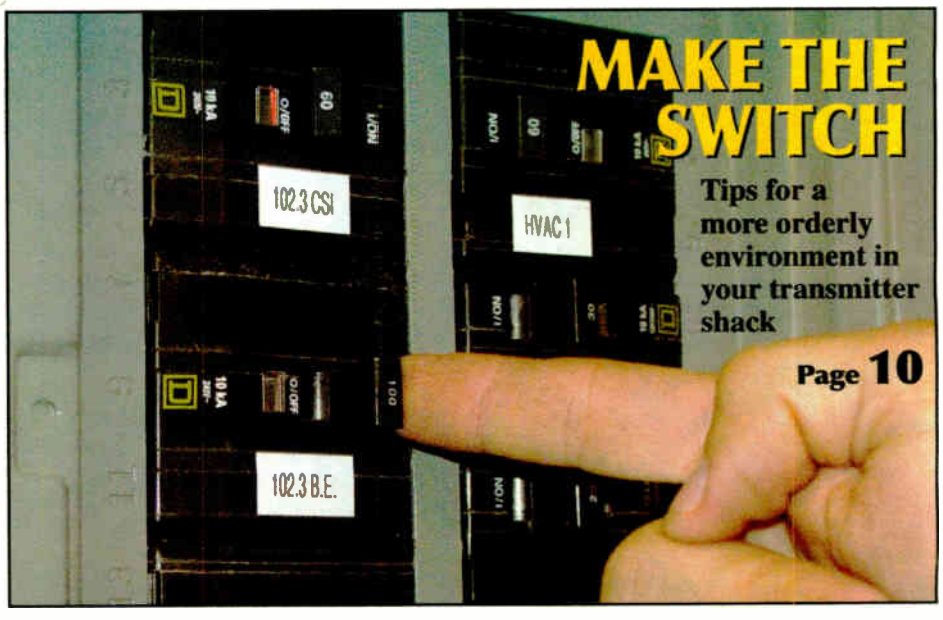

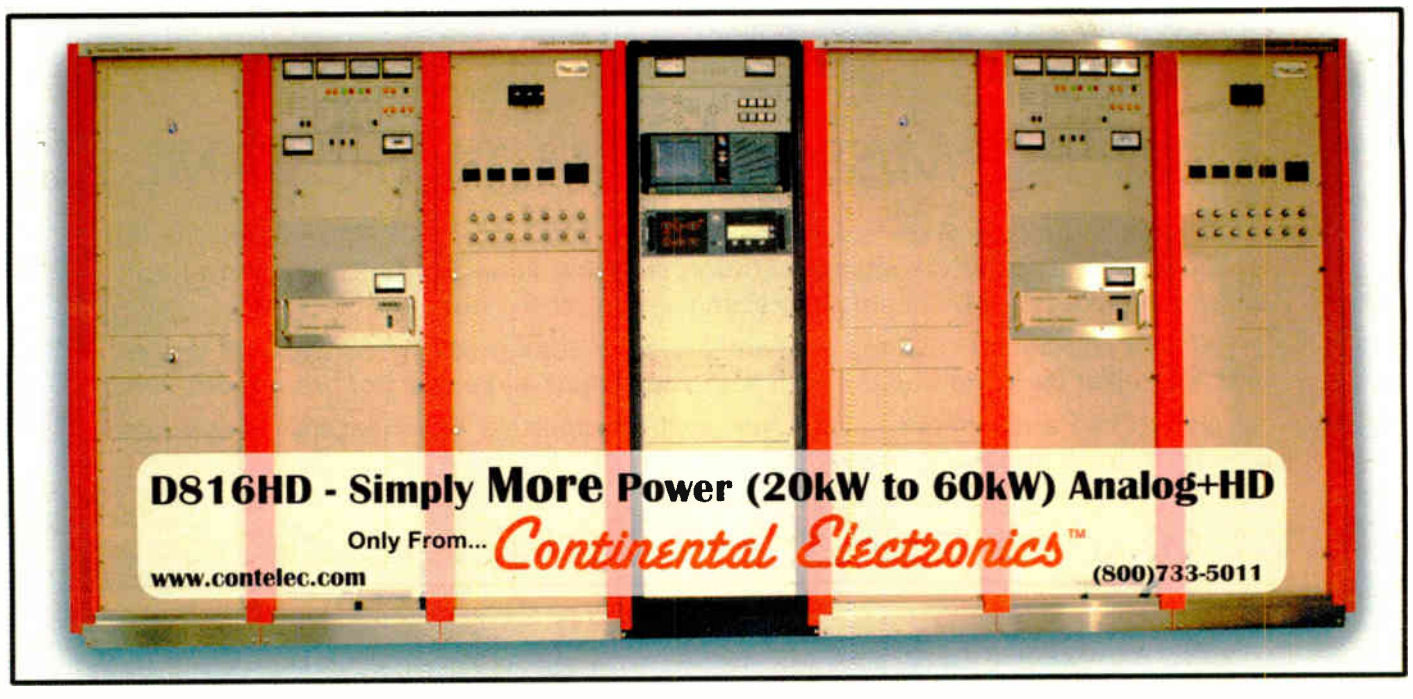

World Radio History

NEWSWATCH

'Big Dog' Sony Enters HD-R Market

SAN DIEGO The HD Digital Radio Alliance will promote Sony's entrance into the IBOC market with radio ads specifically for the manufacturer as well as spots supporting other receiver makers.

That's according to Alliance President/CEO Peter Ferrara, who characterized Sony as "the big dog" among receiver makers with "tremendous manufacturing" capability and a strong retail distribution channel.

Sony, the receiver manufacturer with what the alliance says is arguably the largest market share in this country, is introducing two HD Radio products in July, the first of what it plans will be a product line of gear.

Sony has long been an Ibiquity licensee and says with its new tabletop and car tuner, it has a "long-term commitment to developing and distributing a range of HD Radio-enabled consumer products over the next several years."

The AM/FM/HD table radio (model XDR-S3HD) features an auxiliary input jack and cable to connect an external music device, a wireless remote control and clock radio features. The $200 unit ships to retailers this month.

The mobile tuner (model XT-100HD) connects to most Sony head units. Many Sony car stereos come with front aux-in and USB inputs, play MP3 CDs and are iPod and satellite radio-ready. The tuner, which will retail for about $100, also ships this month.

News Roundup

EBAY TO AUCTION ADS: eBay is challenging Google and will begin auctioning ad time on 2,300 stations. eBay already auctions cable ads; now it is partnering with Bid4Spots to create a radio presence in its eBay Media Marketplace.

DAVID REHR has urged the sat radio companies to withdraw their merger application "in the best interests of consumers and competition." The president/CEO of NAB called the merger a request for "a government bailout for operational and financial missteps that have depressed stock prices, and in turn, investors."

SANGEAN introduced an upgraded version of its HD Radio component tuner. The HDT-1X tuner will complement the HDT-1 model, the manufacturer said. New features are S/PDIF optical output and an analog mode that allows listeners to "lock in" an analog signal in fringe coverage areas. Also new is a Split-Audio Mode, airing digital audio in one channel, analog audio in the other to allow users to hear the difference. Sangean was taking orders in June and expected to ship shortly; retail price is $249.99.

MINI, a division of BMW, is offering HD Radio as a factory option in 2007 Cooper and Cooper S hardtops. The HD Radios will be multicast-capable. They can be ordered as a stand-alone option for a list price of $500 or as part of Mini's Audio Package that includes an upgraded Hi-Fi radio and Sirius Satellite Radio with a lifetime subscription that stays with the car after resale. This package retails for $1,400.

RADIOSOPHY shipped its HD100 with a temporary price of around $60. The price was a combination of a $99.95 introductory offer with a $40 HD Radio rebate. The offer on the HD100 was to expire June 30 and the rebate was to expire July 3. The HD100 features a Line-in port to

See NEWSWATCH page 3 ▶

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World Radio History

FCC Looks at Changes to Rules Covering Unattended Operation

by Leslie Stimson

Surprising many observers, the FCC used the IBOC proceeding to review some basic regulations for all stations, digital *and* analog, when it published the new digital rules.

The commission is revisiting the appropriateness of unattended operations for all stations and how that affects the transmission of EAS alerts in connection with its review of public interest requirements for IBOC.

While the FCC now has published basic service rules and fundamental public interest obligations for digital channels (see page 1), it seeks comment on additional public service obligations in a Second Further Notice of Proposed Rulemaking. These new obligations could extend beyond the digital channels to affect main analog channels.

If the FCC were to cut back on the number of hours a station may operate unattended — and possibly require 24/7 staffing — the change would apparently affect all stations and could have a large impact on facilities, especially those with undersized staffs in small markets.

In 1987, the commission eliminated a provision of the main studio rule in which stations were required to originate a majority of non-network programming from the main studio. It did so in part based on technical advances in program production and distribution, it said.

If the FCC were to cut back on the number of hours a station may operate unattended — and possibly require 24/7 staffing — the change apparently would affect all stations.

In 1995, in response to improvements to monitoring equipment for stations and transmission facilities, the agency authorized unattended operations and expanded the ability of stations to control and monitor station technical operations from remote locations.

Now, the agency is asking whether "changes in remote operation impacted the requirements that the commission should adopt in this area."

The FCC has an open EAS proceeding and believes asking EAS questions in the digital proceeding is appropriate, although the issues it seeks comment on would apply to all stations.

The commission is taking comment on whether it should revisit the rules allowing unattended operations, and specifically, whether the "widespread reliance on automated operations" limits the ability to distribute EAS alerts effectively.

The commission didn't mention other possible reasons for opening this topic, such as loss of localism, which some critics say resulted from allowing "automated" stations.

"Although EAS equipment can be programmed to operate automatically in certain circumstances, when a state or local alert is initiated by designated local authorities, initial input of the alert and activation of the originating EAS ENDEC must be done manually. In some emergencies, this initial input does not occur," the FCC stated.

In a footnote, the FCC referred to two incidents where it states EAS alerts were not activated: the widely reported 2002 train derailment near Minot, N.D., and a train collision in Macdona, Texas, 10 miles from San Antonio.

In the Minot case, Clear Channel has said state emergency personnel did not know how to operate the EAS and did not send the initial message to the primary station to pass on. Clear Channel says it has since trained state personnel on how to operate its EAS equipment.

The question of unattended operation and whether it affects a station's ability to transmit an alert is separate from the EAS Common Alerting Protocol order the agency announced in May.

The commission will require EAS participants to accept CAP messages after FEMA adopts standards. CAP involves the transmission of EAS alerts as text, audio and video via broadcast, cable, satellite and other networks.

And finally, the commission, which is examining whether requirements for the public inspection file for TV stations are adequate to ensure the public has easy access to the material, is asking the same questions about digital and analog radio stations.

The agency has proposed that TV stations make the contents of their public inspection files available on the Web. The FCC asks whether radio should do the same or if radio rules should be different.

Comments on the Second Further Notice of Proposed Rulemaking, FCC 07-33, are due 60 days after Federal Register publication.

Newswatch

▶ Continued from page 2

connect MP3 and other audio devices, "Scan HD," program associated data displays and clock radio functions.

JUDGES ON PROFANITY: A panel of a federal appeals court threw out an FCC ruling in a TV profanity case, calling into question the commission's authority to regulate broadcast content.

Hollywood and free speech advocates praised the ruling while FCC Chairman Kevin Martin opposed it by releasing a statement containing profanities to draw attention to the issue. The U.S. Court of Appeals for the 2nd Circuit in New York ruled that the FCC went too far in a 2006 decision against Fox Broadcasting for incidents in 2002 and 2003 after Cher and Nicole Richie uttered expletives on live television. The judges said the commission didn't adequately explain why it changed its mind on the "fleeting use" of profanity and ordered the agency to retool its regulations.

BEHRINGER FINE: The FCC upheld a $1 million against Behringer USA for marketing 50 models of digital audio music devices that had not been properly authorized. The original fine was proposed by the commission in early 2006.

CAP & EAS: The FCC adopted an order that requires EAS participants to accept messages using Common Alerting Protocol after FEMA adopts standards. Participants also now must transmit state and local alerts originated by state governors. CAP involves transmission of EAS alerts as text, audio and video via broadcast, cable, satellite, and other networks. The commission seeks comment on how best to deliver EAS alerts and commited to adoption of a final order within six months.

BRADLEY SOLD: Bradley Broadcast and Pro Audio was acquired by David Matthews, a former radio chief engineer who also was Bradley's first sales manager. Former owners Ted and Linda Veneman are retiring. Matthews most recently was director of network services for Quanta US Holdings.

D.A.V.I.D. ACQUIRED: German software developer D.A.V.I.D. is now part of the Silex Media group, a subsidiary of SGI Japan. The seller is Palamon Capital Partners, a private equity firm.

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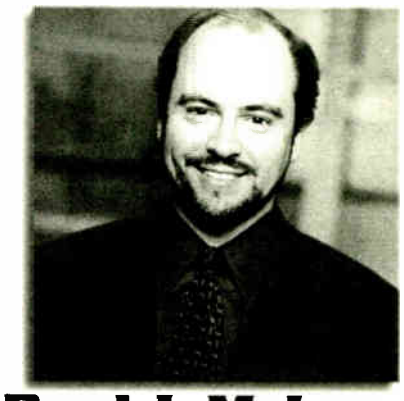
The Digital Forest Looks Pretty Green

From the Editor



Paul J. McLane

The FCC's latest report on digital radio is interesting reading, a concise summary of IBOC's regulatory history and of issues that may yet be contentious, such as subscription services, new public interest obligations and digital copying limitations.

The commission's action is summarized in our story on page 1 of this issue, and you can peruse the order at *radioworld.com*. I recommend it.

Reading the document, however, also brought to my mind the original, powerful reasons broadcasters pursued this particular technology. These factors tend to be forgotten or taken for granted during debate over various rollout questions that occupy discussion at conventions, on listservs and in news stories.

It's timely to recall them now.

Among the various ways to "go digital," IBOC appealed to broadcasters because our industry essentially is conservative in its business outlook. We are hesitant to leap into new arenas if such a leap would put our existing "turf" at risk.

One can argue whether and when such a cautious outlook is appropriate; but in such an environment, HD Radio emerges as a custom-fit solution for bringing the radio industry into the digital age. This approach truly is elegant, allowing a broadcaster to ease into a significant new service with no fear of giving up existing spectrum. It also is a way that radio has been able to go digital without fully opening itself up to new terrestrial competition. (As our Skip Pizzi puts it, "Score one for the incumbents.")

Think of the discussions we'd be having right now if radio's digital road map involved a mandated move to new frequencies and surrender of existing channels, all on a government-set schedule. In the middle of such a transition, HD Radio would look pretty darned good.

You'd wish for a rollout that allowed you to create profitable new information services on your existing bandwidth, without having to obtain separate permission each time you added a program stream, in data increments that you determined, on a timetable that you set and at a pace with which you were comfortable.

You could add new streams when you conceived them; and you could explore the transmission of new data and audio services within the relatively protected confines of your existing broadcast infrastructure.

That opportunity exists now.

I know this sounds like a sell job. But I continue to be a cautious IBOC proponent, not a gung-ho advocate.

I am perfectly aware that some readers wish the question of the digital transition would just go away. They cite concerns about cost, interference, monopolistic licensing or the perception that they're being dragged into it by bigger corporate entities.

I respect those who feel this way but as I've stated before, the HD Radio IBOC solution that our industry has developed, while imperfect, is the best available and, further, it's foolish to ignore the benefits it does provide. Let's not lose sight of the growth of our digital forest while we fret about individual trees.

Among IBOC critics, the most paranoid sometimes say that big corporations, plotting with the commission and the NRSC, are forcing our industry into this change. Ignore them. I know too many of the good people who have struggled with these decisions — including most of our industry's leading engineers — to fall into such an easy delusion.

But if anything, the new IBOC rules do protect, rather than infringe, the interests of broadcasters, a group that mostly wants to transition to digital but at its own speed and in its own way.

Medium- and small-market broadcast managers are being pitched the benefits of HD Radio; they should listen with an open mind. In the language of the investment community, stations are being offered a chance to move into digital with real profit potential in the near term, a solid long-term outlook and little downside risk other than upfront licensing and hardware costs — expenses that can be incurred on their own timetables.

(Also note that over time, the FCC said, it could reconsider its stance that stations must simulcast their main digital and analog signals. This means you could air separate HD and analog feeds. That's more potential competition in your market looming.

The commission order also makes clear that its staff is thinking about an all-digital future. Some industry leaders have said they'll never turn off their analog; but I wouldn't put money on that.)

Meanwhile, tuners are proliferating today. Multicast channels are being added; it's my prediction that soon one will "break out" into national consciousness with an unexpected format or personality, one that will help create the consumer buzz HD Radio craves.

Many new-media companies would *kill* to have the regulatory certainty and coordinated marketing among competitors that radio enjoys in this transition. You need not be a Clear Channel or CBS to benefit from this extended opportunity to manage and experiment with new digital services.

Take advantage of it.

Many new-media companies would kill to have the regulatory certainty and coordinated marketing that radio enjoys.

Scoreboard Adds BIAfn Data

Beginning in this issue, Radio World's HD Radio Scoreboard will incorporate information from BIA Financial Networks among our sources. By combining BIA's tools with publicly available information about HD Radio stations from Ibiquity and elsewhere, Radio World can offer new analysis and perspectives on the rollout.

The BIA data, provided by Ibiquity, is included in the BIAfn Media Access Pro solution, allowing us to search and analyze HD industry data, including owners and market size, as well as other key market trends all in one place. For info on Media Access Pro, visit *www.bia.com*.

In this issue, we compare the progress of rollouts at various industry owner groups. For instance, did you know that one-third of Clear Channel stations and 87 percent of Bonneville stations are on the air with HD Radio, while at Salem that number is 1 percent? And that the groups with the largest percentage of multicasts so far are Emmis and Greater Media?

See the scoreboard on page 19.

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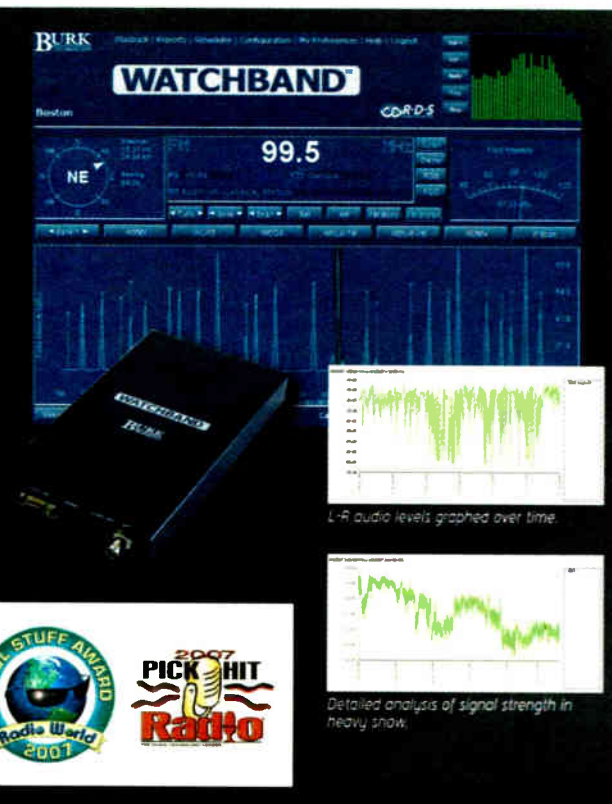

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IBOC

▶ Continued from page 1

asking whether noncoms be treated differently in this.

Spectrum fees may someday be applied to subscription services for digital radio Congress already has authorized the agency to require DTV stations to pay a fee of 5 percent of gross revenues from so-called "feeable" ancillary digital radio services; the FCC now is asking if it's appropriate to require the same of radio.

(Not mentioned in the text is that any commission spectrum fees would be separate from Ibiquity Digital's fee for supplemental audio, which according to a licensing fact sheet on the company's Web site is 3 percent of net revenue derived from any supplemental audio service, with a $1,000 minimum per channel.)

Comments on the Second Further Notice of Proposed Rulemaking, FCC 07-33, are due 60 days after Federal Register publication.

WHAT IT DID

Here's a summary of what the commission did, including observations it offered in its text and summaries it provided of comments it had received for and against various issues.

LEGAL ID

The commission said station ID requirements are necessary for digital stations and laid out regulations.

Opinions had differed as to whether separate call signs should be required for digital and/or multicast channels, according to the commission.

Public interest groups favored expanding the call letter system so listeners could more easily identify the source of programming. Ibiquity opposed this, arguing there's no need for additional ID requirements because IBOC stations that don't multicast are airing identical programming. Ibiquity also asserts that broadcasting a separate digital call sign would require "significant system and equipment modifications."

Small businesses, including stations and small manufacturers, opposed requiring IDs for multicast stations because, they say, stations voluntarily identify their channel positions to cultivate market recognition. Additionally, they argued, digital station calls can be embedded into the digital bit stream, so the FCC can have an easy way to identify a station for enforcement purposes.

In the new rules, the FCC said digital AMs and FMs must make station identification announcements at the beginning and end of each time of operation, as well as hourly, for each programming stream.

Proper identification, it said, consists of the call letters followed by the program stream, and then the community of license, according to the commission. Presumably this would suffice: "This is WXYZ, HD3, Anytown, USA." Stations may insert between the call letters and the station's community of license the frequency, channel number, name of the licensee and/or the name of the network, at their discretion. The commission didn't give examples for main-channel digital FMs.

Third, a station operating in DAB hybrid mode must identify its digital signal, including any free multicast audio programming streams, in a manner that appropriately alerts its audience to the fact that it is listening to a digital audio broadcast. This requirement can be met orally on-air or by text messages on the receiver display.

AM NIGHTTIME OPERATION

"On balance, we find the benefits of full-time IBOC operation by AM stations outweigh the slightly increased risk of interference," the commission states in the text.

The approval ended a long period of speculation as to when the FCC would allow AMs to broadcast digital signals at night. Some IBOC opponents believe widespread adoption will bring significant degradation to the AM band at night.

But studies conducted by Ibiquity and analyzed by NAB indicate the greatest potential for interference is at the fringe of coverage areas, "primarily where substantial interference from analog" already exists, the agency states in the text.

As we've reported, those AMs already transmitting in IBOC during the day can go on at night without additional FCC notification. The FCC will presume notifications it receives from AMs after these changes take effect will be for both day and night IBOC operation.

NO MANDATE

The FCC said it won't establish a deadline for stations to begin conversions to digital. Radio licensees are under no statutory mandate to convert and a hard deadline is "unnecessary," given that DAB does not require the allocation of additional spectrum, it stated.

EXTENDED HYBRID MODE

The extended hybrid mode, which adds up to 50 kbps of data carrying capacity to an FM IBOC signal, "holds great promise," the commission stated.

It cited an NPR report that concluded FM extended hybrid mode does not affect host analog reception in a variety of radios. The research "provides ample basis for permitting such operations." The agency is confident its staff can work out any interference issues with this operation on a case-by-case basis "in a timely fashion."

MULTICASTING

FMs can multicast without "additional" FCC approval. The FCC document specifically stated that stations are "strongly encouraged," though not required, to use their extra channels for public affairs programming and formats that serve minorities, underserved populations and non-English-speaking listeners.

Broadcast owner Mt. Wilson Broadcasters opposed multicasting in its comments to the FCC, saying that splitting the channel would impair FM service. NPR replied that Mt. Wilson was "misinformed" about the purpose of IBOC and the feasibility of multicasting. The FCC found that multicasting will not degrade the FM band.

As AM IBOC operations progress, Ibiquity told the FCC, it intends to introduce the multicasting concept for AM stations.

TIME BROKERING, OWNERSHIP AND ATTRIBUTION

Time brokering is permitted on digital channels. The FCC now allows what are essentially leasing deals for main analog channels, FM subcarriers and excess DTV bandwidth.

The FCC said it agrees with small business that allowing time brokering will allow stations to recoup some of their digital conversion costs as well as providing a way for new entrants to break into radio.

The FCC agreed with a coalition of public interest groups that a licensee which is already at the ownership maximum in a market shouldn't be allowed to acquire additional broadcast streams through time brokering.

It clarified that, for multicasting, a station owner which programs more than 15 percent of the total weekly hours broadcast on a digital audio stream of another station in the market will be considered to have an attributable interest in the brokered station, which counts toward the local ownership caps.

The commission said it will conduct periodic reviews of digital service and receiver penetration and issue an annual report on how the new digital services are rolled out.

LPFM

The FCC said if a low-power FM station is technically capable of transmitting a digital signal, there should be no "regulatory impediment" preventing its adoption of IBOC.

Ibiquity says IBOC transmission equipment can operate at the 100 watt power level an LPFM needs, but a 10 watter may be out of luck as such a low power level may make digital broadcasts "unfeasible," according to the FCC. The commission didn't state whether there are any LPFMs broadcasting in digital.

MAIN-CHANNEL AUDIO QUALITY

Stations must provide at least one free digital over-the-air service that is "comparable to or better in quality" than the main analog channel. This baseline constraint mirrors a DTV requirement. Stations must still simulcast their analog program on their main digital channel.

The FCC said it may revisit the simulcasting obligation when it decides

See IBOC, page 6 ▶

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IBOC

▶ Continued from page 5

whether or not to approve the NRSC-5 Standard. In 2005, the NRSC adopted NRSC-5 and submitted the standard to the FCC for evaluation. The commission said it's in the public interest to adopt policies and rules for IBOC before it has completed evaluating the standard.

BIT STREAM FLEXIBILITY

NAB argued that, this early in the IBOC transition, it's impossible to know for sure the number of bits necessary to support a good-quality main digital signal or several multicast channels without degradation. Cox Radio stated that any restrictions adopted now could be soon obsolete.

As AM IBOC operations progress, Ibiquity told the FCC, it intends to introduce the multicasting concept for AM stations.

The FCC declined to require a minimum digital bandwidth level, leaving this at stations' discretion.

DATACASTING

Ibiquity urged the commission to include enough flexibility in its datacasting authorization to promote innovation. NAB said such flexibility will expedite the emergence of IBOC.

Stations can offer any type of data service, consistent with rules applicable to analog SCA services, as long as the new service does not impair "the mandated stream of free audio programming."

SUBSCRIPTION SERVICES

Subscription services are only allowed if a station has experimental authorization for the service. The agency said it will grant such authorizations for uses that serve the public interest, including current services carried on subcarrier such as radio reading services.

Commenters emphasized the benefits of multiple digital audio channels and how that would ensure the continuing viability of radio reading services as well as enhance broadcasters' ability to offer more niche programming and public affairs broadcasts.

DUAL FM ANTENNAS

Stations may use separate antennas for the analog and digital signals without an STA request, subject to criteria contained in a Dual Antennas notice issued in early 2004.

NOTIFICATION PROCEDURES

To allow stations to take advantage of technical improvements as they develop, rather than waiting for commission action and new rules, the FCC gave its Media Bureau expanded authority to act on IBOC rules. After appropriate notice and public comment, it can implement new notification procedures to cover new IBOC configurations.

PUBLIC INTEREST OBLIGATIONS & EAS

The FCC is applying these requirements to all free over-the-air IBOC channels (both digital main channels and multicast): Political broadcasting; payment disclosure; prohibited contest practices; sponsorship identification; cigarette advertising; and broadcast of taped or recorded material.

Digital stations must air all national EAS messages on all audio streams. Participation in state and local level alerts, while encouraged, is voluntary. Stations choosing to comply with EAS must comply with Part 11 EAS rules.

PERIODIC REVIEWS

The commission said it will conduct periodic reviews of digital service and receiver penetration as circumstances warrant. It will issue an annual report on how the new digital services are rolled out, including what services are offered on multicast streams.

KAHN, OTHERS KICKED TO THE CURB

The FCC dismissed Petitions for Reconsideration from The Amherst Alliance, Glen Clark and Associates, and Leonard Kahn.

After the FCC declared IBOC was the system for the United States, Amherst sought a new rulemaking on digital radio and asked the commission to establish a test for the Eureka-147 system. The commission now said it would not delay the IBOC proceeding.

Clark had challenged the FCC's daytime-only restrictions for digital AMs, offering criteria to identify those that could broadcast at night with minimal risk of interference. Given the recent approval of AM nighttime operations, the agency dismissed his petition as moot.

Kahn's request for the commission to stay implementing IBOC until the agency revises how it evaluates new technology was dismissed for being untimely filed. Kahn provided no justification for the late timing, according to the FCC.

See IBOC, page 8 ▶

"Our experience with the three Logitek Consoles that we used for our broadcasts of the Olympics in Sydney, Salt Lake City, Athens and Torino built our confidence to purchase the new Mosaic for our NY Network sports studio. They are reliable, easy to set up and easy to reconfigure on the fly.

"The sports studio is the hub of all activity for our NCAA College basketball, NFL Football, NHL Hockey and all other sports broadcasts. It not only handles program audio, but also many IFB and intercom paths. We also have flexibility in our headphone monitoring that we never had before. Logitek's router based console has made frequent configuration changes easy with short notice. No more moving wires around. All of the routing changes are done by easy changes in the configuration software. Scene changes are fast and easy."

WESTWOOD ONE
Conrad Trautmann
SVP, Operations and Engineering
Westwood One • New York City

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Console Router Systems

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info@logitekaudio.com **www.logitekaudio.com**

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World Radio History

Meet Some Real-World Super Heroes...

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

ACCESS delivers mono or stereo over DSL, Cable, Wi-Fi, 3G cellular, satellite, POTS (yep, ACCESS is a full featured POTS codec and works seamlessly with Matrix, Vector and Bluebox)—plus some services you may not have even heard of. Given the challenges of the public Internet, it's no small boast to say that ACCESS will perform in real time over most available IP connections.

Want to learn more? Contact Comrex to get a FREE booklet that explains ACCESS BRIC technology and how it differs from traditional IP codecs. Become a real-world super hero!

Read more stories of real-world super heroes at comrex.com:

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- **Lynn, MA:** Toys for Tots—Remote on the Move
- **Boston, MA:** Car Dealerships at Christmas. ACCESS Delivers.
- **UK:** ACCESS on VSAT—A Clever Solution From Our Friends in the UK
- **Cancun:** Sunrise Over IP
- **Brockton, MA:** Minuteman Communications Always Gets Their Man... um... I Mean, Their Remote
- **Alpena/Tawas City, MI:** Are You Tired of STL-Over-the-Public-Internet Stories Yet?
- **Dallas:** The Ticket
- **Amarillo, TX:** You Gotta Do What You Gotta Do
- **Asia:** Radio Free Asic—Live From the Himalayas
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Put Comrex On The Line.

COMREX

World Radio History

IBOC

▶ Continued from page 6

WHAT IT DIDN'T DO

In issuing its text, the FCC also deferred action on a number of issues.

ANALOG PROTECTION

Ibiquity told the commission that in the early portion of the transition, the FCC should protect analog signals, such as by limiting the power level and bandwidth occupancy of the digital carriers in the hybrid mode. At some point, when digital receiver penetration warrants, the agency could reverse this protection to protect digital operations.

The agency said it's too soon in the conversion to consider this action, which could have "unknown and unintended consequences."

ALL-DIGITAL MODE

Given that there are no technical standards, it's too soon in the conversion to consider handing down rules for all-digital operations and allow stations to turn off their analog signals, the FCC found.

"Our principle focus at this stage is to ensure that the ground rules are set for the introduction of hybrid IBOC DAB." Broadcasters were encouraged to experiment with all-digital mode with appropriate authorization.

DIGITAL RIGHTS MANAGEMENT

The commission had asked whether the transmission of free non-encrypted digital signals could lead to the "indiscriminate recording and Internet distribution" of copyrighted music and how this could be prevented.

It stated that interested parties are seeking a solution and deferred action on this issue. NAB, CEA, Ibiquity, satellite radio and the Recording Industry Association and other affected parties are discussing the issue and also lobbying Congress. Lawmakers have said they prefer that industry settle the matter without government intervention.

RADIO READING SERVICES

IBOC transmission or receive equipment is not required to have RRS capabilities at this time, but the commission said this could be addressed in the future. The International Association of Audio Information Services had urged the FCC to require digital stations to carry RRS, arguing that before any station offers income-generating secondary audio streams, it should be required to first provide digital bandwidth for RRS.

Ibiquity opposed mandatory RRS receiver capability, saying this would hamper the rollout at this stage and burden manufacturers with higher costs. NPR said it's inappropriate to consider mandating RRS at this stage in the digital conversion because there needs to be more testing of digital RRS.

The FCC, which does not require analog stations to carry reading services, said it encourages voluntary cooperation toward digital radios being able to decode RRS signals. The agency declined to impose a digital RRS requirement and it said this would be addressed in a DAB periodic review later.

The FCC declined to require a minimum digital bandwidth level, leaving this at stations' discretion.

SUPER-POWERED FMS & SHORT-SPACED STATIONS

Livingston Radio had urged the agency to restrict digital power levels for super-powered FMs, saying they can cause more interference than stations that comply with class limits. Cox Radio and Bonneville asserted that this was beyond the scope of the proceeding. The FCC agreed and declined to adopt special restrictions on both super-powered FMs and short-spaced stations.

The power and antenna height combination of a super-powered FM station exceeds FCC class limits. Such stations were authorized before the current class limits were adopted and have "grandfathered" status.

TRANSLATORS AND BOOSTERS

Digital translators and boosters are permitted during interim IBOC operations, but the commission said it needs a stronger record to address technical issues with their authorization before adopting permanent rules.

NONCOMS

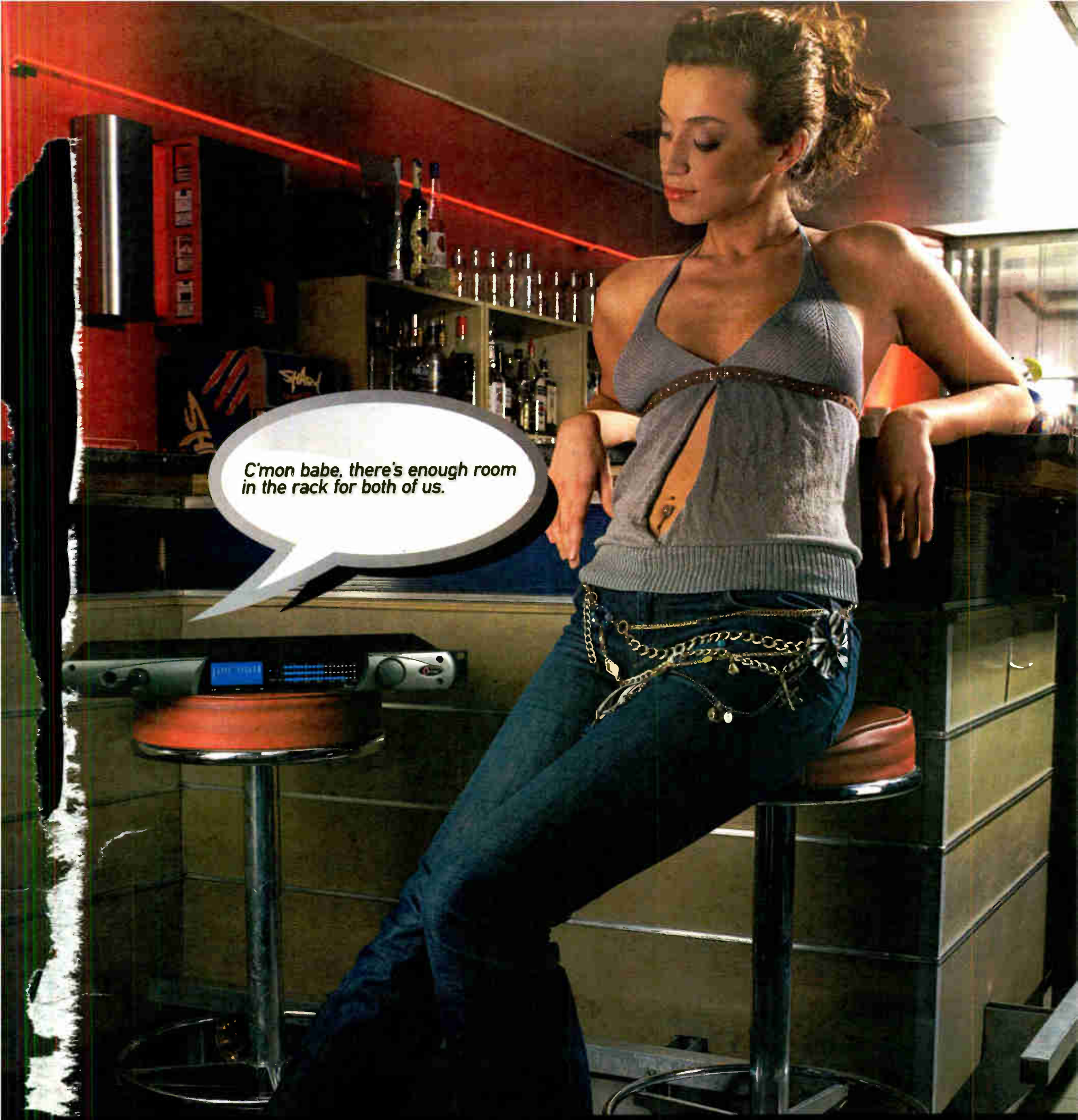
NPR, the FCC stated, pressed it for flexibility in how noncoms use their digital bandwidth; NPR does not expect to see "a profusion of commercial service offerings" by noncoms and expects any subscription or other services provided to relate to the noncom mission. Public interest groups believe NCEs should use most of their digital bandwidth for non-profit, non-commercial services. The FCC is not making a decision yet but is seeking comment on this issue.

TV CHANNEL 6

The FCC agrees with NPR that the low power increase from an IBOC signal probably won't increase interference to analog TV Channel 6 stations and that the DTV transition may make this issue moot. Therefore, no changes governing TV Channel 6 protection are necessary at this time, the FCC said. It intends to open a separate proceeding on the issue.

Comment on this or any article. Write to radioworld@imaspub.com.

World Radio History



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World Radio History

Workbench

Radio World, July 4, 2007

Past columns are archived at *radiowor*

Order in the Transmitter Shack

by John Bisset

The hornet nest that Harry Bingaman discovered in the attic of his transmitter building, pictured in the May 23 *Workbench*, is just the start of the season of bees, it seems.

Greg Davis, Beaumont/Houston market engineer for Cumulus, encountered a honeybee nest recently, but these were not your typical honeybees.

After the swarm chased him to his car, stinging him a dozen times, the company called in a professional beekeeper. When the beekeeper got within 50 feet of the nest, he was covered with the aggressive bees.

One of the bees collected tested positive for being 26 percent Africanized honeybee. While these bees were discovered in Texas in 1990, they were found in the southeast part of the state in 2001.

The local Beaumont Enterprise newspaper covered the event and also has a link describing what to do if you are attacked. If you work in an area that has become a habitat for these bees, you'll find some of the tips listed in the article useful.

Visit *http://beaumontenterprise.com/site/news.asp?brd=2287*.

Greg Davis is the "electrician" referred to in the article and can be reached at *greg.davis@cumulus.com*.

★★★

Electricians will usually fill in the circuit breaker labels on the inside of the breaker box door, but good engineering practice will take that a step further.

Bob Drazba, a member of the engineering team at the Entercom Scranton cluster, used an electronic labeler to label each transmitter breaker. Seen in Fig. 1, the breakers can be identified quickly.

The market chief of this cluster, Lamar Smith, also sent a couple of pictures of a new transmitter facility that he and his team completed. Fig. 2 shows that all the lines are level; it's a pristine layout.

So how do you get everything to look so pretty?

A laser leveling device, which shoots a laser beam along the length of a conduit or rigid line run, is ideal for implementing the components in a project of this type. But Fig. 3 on page 12 shows another, less expensive trick. Use temporary hangers made out of a heavy gauge of copper wire to adjust conduits or rigid lines until they are level.

After all the lines are run and everything is plumb, permanent hange installed. Until then, if somethi to be adjusted, simply remove bend the copper wire "hook."

Note that Lamar wire-tied a p cover to protect the temporary h scratching the copper line. It's things like this that make a facil

Lamar Smith can be rea *lasmith@entercom.com*.

★★★

The hot summer is when we conditioning the most; but wit humidity sucked out of the air, sate drains can fail.

For ceiling-mounted air hand overflow can make an engineer's erable. Heavy storms can lead leaks, further complicating your li

Marc Mann of San Diego se couple of links that could hel these indoor downpours shou

See LEAKS, pa

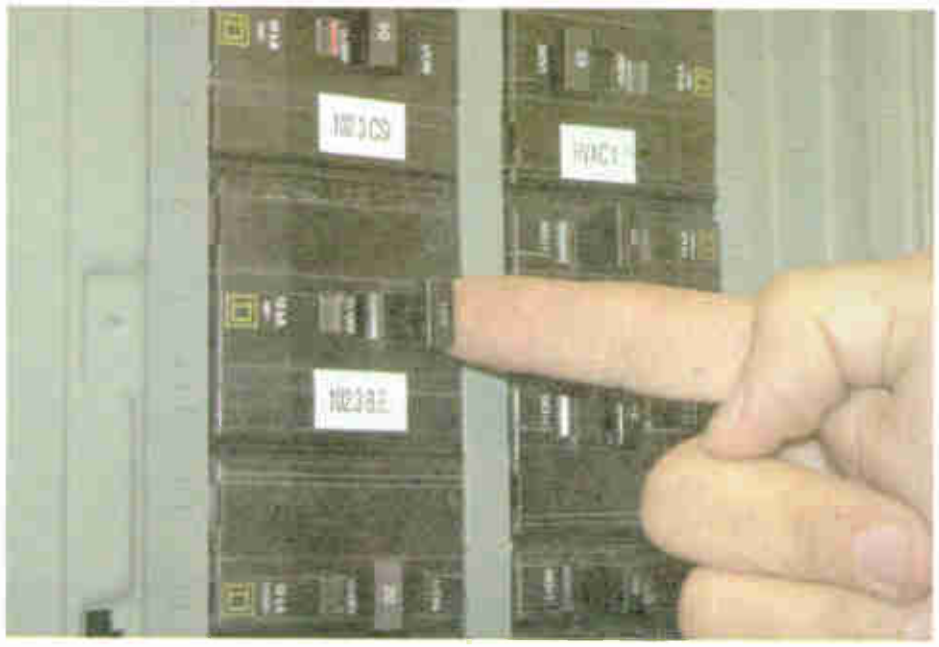

Fig. 1: A label placed directly on the breaker makes identification easier.

Fig. 2: Level electrical and RF plumbing for a neat installation.

NEW! Our Ingenious 'Quad Leveler'

Four independent channels of intelligent audio gain control

Inovonics has packaged four channels of smooth-sounding audio leveling into a single rack space. The four channels may be used separately for microphone and phone-line leveling, or may be selectively linked for dual-stereo or split mono/stereo program audio control.

A unique combination of peak and average response to program dynamics combines the gain-riding utility of a gated AGC with the tight peak control of a fast limiter. This particular combination of long- and short-term level correction yields consistent subjective loudness without resorting to excessive dynamics compression that can lead to listener fatigue.

Operation of the 264 is entirely program controlled, and user adjustments have been restricted to a bare minimum for quick, set-and-forget installation. Operating entirely within the analog domain, the 264 utilizes colorless Class-D (PWM) technology for stable and transparent operation.

The 264 also provides alarm tally outputs to signal a 'dead air' or out-of-limits condition for each of the four channels.

Model 264 – $1200 only $300 per channel!

For full technical details, visit www.inovon.com

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World Radio History

Wireless Broadband Internet Remotes

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

- Christian Vang
Chief Engineer
Clear Channel St. Louis

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

- Grady Jeffreys,
Technical Manager,
Mackay Communications

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

- Mike Rabey
Chief Engineer
Entercom Indianapolis

100% *COMREX POTS Compatible

Get Free demo codecs delivered to your door Now!!

Tieline®
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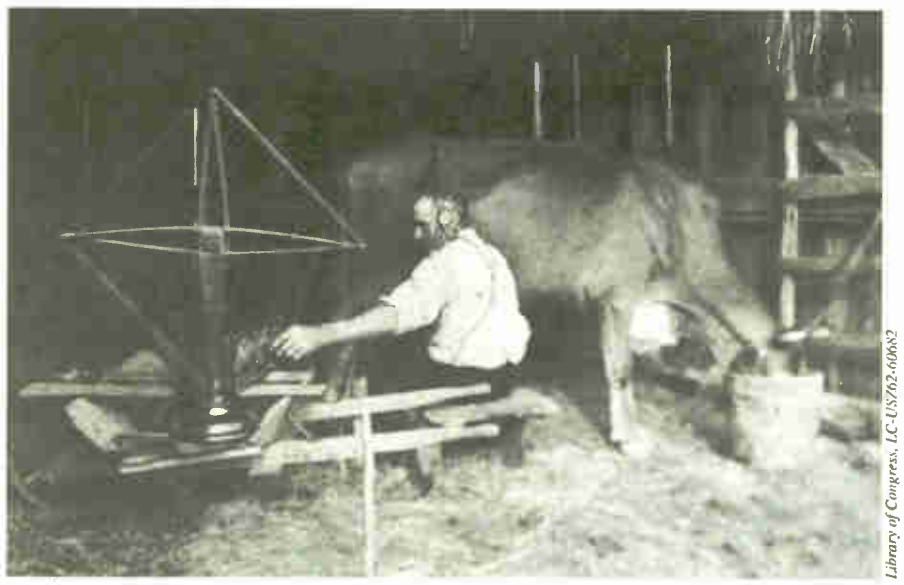
800-750-7950

*Compatible with Comrex Matrix, Blue, Vector POTS Codecs Comrex is a registered trademark of Comrex corporation

World Radio History

RADIO IN PICTURES

Milking Time



Library of Congress, LC-USZ62-60682

Radio has been a presence in the American home and workplace from its earliest days.

This photographic print, which resides in the Library of Congress, shows a milkman tuning in during chores in 1923.

Steve Raymer of the Pavek Museum of Broadcasting identifies the radio shown as a 1921 Grebe CR-5. "The antenna is very similar to the rare Western Electric loop designed to work with their 1922 model 4A superheterodyne receiver," he tells RW. "The only difference is that the 4A's loop has five sides while the one in the picture has four. Everything else is identical. The design of the Western Electric loop is attributed to Carl Englund and Arthur Haddock."

RW's Buc Fitch notes, "Vast numbers of farms across the great isolated outback of America had no power and people would take the rechargeable radio batteries into town on 'errand day' and swap them for charged ones at the radio store."

And contributor Mark Durenberger writes, "Since farmers didn't lead frivolous lives, there would be a reason for having that unwieldy contraption in the barn, and it probably wasn't entertainment. Many early broadcast stations began their decades of service by providing agriculture information to farmers who were otherwise disconnected from much of the world. That information included ag news, commodity prices and weather. Listening during 'chore time' may have been the only opportunity a farmer had to get that information.

"Once the country was 'electrified' and engineers developed the 'plug-in' radio — which early on was just a power supply directly replacing the batteries — the radio was turned on much more often," he continued. "Morning hymns and meal-time inspiration and entertainment became expectations alongside the aforementioned fast-decay information."

— *Paul McLane*

Leaks

▶ Continued from page 10

occur. The first device is a Roof Leak Diverter. This is a waterproof square of plastic, designed to be hung under the leak, using reinforced corner eyelets.

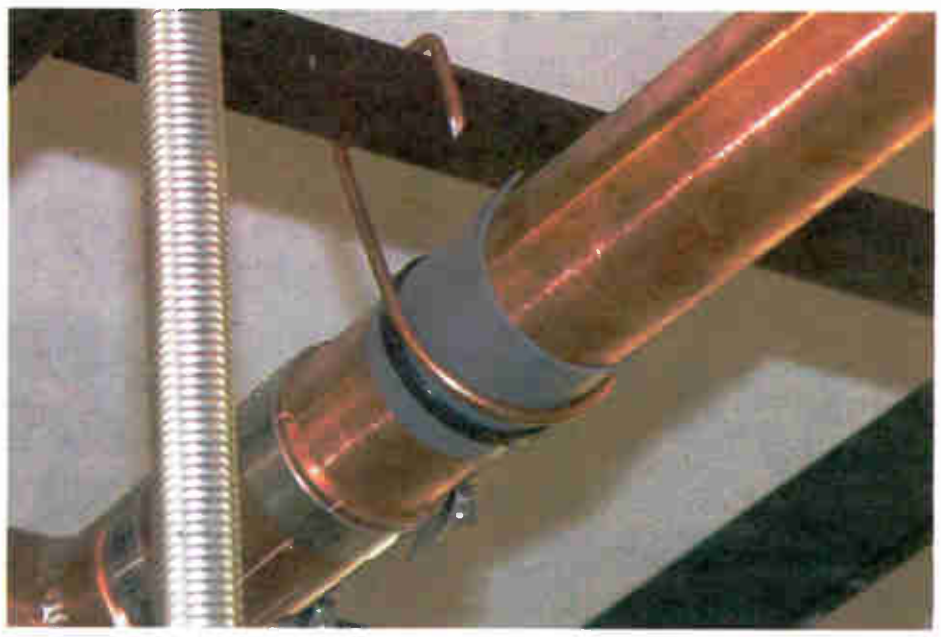


Fig. 3: Heavy-gauge copper wire can be used to temporarily hang lines, ensuring straight runs.

A garden hose connector is mounted to the center of the plastic sheet. Once the sheet is hung under the leak, a garden hose can be connected to direct the water outside, into a bucket, or to an indoor drain.

Marc has kept one of these Diverter kits as an insurance policy, and this has paid off handsomely in the past.

As with all good products, they are improved upon; the most recent addition is a drop-in 2x4 foot acoustical ceiling panel that is actually a water leak collector. The one Marc found comes with 25 feet of hose, ceiling clips and hose hangers. The Diverter kits come in different sizes, to match your studio tile size. If you maintain studios, consider picking one of these up.

Global Industrial stocks a variety of these kits. Head to *www.globalindustrial.com* and search for "Roof Leak Diverter" and "Ceiling Panel With Drain."

Marc Mann can be reached at *mmann001@san.rr.com*.

The Global Industrial site that Marc suggested will grab your attention. Lots of really cool stuff that engineers can use. Got a Web site that you'd like to share with *Workbench* readers? E-mail the address to me, along with a few words on why you find it useful. I'm *at jbisset@bdcast.com*.

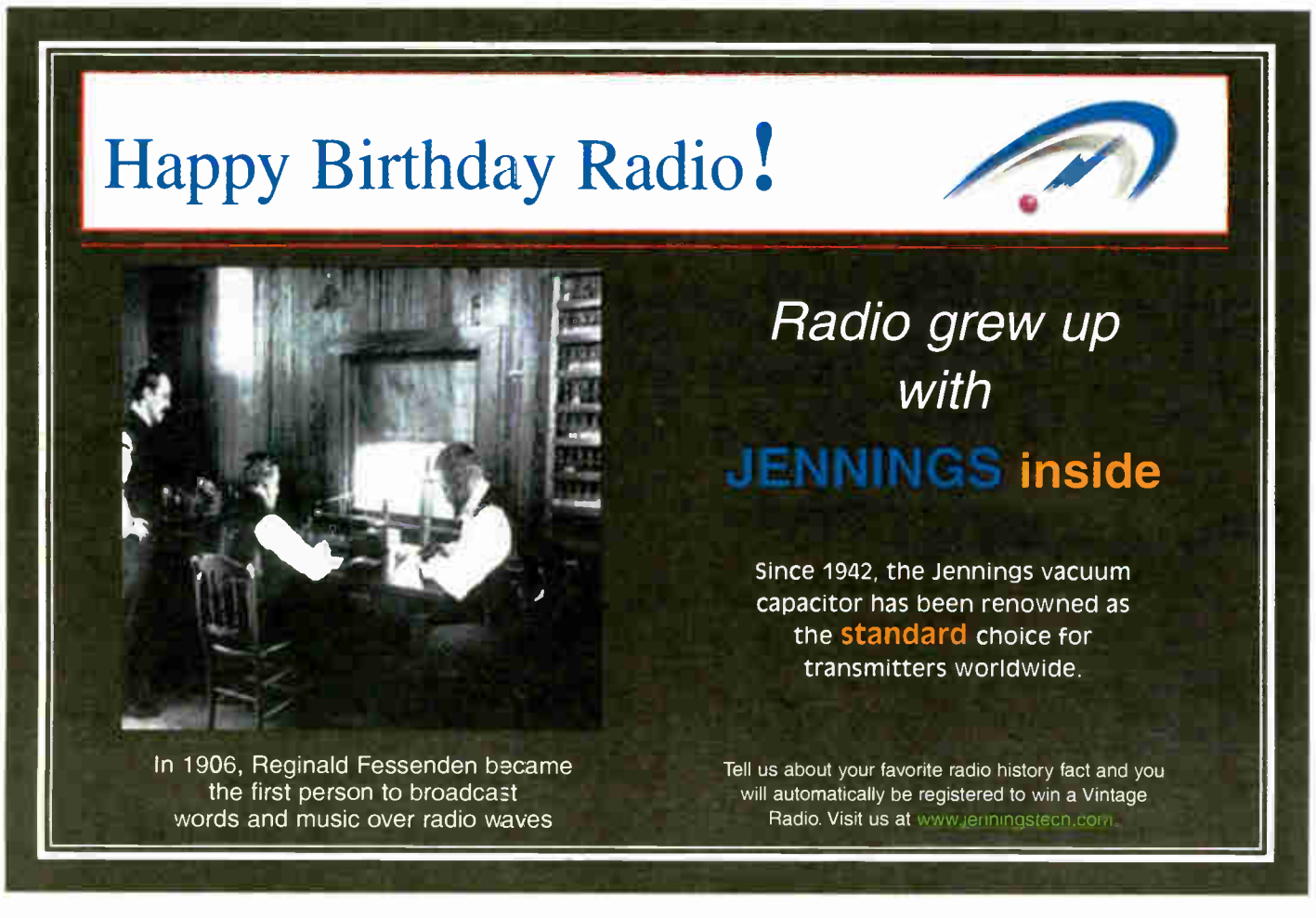
★ ★ ★

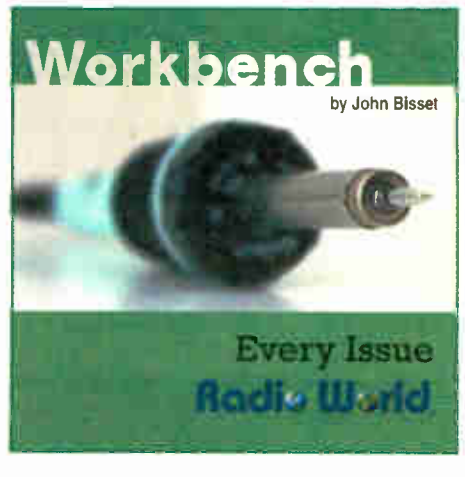
David Otey is a CPBE and general manager of Azcar Training Systems. He enjoyed the stories about Kevin Larke and Dave Doherty and their creative use of iPods/MP3 players. Both engineers suggested using these devices as a source of test tones or even emergency programming.

However, David raises a good point that these devices could not be used to source white or pink noise. David writes, "Ever try to compress noise?"

Noise, by definition, is uncorrelated to anything, so it can't be compressed. That's why it's so important to keep your audio and video as noise-free as possible in advance of any digital coding stage. Thanks for the clarification, David. He can be reached at *david.otey@azcar.com*.

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





World Radio History

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

(Just add Cisco.)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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World Radio History

SUPPLY SIDE

Tieline Sees the Power in Wireless

by Paul McLane

Tieline Technology has introduced 3G hardware plug-in modules for its Commander codec. At the spring NAB convention it spent time with attendees discussing how 3G networks are enabling broadcasters to send wireless stereo FM-quality remotes at bit rates comparable with ISDN performance. The company also has been actively monitoring developments in audio over IP. RW discussed these topics via e-mail with Darren Levy, Tieline's international marketing manager.

Someone said during the recent NAB that audio over IP will be as important to radio as the development of the Marti was. Why?

Our Kevin Webb says this in reference to wireless remotes. The Marti was the first big wireless remote revolution but it was only in one direction, was mono and only 7 kHz audio, and was dependent on line-of-sight so thus could not be used outside of one's coverage area.

This new high-speed wireless capability is literally changing remote broadcasting history for the first time since the Marti. Broadcasters can now do broadcast-quality stereo (or dual mono) audio remotes from anywhere in the country where high-speed wireless data is available back to the studio with no long-distance charges or minutes used (when using an Unlimited Data Plan). No more borrowed phone lines, no ISDN lines to set up, just show up, turn on the Tieline, broadcast the remote and leave.

What developments in audio delivery and wireless bandwidth should U.S. readers know about?

Wireless is the biggest and latest development. Major cellular carriers are in a fierce battle to provide high-speed wireless data. Broadcasters win because this gives them the ability to do "FM-quality" stereo (or dual mono) wireless remotes using Tieline's high-quality wireless systems.

Darren Levy

As cellular carriers continue to improve their wireless data speed and coverage, eventually the majority of U.S. broadcasters will be able to deliver broadcast-quality audio remotes from wherever they can get a broadband cellular signal, possibly by the end of this year according to some carrier's predictions. (Sprint has said 210 million people will have access to higher speed wireless data by the end of 2007, as an example.)

Wired Internet service providers are also offering lower-cost, higher-bandwidth links allowing broadcasters to take advantage by delivering audio over wired IP networks such as the Internet, LANs and WANs.

Telcos are now actively refusing to supply "new ISDN links," which is forcing broadcasters to look at alternatives methods to transfer audio.

Telcos are also actively converting analog lines between exchanges from traditional POTS routing links to VoIP routing links to enable greater VoIP traffic and respond to the price erosion introduced by Internet telephony. This will ultimately force POTS codec users to begin converting to VoIP and IP-based packet switched codec technologies and wireless remotes will eventually replace most POTS remotes.

Give examples of how your company's products are evolving to reflect these trends.

Our third-generation G3 open design platform recognizes that telecommunications networks will continue to evolve. By adding relevant network modules to the codec, Tieline customers are able to use existing infrastructure such as POTS and ISDN and transition into new networks such as IP and 3G at a very low cost.

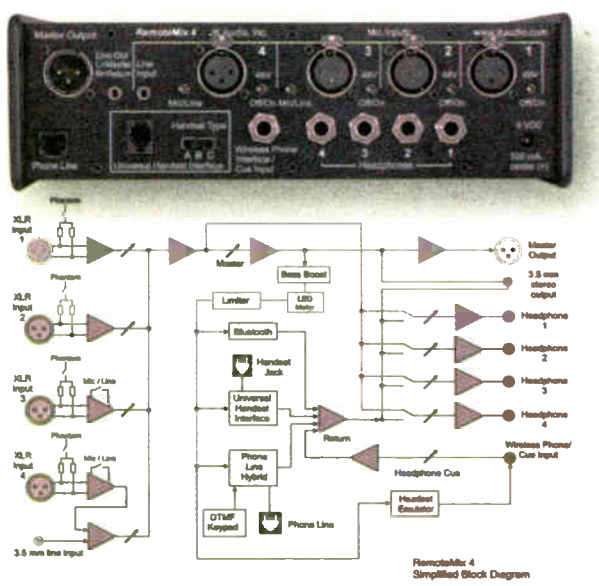
Tieline is the only codec in the market to support most current network transports including wireless broadcast quality audio over 3G broadband wireless cellular networks; IP, LAN, the Internet and BGAN satellite networks; analog telephone lines commonly known as POTS or PSTN links (including leased 3 kHz dry pairs); wireless GSM cell phone networks; ISDN BRI and Inmarsat satellite circuits; and digital leased lines with X.21 and V.35 interfaces.

Is the cellular network "ready for prime time"?

See 3G, page 15 ▶

RemoteMix 4

Introducing A Field Mixer That's Outstanding In Its...um...Field



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World Radio History

3G

▶ Continued from page 14

The same question could have been asked about ISDN and POTS networks several years ago as emerging codec technology sought to deliver broadcast quality programming over challengingly low bit rates.

To me, the real question should be: "Are today's codecs equipped to deal with lossy wireless networks and deliver broadcast quality audio with low latency and stability?" The answer is yes. This is the new telecommunications frontier which all broadcasters face, and this has been Tieline's challenge for the past two years.

The answer also lies in using more modern algorithms that have been engineered to manage lossy networks plus a delicate combination of network congestion management and forward error correction strategies using the UDP network protocol. Quality of service that prioritizes packets over the link is also advisable wherever possible.

To me, the real question should be: 'Are today's codecs equipped to deal with lossy wireless networks and deliver broadcast quality audio with low latency and stability?' The answer is yes.

— Darren Levy

In addition, Cingular, Sprint, Verizon and Alltel are providing broadband data access over their cellular network and continue to improve wireless data speeds and coverage each week. Right now, we have been experiencing anywhere between 64–192 kbps and in some cases up to 256 kbps links over cellular broadband networks. Like ISDN, these speeds are good enough to deliver high-quality stereo audio. However these cellular network speeds are improving all the time.

Traditional algorithms such as G.711, G.722 and MPEG L2/L3 were engineered for circuit switched networks some 20-plus years ago. While wired IP links with QoS will support them, we find that these algorithms perform poorly over wireless IP links that require low to moderate delay over the open Internet. AAC, AMR and Tieline Music were engineered to cope with lossy networks at low bit rates.

For example Tieline Music can deliver 15 kHz stereo at 64 kbps over a wireless cellular broadband network and there are broadcasters all over the globe using this every day.

Whereas circuit switched technologies send each audio byte one after the other in the right order, packet switched networks can route packets in many different directions so that they end up arriving at different times and often in the wrong order. (Some don't ever turn up.)

Tieline has engineered a range of forward error correction and concealment strategies to ensure seamless audio delivery over wireless networks.

Wireless network congestion occurs when a large number of people suddenly require access to both the voice and data channels in a given cell area. The cell reacts by changing the bandwidth for each user to ensure all users can get access. This is quite different from circuit switched ISDN and POTS networks, where you are guaranteed the bandwidth of your link. To manage this codecs need to produce high-quality audio at low bit rates so that there is enough headroom for network fluctuation without interrupting the broadcast.

At Tieline we built our reputation in the POTS market by specializing in "prime time" quality audio over ultra low bit rate networks.

As we noted, Tieline has been talking a lot about audio over IP, and in particular its platform for interoperability over IP using SIP. Why is it important to broadcast users?

When ISDN codecs were emerging, most manufacturers designed proprietary ISDN codec hardware and software that was incompatible with other brands. Many large broadcasters were not prepared to rely on a single codec brand for their audio contribution links and they purchased multiple brands.

With ISDN circuits being phased out in the next few years and the transition to IP ahead of them, those same broadcasters (particularly in Europe) clearly stated to codec manufacturers that they were not prepared to go through the same pain as the early ISDN years. They stated that they would not purchase new codecs until they could see a number of brands develop a standard for interoperability.

The European Broadcast Union is an organization dedicated to working with broadcasters and manufacturers to develop global standards for audio and video contribution. The EBU has recently released a draft specification proposing a standard, which includes Session Initiation Protocol.

SIP is an application-layer control (signaling) protocol for creating, modifying and terminating sessions with one or

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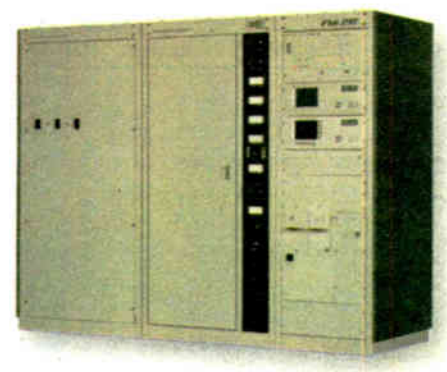

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World Radio History

Moving on Up to Digital Audio 3.0

Digital Audio Technology Is About to Enter Its Third Generation

The Big Picture

Photo: Gary Hoyes, BBC

by Skip Pizzi

Show of hands: Who can remember the launch of the CD format?

Yes, there are people working in our industry today who weren't even born when the CD was introduced. But those with their hands up will remember how the CD format set the table for digital audio in general, with its 16-bit/44.1 kHz-sampled, linear PCM approach becoming the standard format (with 48 and 32 kHz variants).

Let's call that era "Digital Audio 1.0."

For a good while thereafter we regarded this as the only way digital audio could ever be done, and we got used to its ~1.5 Mbps data rate and its healthy 10 MB per minute recording appetite. (And that was back when 10 MB really meant something, sonny.)

Like most well-established paradigms, there simply seemed to be no way to improve on it.

Early products in what I call the era of Digital Audio 3.0 include the Comrex BRIC system, used in its Access codec line, and the Telos Systems Zephyr IP with Agile Connection Technology.

Nevertheless, two separate developments eventually changed our minds.

The first was perceptual coding (back then it was usually called "data compression"), which allowed substantial reduction in those data rate and storage requirement figures, without much audible penalty. This was a major breakthrough, and although it initially took dedicated hardware to do it (software codecs for PCs came later), the cost savings and other functionality that it enabled were well worth it. Call this "Digital Audio 2.0."

Meanwhile, as storage became cheaper and computers got faster, it became practical and cost-effective to go in the opposite direction for studio production — or anywhere the *transmission* of digital audio wasn't required.

Here the 16-bit/48 kHz barrier was broken, and higher resolution recording was developed, eventually settling on 24-bit/96 kHz as one common new method for linear PCM mastering, and eventually for distribution on DVD and SACD products.

Other formats of the sort were also developed, including Sony's Direct Stream Digital (DSD), which essentially did away with the concept of fixing a sampling frequency and resolution in the original encoding. Because all these approaches stem from the original linear PCM encoding root, let's step backward and call it "Digital Audio 1.5."

Perceptual coding didn't stand still either, of course. While the studio environment may not have cared, anyone interested in transmitting digital audio still worried about keeping bandwidth down and quality up.

So following the early days of apt-X, Dolby AC-1 and MPEG-1 Audio Layer 2 (MP2), incremental improvements like MP3 and AAC came along, and multichannel variations like AC-3 (Dolby Digital) were added.

By this time, these codecs were commonly available in software form, and numerous other formats were developed specifically for the consumer PC and Internet streaming environment. These too went through numerous upgrades over time.

But a notable departure was made with the development of *parametric coding*, whereby instructions rather than actual audio samples were encoded. The primary example of this is its use in formats like Coding Technologies' MP3 Pro or AAC+ (or the latter's standardized form, MPEG-4 HEAAC), which creates the instructions for recreating harmonics in the uppermost octave of the audio signal from the audio samples of lower frequencies.

Another example is MPEG Surround, where spatial instructions are extracted from a multichannel mix and sent as a small data signal alongside coded stereo audio samples. This parametric concept's mini-breakthrough allowed another substantial reduction in bit-rate requirements — let's call it "Digital Audio 2.5."

As noted, at each of these points, many have been tempted to consider that things are as good as they can get. But they've been wrong. Conversely, once the next step is taken, the previous generation soon looks so "last year."

Witness the DAB format, which standardized early with MP2 as its audio codec, but after a period of "what were they thinking" analysis, has recently added HEAAC and MPEG Surround in its own *DAB 2.0* update.

Crawl, walk, run

So much for the history lesson.

Here we are at Digital Audio 2.5, and now most of us realize that there *will* be a next step. Like most of those that have come before, these advances are driven not simply by academic curiosity but by practical needs.

To wit: Today, much coded audio is sent over the Internet, which is hardly as hospitable a transport as a nice, stable T1 or ISDN line (with their guaranteed quality of service or QoS), or even a fixed wireless or broadcast channel. Collisions, congestion and other bandwidth variations come with the territory on such "best-effort delivery" networks, which were never intended to support real-time streaming services.

Yet today the Internet and other "non-QoS" services are used for a huge and growing amount of last-mile delivery of audio to consumers, and even for an increasing amount of contribution and distribution paths by broadcasters.

It's the latter that's generating development of what may become Digital Audio 3.0: The era of the "smart codec."

Ultimately, this could be broadly deployed in the consumer delivery space, as well, but at the moment it looks like

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more participants. These sessions include Internet telephone calls, multimedia distribution and multimedia conferences.

Most telcos around the world have standardized on SIP to create VoIP connections between devices so it is logical that the broadcast industry follows the specifications of the telcos that we rely on for our broadcast links.

Tieline and a number of codec manufacturers in Europe announced they were implementing SIP to address interoperability concerns and Tieline has successfully tested SIP based connections with Prodys, Aeta and the new Musicam IP-enabled codecs.

Having spoken to most codec manufacturers at NAB2007, I got the impression that each manufacturer was willing to implement SIP to create a basic framework for interoperability. Manufacturers are yet to agree on the choice of algorithms suitable for packet switched networks; however the EBU specification currently proposes G.711, G.722 and MPEG 1/2 Layer II as mandatory for interoperability, and AAC and MPEG 1/2 LIII are recommended; APT and AMR-WB are optional.

The European Broadcast Union has issued interoperability standards. What's happening in the United States? And is it reasonable to think that U.S. codec competitors will agree?

I don't think American manufacturers are under the same time pressure for interoperability as European manufacturers. For example, in Sweden ISDN will be significantly withdrawn from the market by the end of this year and other European telcos are making similar noises for 2008–2010.

In the American market, Telos has made the AAC suite of algorithm profiles popular amongst broadcasters and the iPod has made it a household name (even though the broadcast and iPod versions are not compatible). This algorithm suite has superior audio performance to the MPEG Suite of algorithms plus it supports profiles for handling lossy networks. It is also capable of working over both high and low bit rate networks and with AACLD, can deliver lower latency than the MPEG Suite.

I believe American manufacturers have a preference for interoperability using AAC. We understand why and we also think this is a good idea.

Therefore at this stage it is not clear how much of the EBU draft proposal will be followed by American manufacturers.

At NAB I understood American manufacturers to be interested in interoperability using AAC at 32 kbps, 64 kbps and 128 kbps sampling at 48 kHz at a basic level, then adding SIP as a signaling layer.

As Tieline has already implemented SIP with the MPEG Suite of algorithms, we will also support the proposed AAC interoperability.

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

3.0

▶ Continued from page 16

just what broadcasters need for cost-effective remote backhaul — or other real-time audio contribution/distribution applications — from anywhere that reasonably broadband Internet connectivity (wired or wireless) or 3G mobile IP links are available.

This new coding generation builds upon the efficiencies of Digital Audio 2.5-era codecs, but adds adaptive control that continually optimizes the encoding based on its monitoring of instantaneous conditions on the network.

An early example of this approach emerged in the Comrex BRIC system (found in the company's Access line of products), and more recently a second entrant has come from Telos Systems, with its Zephyr IP (or Z/IP) device. Perhaps others are yet to come.

One way that these systems deal with the high jitter and packet loss that arises from network congestion is through the use of relatively long buffers, but these can add considerable delay (on top of the inherent propagation delay through the network). This can pose a problem for many broadcast applications, such as two-way conversations.

The Comrex BRIC allows the user to set the tradeoff between buffer length and delay, while the Telos Z/IP system automatically and dynamically optimizes for minimum delay using a variable-length buffer that tries to add no more delay than it needs to cope with the current network conditions.

To pass audio through such a dynamic buffer without audible artifacts, a variable time-compression algorithm ("squeeze/stretch") and some other clever concealment techniques are used.

So, like the advances that preceded them, today's emerging systems use unique combinations of existing and new technologies to achieve their groundbreaking functionality, thereby bringing us to the next level of quality, efficiency and robustness for digital audio. Soon they will make their predecessors look primitive in retrospect.

Of course, someday these new devices will appear archaic themselves from subsequent breakthroughs, and so on. Such is progress.

But for now, these emerging "Digital Audio 3.0" products set the bar pretty high. Surf's up — get ready for the next wave.

Skip Pizzi is contributing editor of Radio World.

World Radio History

HD Radio News

What Happens To the Alliance Come December?

Page 22

RADIO IT MANAGEMENT

Take a Page From the PSD Cookbook

Program Service Data: A New Generation of Local Public Service

by Riccardo Ruotolo

The author is director of IT for Public Radio International

Think of it as tiny scrolling billboards for your station: fields of text that appear in a window on your listener's HD Radio receiver. The industry term for this text stream is Program Service Data or PSD.

At a minimum, a PSD stream can describe what's currently playing on the air — a basic consumer expectation in the digital media world.

But PSD can be much more. Essentially a new text-only format, it can be used to support a variety of other priorities: underwriting/advertising, membership (for public stations), promotion, branding, public service information and more. Think stock quotes, sports scores, weather, traffic or Amber Alerts.

Want to see for yourself what PSD can do? Check out the Virtual PSD Demonstration at *http://psd.publicbroadcasting.net* to see a range of local PSD applications, in this case for public radio. You'll see how they correspond — or, perhaps more important, *don't have to* correspond — to what's currently playing on-air.

PSD truly represents a new dimension of local service. The PSD Consortium, led by Public Radio International and funded by CPB, was created to help facilitate the efficient and effective launch of PSD across the public radio system.

This article provides a quick guide to PSD issues at the station level, applicable to both commercial and public stations, and to the work the Consortium is doing to help public radio stations address them.

The centerpiece of our work is our PSD Cookbook, based on 18 months of research, testing and conversation-managing. You can find it online at *http://psd.publicbroadcasting.net/cookbook.html*; you'll see many references to specific Cookbook chapters throughout this article.

Fig. 1

How PSD works

Like your on-air inventory, your station's PSD inventory will need to be approached strategically from both a workload perspective and a clear programming philosophy.

Because PSD strategies potentially affect the work of every department, it's important not only for engineering and ops staff but also for station management, programming, development/sales and Web staff to be up-to-speed on PSD basics.

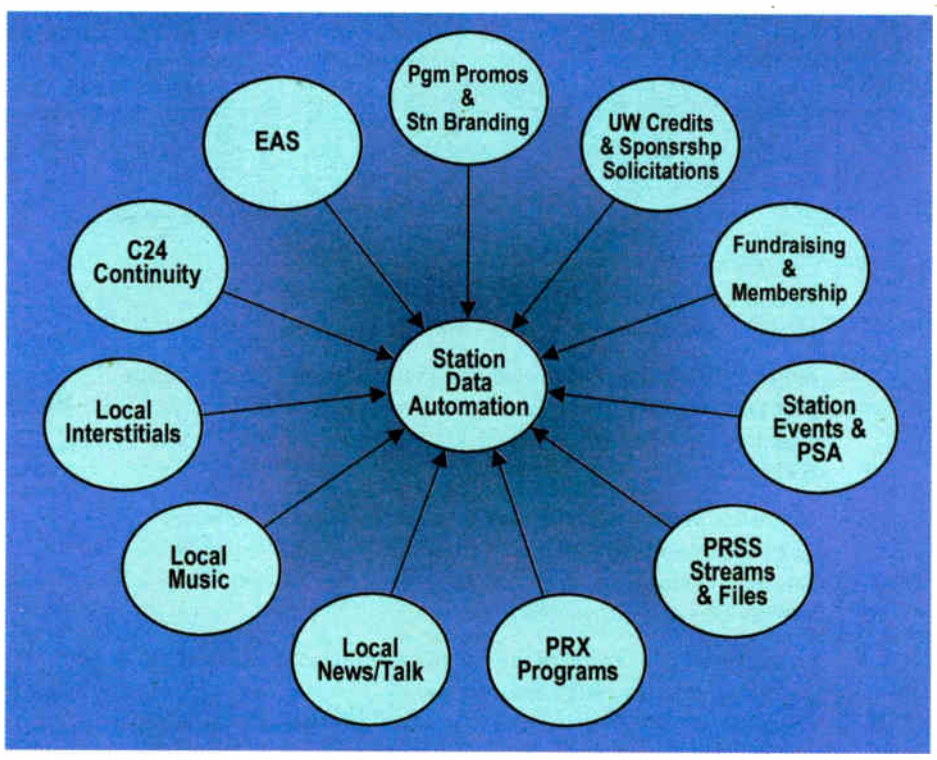

Fig. 2: Overview of how PSD is, or soon will be, generated.

Let's start with a simplified overview of how PSD is, or soon will be, generated; see Fig. 2.

Just like audio programming, PSD will be generated from a variety of sources:

- National program producers will provide program- and segment-level descriptive text to accompany their audio programs
- PSD for your local programs will need to be created by station staff, just as similar descriptive text is currently created for your Web site
- PSD text that is not directly related to programs may come from the outside (a Web site, for instance) or from internal sources (e.g., your marketing department)

At the heart of PSD implementation is a piece of equipment that we refer to as a Text Scheduling Unit, or TSU.

Think of it as an automation system for *data,* instead of audio. This device receives PSD text from your audio automation system or from other sources. The TSU stores that text and schedules it to be broadcast at the appropriate time in synch with your audio broadcast.

According to your schedule, the correct PSD is then transmitted to the PSD Importer, where it is joined with other data such as PSD for second or third audio channels. This "bundle" is transmitted to the Exporter, where it is matched up with the audio stream(s) and sent on for broadcast.

On the consumer end, the HD radio receiver separates the digital broadcast into the audio stream and the text stream. PSD text appears in a window on the receiver along with Station Information Service (SIS) text. At present, PSD text is limited to two fields of 64 characters each; it can be updated as frequently as you'd like. SIS text is static, and is typically used to display call letters and frequency. You can see both the SIS and PSD fields in Fig 1.

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Adoption of HD Radio at the Top 25 Radio Groups

Owner	Total Stations	HD Licensed	% Licensed	HD On Air	% On Air	HD Multicasting	% Multicasting
Clear Channel*	1,133	484	42.7%	375	33.1%	274	24.2%
CBS Radio	140	88	62.9%	84	60.0%	62	44.3%
Entercom	114	71	62.3%	63	55.3%	52	45.6%
Cox Radio	79	43	54.4%	37	46.8%	17	21.5%
Univision	75	35	46.7%	32	42.7%	10	13.3%
Citadel **	236	54	22.9%	48	20.3%	11	4.7%
Radio One	60	36	60.0%	32	53.3%	1	1.7%
Cumulus ***	344	50	14.5%	49	14.2%	1	0.3%
Emmis	23	15	65.2%	15	65.2%	13	56.5%
Bonneville	31	27	87.1%	27	87.1%	16	51.6%
Salem	98	4	4.1%	1	1.0%		0.0%
Greater Media	20	19	95.0%	14	70.0%	11	55.0%
Spanish Broadcasting System	20	1	5.0%	1	5.0%		0.0%
Lincoln Financial	17	7	41.2%	6	35.3%	2	11.8%
Beasley	45	28	62.2%	21	46.7%	10	22.2%
Saga	89	19	21.3%	18	20.2%		0.0%
Regent	68	26	38.2%	20	29.4%	4	5.9%
Entravision	47	17	36.2%	15	31.9%	4	8.5%
Journal Broadcast	35	11	31.4%	10	28.6%		0.0%
Liberman	21	1	4.8%	1	4.8%		0.0%
ABC/Disney	48	25	52.1%	19	39.6%		0.0%
Multicultural	44	5	11.4%	1	2.3%		0.0%
Inner City	17		0.0%		0.0%		0.0%
Lotus Communications	24	3	12.5%	1	4.2%	1	4.2%
NextMedia	42	4	9.5%	4	9.5%	1	2.4%

** Includes all of the stations that are planned to be sold*

***Includes the ABC stations Citadel is purchasing*

****Includes Cumulus and Cumulus Media Partners stations.*

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

BIA Financial network

MEDIA ACCESS PRO

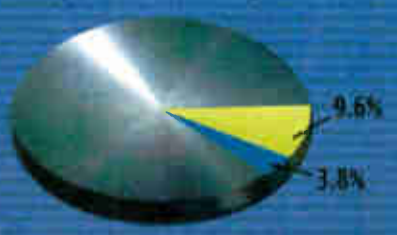
The HD Radio Bottom Line

Total Licensed: 1,851

On the Air: 1,325

Market Penetration United States

13,837 AM & FM Stations (excludes LPFMs)



Number of FM Stations Multicasting:

660

Last Month: 597

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PSD

▶ Continued from page 18

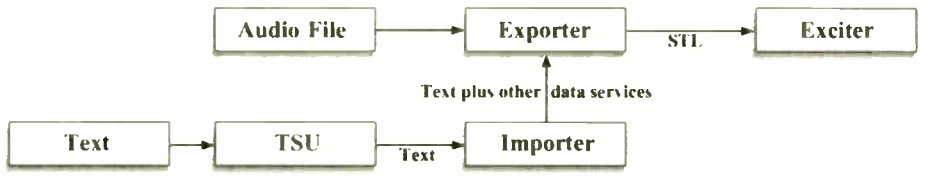


Fig. 3: At the heart of PSD implementation is a piece of equipment that we refer to as a Text Scheduling Unit.

What are the issues?

So what does it take to implement PSD?

The issues sort themselves into four main areas: the necessary technology, programming code, expense and staff time.

Technology Interface: This is, of course, the area that is changing the most rapidly; it's tough even for the Consortium members to stay on top of changes that are sometimes occurring daily.

But as of this writing, two pieces of equipment are necessary at the station level to make full PSD implementation possible and manageable: an automation system and the TSU (which may simply be a component of your current automation system or may be a stand-alone solution such as Broadcast Electronics' The Radio Experience or Unique Interactive's ManDLS).

As with most technology, the hardware and software needed to get this work done are likely to become more efficient, user-friendly and inexpensive as the technology evolves. You can read a more detailed discussion of technological issues in the chapters "PSD Implementation Overview" and "Station Services Implementation" of our PSD Cookbook.

Programming Code: A critical component of public radio's PSD food chain will be the widespread adoption of a consistent but flexible text format that producers and stations can use to create PSD, and that automation systems and TSUs can read.

PRI has taken the lead within the PSD Consortium in proposing a specific "grammar" for fields in XML (a common programming language) to cover a wide range of potential station uses, not only program title, segment, song, artist, etc. but also underwriting/advertising spots, forward promos, pledge messaging (for public stations), and more.

We're currently in enthusiastic conversation with automation system manufacturers, who assure us that their systems can currently (or will shortly be able to) interpret our recommended XML specification.

Others in the PSD Consortium are playing key roles in supporting this recommended coding system. Public Interactive has created a prototype extension to its PI Composer tool to deliver program-level PSD for station schedules, as well as song-level PSD for PRI's classical music service "Classical 24," in the XML format. PRX has successfully prototyped a modification to its producer interface to generate PSD in our proposed XML spec for all of their programming offerings.

See the sidebar for more tools developed by this project.

You can view our entire proposed XML specification (along with our recommended practices) on this Web site. See the "Suggested PSD Field Descriptions" chapter of the PSD Cookbook for program, segment and song-level fields, and the "Station Services Implementation" chapter for fields not related to programs. If you are not likely to be involved yourself in the coding of text fields (though see Workload, below, because you might be surprised on this one), we hope you'll encourage the appropriate colleagues at your station to take a look at this XML specification and let us know their thoughts and concerns.

The biggest PSD mistake you can make, we believe, is leaving a blank screen on your listener's radio.

Direct Cost: This is one of the biggest questions, especially for station managers: What is PSD going to cost us?

Let's cut to the chase: An "entry-level" stand-alone TSU costs about $500. An automation system costs anywhere from a few thousand dollars to tens of thousands, depending on the features you require. Additional software required to support TSU functionality can be added to many existing automation systems. At this time, such add-on software modules cost from $500 to $2,000.

Obviously, high-end equipment and software for very advanced applications cost more, but that's within your control.

Workload: Ah, the other big issue. The good news is that the workload for PSD is largely scaleable, based on the PSD applications you choose to implement. The bad news, if you choose to look at it that way, is that the most sophisticated uses of PSD clearly are going to be time-consuming and may require the involvement of departments beyond engineering and ops in the coding and scheduling of text.

For the most basic level of PSD — say, program/segment information for national shows and program title information for local programs — very little time is needed. We're hopeful that with an XML language in place, top-line PSD information for the national shows will be ready to "plug and play" shortly. After investing in a TSU, station staff will simply enter in their program schedules and the appropriate descriptive text *once*, since program schedules are static (though obviously if programs in the line-up change, the TSU will need to be updated).

Segment-level information for national shows will obviously be the next hurdle for program producers, but the workload described above should not change radically for stations as this level of PSD information comes online.

Greater detail in local PSD content, however, is a different story.

See PSD, page 22 ▶

Tools Developed Through the PSD Standards Project:

PRI-PSD Suggested Program Fields
Standardized, open-license, XML-based text fields for data associated with public radio programming. The basis for most of the other tools below.

The PSD Cookbook
Recommended implementation practices for PSD in public radio.

Virtual PSD Demonstration
Flash animations demonstrating more than 60 unique PSD events along with corresponding audio.

The PSD Wiki
A fully interactive Wiki for stations to share PSD implementation tips and tricks.

PSD Financial Template
A downloadable MS Excel spreadsheet for estimating PSD implementation costs.

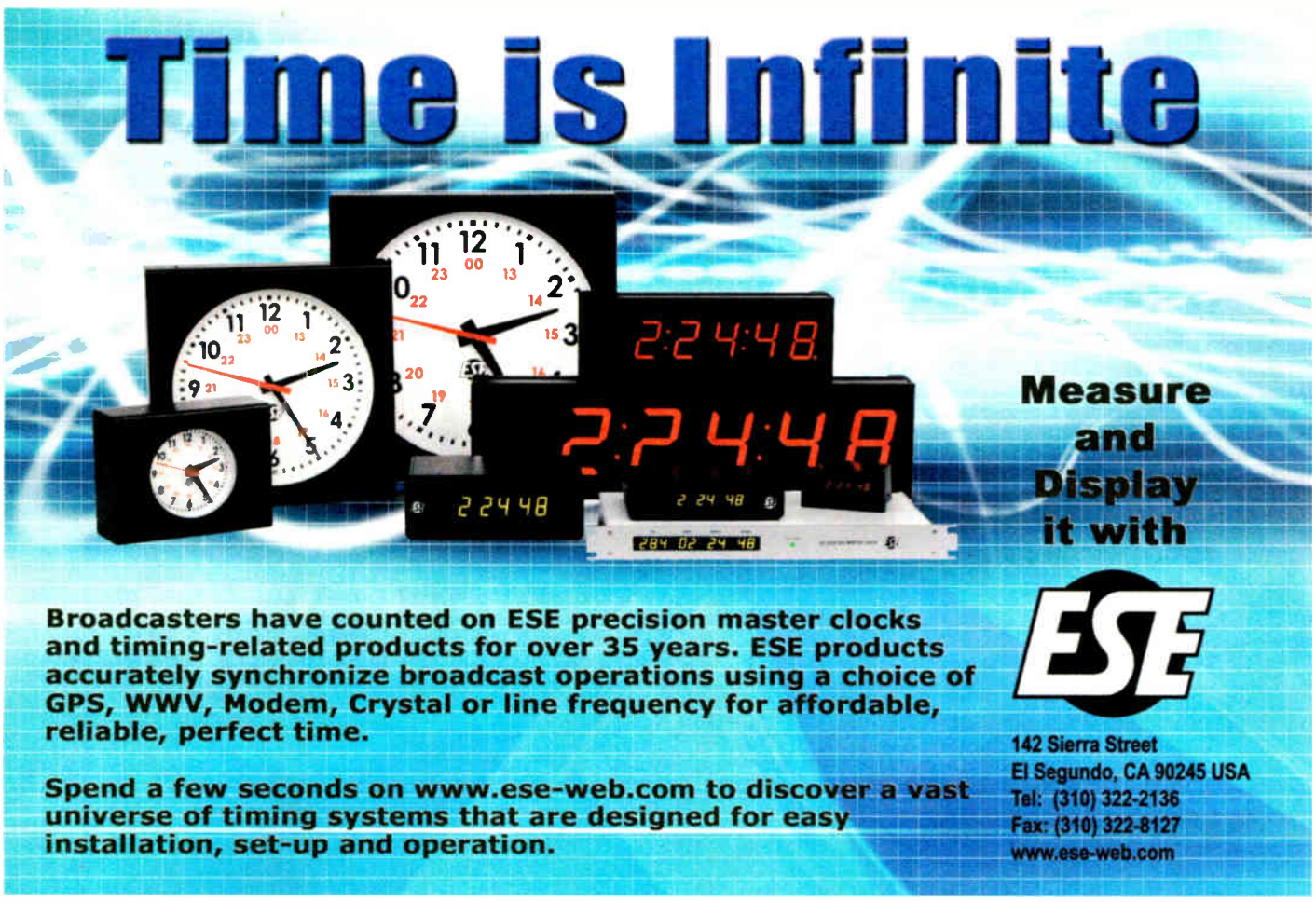
PSD XML Widget
Downloadable tool converting local PSD promos, underwriting and PSA messages into PRI-PSD.

XML Schema and Document-Type Definition Tools
Automated tools to "vet" XML PSD messages for compliance with PRI-PSD.

***C24* and PI Composer Tools**
Tools from Public Interactive allowing Web-based delivery of station-specific PSD with hour-by-hour, segment-by-segment and song-level detail.

Metadata Mapping Tool
Correspondence of fields among PRI-PSD, PBCore and ID3; designed to foster interoperability among various PSD schema and other external applications.

PRX Tools
Prototype delivery of content to stations that includes PRI-compliant PSD as companion data to audio files.



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World Radio History

PSD

▶ Continued from page 20

Song/artist-level information for local programming, for instance, may take a significant ongoing investment in staff time since not all media sources provide compatible descriptive data (older CDs, for instance); a fair amount of PSD content would need to be hand-entered. The introduction of PSD for forward-promotion or fundraising/advertising-related purposes adds yet more levels of detail and complexity for staff.

We predict that other departments at the station beyond engineering and ops will need to dedicate staff time to learn the XML spec and the TSU scheduling process, in order to take over the "care and feeding" of the PSD inventory that relates to their department.

But we're here to help public radio stations with that, too. Since writing XML by hand is time-consuming, the Consortium is working on a user-friendly, Web-based tool (in beta version) for converting your desired PSD text into our recommended XML format automatically, making cross-departmental involvement with PSD a far more practical option. Please see our PSD Cookbook chapter "Station Services Implementation" for more detail on the potential impact of XML coding on station workflow.

You'll need to devote a certain amount of cross-departmental staff time, just as you do with your on-air inventory, to determining the appropriate proportions of PSD "avails" for each station priority (such as forward promos or underwriting/advertising credits). You'll also need to determine the appropriate volume of PSD messaging overall that you believe remains consistent with your station's values. After all, PSD is programming content, just like the content that goes on your air and on your Web site.

Are we ready to launch?

As a system, public radio is close. Some stations are "hand-hewing" their own systems for PSD, but that shouldn't be necessary for too much longer.

As the final product of our CPB-funded project, our PSD Cookbook of recommended operating practices is designed to make it possible for any station to launch basic PSD within six to 12 months. We hope our XML specification is well on its way to becoming the industry standard (voluntary, of course).

But are *you* ready to launch PSD? That is, of course, your call. The more ambitious your PSD goals, the more complicated the implementation becomes. But we hope that you'll make it a priority to begin providing at least a baseline of text information as soon as possible. Getting started is inexpensive, relatively easy and very important. You can always get more sophisticated over time.

Please read through and comment on our PSD Cookbook documents, and — most critical of all — start the conversation at your station about PSD and your listeners. The biggest PSD mistake you can make, we believe, is leaving a blank screen on your listener's radio.

The PSD Standards Project is a CPB-funded initiative to develop and define a consensus vision for first-generation PSD services on public radio stations, and to investigate, develop and promote a set of best practices and voluntary standards for the system. Research and testing is conducted by the PRI PSD Consortium: Public Radio International, Public Interactive, Public Radio Exchange, NCAM/PBCore, WGBH/Boston, KUVO/Denver and Chicago Public Radio. Visit the project site at http://psd.publicbroadcasting.net.

E-mail the author at rruotolo@pri.org. *RW welcomes other viewpoints at* radioworld@imaspub.com.

PAD vs. PSD

Program Service Data, described in the accompanying article, is the name of the "service" described in the IBOC protocol stack (NRSC-5-A) that embeds text into each broadcast digital audio stream. The text carried over the PSD service is a member of the class of Program-Associated Data because it is information that is related to the audio stream.

PAD is a more generic term used to describe information related to a program stream. PAD information can be carried on PSD or other any number of data services that might be broadcast within an HD-R environment. PSD contains PAD information such as title, artist and album.

Other HD data services may evolve in the future to carry a richer set of PAD information. The PRI PSD Consortium — working to develop a consensus vision and voluntary standards for first-generation PSD services on public radio stations — proposes a hierarchy of PAD information that could be transported via PSD or another data service.

The consortium is made up of Public Radio International, Public Interactive, Public Radio Exchange, NCAM/PBCore, WGBH/Boston, KUVO/Denver and Chicago Public Radio. It also proposes that this data be assembled and transported from the point of production, through the public radio network to the stations that ultimately transmit the information.

DIGITAL NEWS

Future of HD-R Alliance Not Clear

by Leslie Stimson

ORLANDO, Fla. Now that the HD Digital Radio Alliance has completed its original mission — rolling out HD-R in the top 100 markets and selecting formats for HD2 channels — what is its future? And will the radio industry invest more money in promoting HD Radio?

Alliance President/CEO Peter Ferrara told RW many of these issues have yet to be decided but that promotion of HD-R must continue.

Several commercial radio broadcasters formed the alliance in 2005 to accelerate the rollout of HD Radio. Current members are major groups and station owners including ABC Radio in Los Angeles and Minneapolis, Beasley Broadcast Group, Bonneville International, CBS Radio, Citadel Broadcasting, Clear Channel Radio, Cumulus, Emmis Communications, Entercom, Greater Media and WBEB(FM) in Philadelphia.

Originally the alliance was chartered for two years; that period expires in December. Some programmers assume that the "gentlemen's agreement" among members under which HD2 stations do not compete against each other will be lifted; that remains to be seen.

"At this point, the assumption is that we still have work to do and it would be expected that we would continue," Ferrara said, "but that is to be formally decided later in the year as we get closer to the start of '08. As to how do we move forward, do we open it up to different types of memberships and associations?"

He characterized the decision as "a great opportunity for us to revisit and say, 'Okay, now where do we go from here?'"

A recent Bridge Ratings study found that less than 1 percent of terrestrial radio listeners say they listen daily to HD Radio, equating to about 450,000 weekly users, compared to nearly 15 million subscribers to satellite radio and 57 million weekly Internet radio listeners.

Asked about this, Ferrara pointed out that the survey was nationwide, not just in the markets where stations have converted to HD Radio. If it had been the latter, he said, the outcome would have been different. "If they called somebody in Waco, Texas as part of that survey, we're obviously not going to get a lot of coverage there," he said.

"But having said that, nonetheless we still have a long way to go in terms of growing consumer demand/interest in HD Radio," he said. "We've only been at this for about 15 months, while satellite's been at it for seven or eight years. At the end of the day this is all about content."

Cool devices, great price points and retail distribution are fine, he said, but what really matters is "when the consumer turns on the radio — if what they hear creates a 'wow.' If it does, then wow equals win. If they don't, then we're going to shoot ourselves in the foot.

"My focus right now is great content and promotion. We need to take this to the next level to get consumers excited about it."

Should radio pony up money for national TV advertising?

Ferrara stressed that HD Radio is not a national service. "When companies feel the time is right — and we may be getting close to that time — they will begin to market HD-R and HD2 channels the same way that they do their main channels. Whether that's television, newspaper, billboards or the Internet, they'll begin to do it," but IBOC needs to be locally promoted.

"For us to run an HD Radio ad in '24,' it would be cool to see that, but that's not what's selling radio," said Ferrara. "What's selling radio is local, so local stations are the ones that have to start promoting their individual channels and content."

World Radio History

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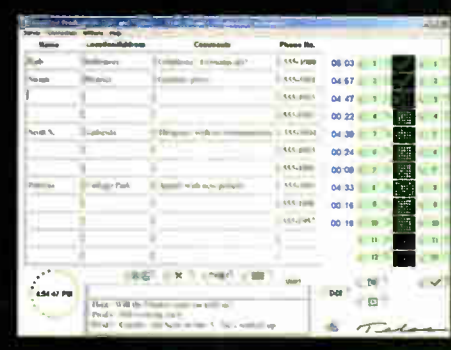

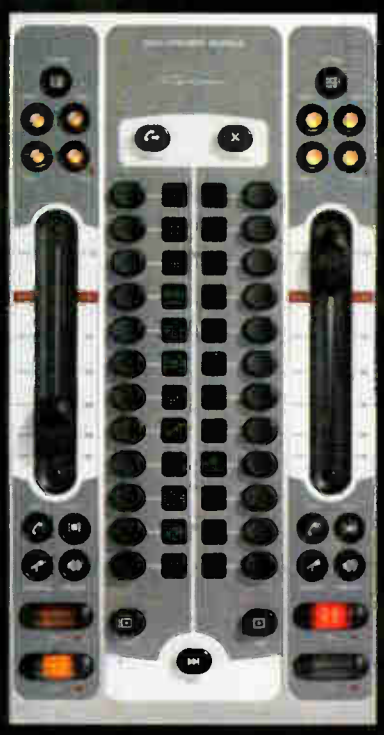

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Product Guide Inside

ON LOCATION

Cluster Demos Satellite Use for Remotes

by Tony Lopez

Last year the Clear Channel Radio cluster in Pueblo, Colo., with the help of the satellite division in Denver, was able to do live remotes successfully from a major Southern Colorado event directly into its studios.

The purpose was to explore satellite use for remotes. For this reason, the link had to perform exactly as a microwave link would during a customer remote. The remotes were part of an exploration of satellite technology.

The two-week event gave Pueblo stations KCSJ(AM), KGHF(AM), KPHT (FM) and KDZA(FM) a good opportunity to test the transmit and receive equipment needed for live satellite broadcasting.

The satellite trailer was centrally located, providing easy access to our four station locations.

The equipment used for our remote link is shown in the accompanying box.

The DAC required a line input, so the Behringer mixer was used. (Note: The line output from a Marti or other similar receiver could have also been used.) Both a wired and wireless mic were plugged into the mixer.

The UHF wireless mics did not perform well initially due to obstacles at that location. However, when the receiver was elevated above the satellite trailer, the two AM sites were able to use them. The FM stations used the hard wired mic located in the satellite trailer. Studio functions (Prophet/ACU Switching) were controlled using wireless laptop computers, which has been standard procedure at remotes for Pueblo.

The event gave stations including KDZA a chance to test transmit and receive equipment for live satellite broadcasting.

There is a delay of approximately 650–700 ms. So the key is not to add any additional delays to the signal you are receiving at the studio. For this reason, the audio output from the ComStream 202 receiver went directly into the ACU switch, which was activated using our wireless laptops.

If your downlink is to another location other than the studio and you're having to ISDN back to your studio, additional audio delay time will be encountered.

The 'real thing'

We have many outlying areas where we could sell additional live remotes using satellite technology where STL links and wireless are weak and spotty with dropouts. In many cases the customer does not want his phone line used and frowns upon use of a cell phone for remotes. He wants the real thing.

This event was the perfect opportunity to test the waters, with a direct satellite link to our main studios.

The satellite dish for radio remotes would be smaller in size and would only require 4–8 watts of transmit power. It easily could be attached to any luggage carrier of a remote vehicle. A dedicated receive dish at the studio is desirable.

Total costs for remote equipment and studio costs would be in the neighborhood of $28,000. If you shop around, you can do it for less.

Satellite for radio remotes, although not new to radio, has a lot of promise for customer remotes. Most stations don't want to deal with the initial expense and satellite time costs. Satellite time can be negotiated and there are package plans.

The other issue is the audio delay (650–700 ms), although some wireless phone equipment using cell technology has similar delays in many cases. To eliminate the echo, the headset can be plugged into the mixer so you only hear yourself. If you have wireless IFB gear, you can silence the live portion of the broadcast. Even the old Comrex Buddy system would work if you happen to have one lying around.

When you are using wireless laptops to control studio functions as we do in Pueblo, the air talent can see where he is during the remote and activate the next event when ready, making the audio delay almost transparent.

Conclusions

The satellite equipment was easy to use. Setup was easier than using conventional RPU transmit equipment. There is no hurry-up mask, tripods or bent antennas to deal with.

With the auto align satellite dish, air talent simply push the align button when the satellite is found and the button turns green. Push the button again to park the satellite in the home position.

Several live spots were done with our AM and FM stations during the 10-day period without any technical problems. The audio quality was excellent for the AM and FM stations. The audio delay was not an issue.

If your company is working on a disaster plan, a portable sat that can be quickly mounted on a vehicle with a fixed dish at the transmitter site may be something to consider.

The author is chief engineer for the stations mentioned as well as KCCY(FM), all in Pueblo. Contact him at tonylopez@clearchannel.com.

Specs

Fair Grounds
Dish size: .96 m
Transmitter: 25 Watts
ComStream DAC 7000
CDM 600L Modem
Behringer Mixer UB802
(for line input to DAC)

Studio
Dish size: 1.8 m Fly Away
Receiver: ComStream 202

Satellite used: AMC 4 (Ku Band)
Studio receive signal quality:
14.2 EvNo

Write to RW

Send e-mail to *radioworld@imaspub.com* with "Letter to the Editor" in the subject field; fax to (703) 820-3245; or mail to Reader's Forum, Radio World, P.O. Box 1214, Falls Church, VA 22041.

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– GREG HEMMINGS
WSLS-TV NEWSCHANNEL 10

"The Heil PR 40 is incredible. There is absolutely nothing better on the market and I've had the opportunity to use all the standards over the years. The difference is really remarkable."

– PD MICHAEL "SHARK" SHARKEY
WSUN FM 97X
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World Radio History

PRODUCT GUIDE

APT Site Identifies Broadcast, Licensing Services

APT debuted a Web site it says provides information to customers, potential customers and those interested in audio coding and codecs. The site is intended to give a distinct identity to each of APT's two business areas: Broadcast Products and Licensing of Intellectual Property. APT says it also creates a showcase for product and technology offerings.

The site can be accessed at *www.aptx.com* and is said to be easier for customers to navigate.

The Broadcast Products section gives advice on audio network configuration for studio-transmitter links, inter-studio networking and remotes, as well as technology-specific information for audio transfer over IP and T1/E1 networks.

The Licensing section includes a Technology Portfolio detailing the types of apt-X algorithms that are available under license to pro audio, consumer audio and broadcast OEMs. It also gives advice on applications and explains the process of requesting a license.

PT has incorporated free demonstration software downloads and PDF guides offering information such as APT's "Practical Guide to IP Audio Networking," which reviews IP networks and their implications for real-time audio transfer.

For more information, contact APT at (800) 955-APTX or visit www.aptx.com.

P-Solo Ribbon: Wide Range, No Phantom Power

True Systems is shipping its P-Solo Ribbon single-channel mic preamp. The company says it produces sonic results with vintage or contemporary ribbon mics as well as dynamic mics.

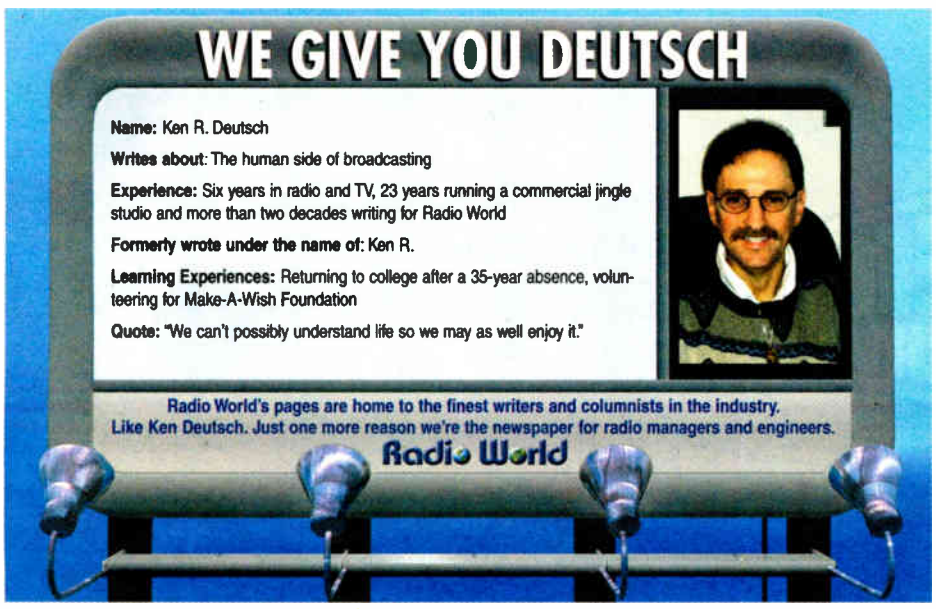
Like its sibling the P-Solo, this model uses balanced, transformerless circuitry. The manufacturer says it is built with military-grade hand-matched components and delivers an undistorted response that dips to 1.5 Hz and reaches to 500 kHz, and offers wide dynamic range with transient response and low noise.

Features include high-pass filtering, dual analog outputs, high-impedance instrument input and four-level metering.

The P-Solo Ribbon has no phantom power, which True Systems says is unnecessary for and potentially damaging to ribbon mics. Also, it has higher input impedance and gain capability than other True designs, which the company says makes it immune to sonic variations caused by ribbon resonance frequencies that alter the output impedance of the ribbon microphone at those frequencies.

The P-Solo Ribbon retails for $745.

For more information, contact True Systems in Arizona at (520) 721-2735 or visit www.true-systems.com.



Audessence Processors Use 'Sure-Level' Algorithm

UK start-up Audessence debuted a range of professional levelers for various price points and applications. Each model uses "Sure-Level," a real-time algorithm that the company says boasts a large capture range and unobtrusive response.

The rack-mount ALPS-1 has a tamper-proof front panel, and features failsafe relay-bypass in case of power failure.

The ALPS-2 adds ergonomic control from the front for live applications. The ALPS-3 includes additional remote interfaces (IP, GPI) and Real Time Clock plus scheduling/daypart software.

ALPS-2

Audessence says PodBlaster crams the power of its bigger brothers into a half-1U size. Features are the same, and a range of accessories is available.

Each processor includes switchable pre-emphasis protection, and comes pre-loaded with nine factory presets covering level control applications, which can be selected under local or remote control.

For more information, visit www.audessence.com.

RCS Updates HD Importer With TCP/IP

The most recent version of the RCS HD Importer audio data and delivery system for HD Radio has been released; it is based on the Ibiquity Version 2 platform. RCS says it enables radio broadcasters greater control over HD channels.

In this version, GPS synchronization is not necessary for rhythm with the exporter. Importer 2 is based on TCP/IP, which the company says provides stability. Additionally, Importer 2 uses the same WAV driver model that NexGen Digital uses, which allows users to employ the same driver over an enterprise.

Users also can create second and third channels by telling the Importer what bandwidth to allocate to a specific channel and picking a sound device to capture audio from. RCS HD Multicast Importer has PSD support for NexGen Digital, which RCS says ensures title and artist information land on the radio's display.

For more information, visit RCS in New York at (914) 259-4729 or visit www.rcsworks.com.

Parrot Offers Bluetooth-Enabled File Transfer

Netherlands-based You/Com offers the Parrot ENG flash recorder for news and sports reporters. No PC is required. It also serves as a communication device for file transfer or live reporting, when used in combination with a mobile phone. By implementing the Bluetooth wireless interface in the Parrot, a reporter is able to communicate with equipment and networks already at his or her disposal.

Once the Parrot is paired with a mobile phone, the user can press the Go button to send a file to a server in the studio. This audio file includes the following header information: time and date stamp, name of the reporter and radio station, number and length of take, bit rate, sample rate and markers.

Recordings are stored on a removable SD memory card in MP3 format, for four hours of recording on a 256 MB memory card. Telephone interviews also can be recorded.

Each button has one function. It has professional connectors, an XLR for mic or line and a 6.3 mm jack for the headphones, a true limiter, and batteries that the company says last for 10 hours.

Though a computer is not required, reporters can use computers to edit longer stories. By connecting to the USB port of the Parrot, audio files on the Flash card can be accessed. In such a situation, the Parrot functions as an external sound card. The mic and headphones remain connected to the same professional connectors, allowing the reporter to edit and play back the piece.

During live reports with a reporter codec, pre-recorded items can be included. Pre-recorded items can be played when using a regular reporter codec for live reporting. In this case, the Parrot's line input is used.

For more information, visit www.youcom.nl.

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- New Devices — Go Digital. Discover multicasting, wireless data text options and hear station success stories.

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USER REPORT

Unwelcome Visit Prompts Console Upgrade

Its Old Board Ruined By a Mouse, Station Selects A 'Small Console With Big Features' by Broadcast Tools

by Michael Bradford
Owner
Bradford Broadcast/ Audio Services

JACKSON, Mich. This adventure began on a cold, snowy morning in March when I was awakened by a telephone call from John Sebastian, the ops manager and morning person at WMMI (AM)/WCZY(FM) in Mount Pleasant.

The good news was they were on the air, but the bad news was that their main console had lost the left program output channel and at least one input channel.

Michael Bradford

John was able to patch into the production room for just such an emergency, so I had a moment to down some coffee and toast before heading out.

I fired up the VW Jetta TDI and let it warm up a bit, as the station is about 117 miles from my office. After 300,000 carefree miles, it appreciates a little loving care. In just over two hours, I pulled into the studio on Wing Road and went inside.

Damage control

I learned the whole story from John, and when I opened the lid on the console I found evidence of Mr. Mouse and his apparent party inside the console.

Seems that bad boy had chewed his way up and into the console via the wiring access holes in the console bottom-plate. He also chewed several ribbon cables, and left other "evidence" all over the circuit boards. The damage to the output board was the worst, with damaged wiring and otherwise ruined IC sockets and connectors.

I spent some time trying to clean up the mess, but to no avail. The damage to the sockets in particular was too bad to repair. I grabbed a cup of coffee and sat down with the manual to make a list of what was needed to get the console back in working order.

About this time, I remembered a conversation with Paul at BSW about a new, small mixer from Don and the gang at **Broadcast Tools**. I have used many "tools" from Broadcast Tools over the years, but I didn't know it was working on a small console.

Sure enough, Paul told me BT had brought a proto-type ProMix 12 down to Tacoma to show everyone. Paul forwarded the preliminary information he had in about two minutes and I began sifting through the features.

What a delight. Here was a small console with big console features: separate program and audition output busses, a separate mix-minus output for a telephone hybrid, one input dedicated to such a hybrid, three microphone inputs with monitor-mute, multiple monitoring capability, a "booth" output with level control and talk-back.

Later that afternoon, I got a callback from the mouse-damaged console manufacturer with a cost estimate for repairs and replacement circuit boards. It became evident that my best recommendation was to go with the Broadcast Tools ProMix 12.

Mouse-proof

The station employed satellite programming for a good share of its broadcast day, so I would have more than enough inputs with the ProMix 12, plus a lot of features that required outboarde equipment with the previous console. No more outboard level-matching amplifiers, because each line input channel on the ProMix 12 comes with a level-select switch accessible right on the rear panel to choose –10 dBu or +4 dBu "broadcast" level.

Line inputs are stereo, and the three microphone channels have input trim pots and jumpers internally for monitor mute selection. You can monitor program and audition levels with the easy-to-read LED bargraph VU meter. The various monitor select and assignment switches are clustered to the right-hand side of the console for easy access.

Inputs are selectable balanced or unbalanced 1/4-inch TRS jacks. Microphone inputs and main outputs are XLR jacks, and there are even microphone processor "insert" jacks plus remote microphone functions available at a back panel DB connector.

As WCZY does not use a separate announce "booth," I chose to use that dedicated output to feed the control room guest headphone cluster; level control built right in and selectable sources at your finger tips.

I would like to mention that each line input channel has a dedicated, dry-contact, push button switch on the front panel for remote start issues. These contacts terminate in a DB connector on the rear panel. I chose to use two of these buttons and a separate Broadcast Tools 8 x 1 switcher for seldom-used input sources, and a spare BT 6 x 1 switcher for a separate monitor input from the various satellite direct feeds as well as AM and FM off-air sources.

The ProMix 12 is quiet, and provides many features not found on other "small footprint" consoles. Its solid steel cabinet makes it RF resistant, and certainly mouse-proof.

I have made a list of other clients who can benefit from such a console. The one recommendation I made was to re-locate the headphone jack so as to provide a nice writing pad space on the front panel.

The ProMix 12 retails for $1,599.

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

Product Showcase

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TECH UPDATE

Millenium Digital I/Os Are AES/EBU Capable

Radio Systems says its Millenium Digital console is now AES/EBU capable on every input and output, and performance has been enhanced with 10 fully programmable mix-minus outputs and a serial interface to third-party equipment.

Other added features include analog or digital capable on every channel; 10 extra auxiliary output busses; 32-bit resolution; sample rate conversion on every input; and new front-panel styling.

Every mix-minus bus has a configurable "secondary" setup for automatic off-line and alternate mixes triggered by channel on/off mode, GPI and front-panel selector switches. Connect multiple consoles via a multi-drop RS-232 port for remote console setup and management of up to 99 consoles from one PC or via the Internet.

The Level Trim feature lets users set and trim input and output levels to within .1 dB resolution. Plug-in daughter cards allow channel-by-channel selectable analog or digital input support. Cards can be added or swapped in the future as the studio's digital inputs grow or change.

Each channel module features independent A/B inputs, three stereo output busses, programmable cue bus, fader start control, cue-on detent fader option and LED lighting.

For more information, including pricing, contact Radio Systems in New Jersey at (856) 467-8000 or visit www.radiosystems.com.

World Radio History

USER REPORT

SmartMixer Works Town Hall

AT-MX351 Keeps Citizens' Questions Loud, Clean and Clear During Presidential Debates

by Laurence Estrin
President
Best Audio

STUDIO CITY, Calif. Best Audio, founded in 1980, provides high-profile special events with production technical management services.

We have used **Audio-Technica** SmartMixers in a couple of unique situations, including the official Town Hall Meeting Debates presented by the Commission on Presidential Debates, featuring interactive discussions from 80 to 100 citizens seated in a circle on the stage with the presidential candidates — specifically the Town Hall meeting debates with President Clinton and Senator Dole, President Bush and Vice President Gore and President Bush and Senator Kerry.

I intend to be use AT-MX351s again in the Town Hall debates of October 2008.

The SmartMixers allow 30 to 40 microphones to be placed within the seating area of the citizens questioning the candidates. There are times when the interaction between the candidates and citizens goes so fast it would be impossible for our FOH and broadcast mixers to keep up with who is on which microphone.

Using the SmartMixers allows us to have the cleanest possible broadcast and sound reinforcement audio for both the house sound system and the live broadcast by not having to have more open microphones than are absolutely necessary for the event.

We also have used the SmartMixers to include audience reaction microphones for television comedy and game shows where the producers want the "on mic" laughter and giggles of the audience, while running the sound system at high levels.

The SmartMixers open and close the mic audio so efficiently that they allow the air mix to stay clean — you do not hear the sound system folding back into the reaction microphones — while giving the producers the broadcast sound they need to covey the feeling of being there to the worldwide television audiences.

Inputs, outputs

The AT-MX351 is easy to set up and operate, all the while using a minimum of rack space. The microprocessor-controlled, automatic switching, five-channel mixer offers four microphone inputs that are XLRF-type balanced, with 48 volt phantom power available on pins 2 and 3. The aux input is an RCA jack accepting auxiliary-level input from sources such as tape decks and VCRs. There is no signal processing of the aux input. The mixer output is XLRM-type balanced, non-inverting.

The SmartMixer provides an independent gain control on the front for each input channel. Gain reserve and adjustment range permit microphones of differing sensitivities to be used together. The automatic threshold setting on mic/line channels ensures proper gating levels for existing ambient sound conditions.

The mode of each mic channel can be switched independently via the front panel's Priority Pre-Select DIP switches. The combination of switch settings results in

three modes of selection/operation.

In any of the three modes, when everyone stops talking, the last microphone "on" will remain "on." This feature provides continuous room ambience in a broadcast application. Additionally, this feature is cascaded throughout the linked mixers so that only one mic in the system remains on.

The front panel also has controls for power, master level and aux in; selected channel LED indicators; output level LED meter; manual mode switch, which bypasses automatic functions except limiting and NOMA if selected; and lockout LED indicator.

The NOMA system helps to control feedback by allowing for the increase in system gain that occurs when the number of open microphones increases. A matrix in the SmartMixer recognizes how many mics are on and adjusts the gain accordingly.

While I have yet to use it, the company also recently released the eight-channel AT-MX381 SmartMixer.

The Audio-Technica SmartMixer retails for $799.

For more information, contact Audio-Technica in Ohio at (330) 686-2600 or visit www.audio-technica.com.

The cash-machine formerly known as RevenueSuite returns to the airwaves as Google AdSense for Audio.

RevenueSuite, a source of additional income for radio stations, promises to be even more so in this incarnation as AdSense™ for Audio, thanks to the power of Google technology. And when you combine that with the industry's most innovative station automation products – SS32™ and Maestro™ – you'll understand why hundreds of stations in markets of every size are starting to talk about the future of radio stations with renewed optimism.

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World Radio History

USER REPORT

WUSF Upgrades to Router-Based Audio Engine

Pubcaster Goes HD, Replaces Analog Consoles with Logitek's Audio Engine, Mosaic Systems

by Michael O'Shea
Chief Engineer
WUSF(FM)

TAMPA, Fla. In February 2003, WUSF(FM) became the first public radio station in the USA to begin IBOC (HD Radio) transmission.

In preparation for digital broadcasting, WUSF spent quite a bit of time and money upgrading our STL, exciter, processor, etc., for IBOC operation. It became time to tackle the studios once those upgrades were complete, and the first things we wanted to upgrade were the consoles.

WUSF's Mosaic Control Surface

WUSF moved to our current facility in 1989, and we had been using the same analog consoles since that time. The consoles we purchased in 1988 for on-air, production and news operations were large and expensive, and unfortunately they also turned out to be unreliable.

I spent a great deal of time over the years cleaning switch contacts that were corroding and had to deal with less-than-stellar tech support from the manufacturer. Also, the old analog architecture of those consoles made it difficult to route our audio sources to the places they were needed.

For us, an upgrade to a router-based digital console system was the answer.

My first step in console shopping was to ask my peers what they thought. I posted a question on Pubtech, a public radio engineering list server, saying I was thinking about switching to a routing system console, and asked for their recommendations. The majority of responses led us to **Logitek**.

I was already familiar with Logitek. I had purchased an analog console from Tag Borland, Logitek's president, in the early 1980s. It got moved around over the years and we finally retired it about five years ago, but that console was a little workhorse and was very reliable. Based on our experience with Logitek along with the recommendations of other engineers in the industry, we decided to purchase Logitek's Audio Engine routers and consoles.

Making the switch

Approximately two years ago we began the digital conversion in our studios. We decided to replace the analog consoles two at a time over a three-year period. The first conversion was to our production room, used for live performances, and our main on-air room.

Last summer I completed the second set of production rooms, one of which is used with our Donis studio to produce "Florida Matters," a weekly public affairs program. This upgrade was made possible by a generous contribution from a most gracious donor. This summer I will finish conversion with the installation of a third Audio Engine and consoles for our news department.

As an NPR affiliate, WUSF has a large, award-winning news department. Our total FM staff is approximately 35 employees, which includes two news anchors and five news reporters. One of the new Mosaic consoles will go into our live production room, replacing a Numix that will become the news on-air console, with the second Mosaic going to the news production room. Needless to say our news staff is awaiting the upgrade to their operational facilities.

It's a bit of a misnomer to call these products "consoles." They're really just control surfaces that tell the router what to do. The faders and switches on the control surface don't pass audio therefore a dirty fader won't degrade audio quality. The routers have been centrally located in our engineering core and are linked with fiber. All of the subordinate gear in the studios — CD players, MD decks, monitor amps, etc. — are wired back to the core with Cat-5 cabling through punch block connections.

My shared sources, such as ISDN codecs and network receivers, are split up and connected to two Audio Engines, but because of the system architecture those sources show up on every engine and therefore all consoles. Having this routing ability reduces the number of outboard distribution amps and patch bays, saving time and money.

Having this routing ability reduces the number of outboard distribution amps and patch bays, saving time and money.

Installation of the Logitek consoles was fast. I usually have to do the work alone, and if I pre-make my cabling while awaiting the arrival of the Logitek equipment, installation of a new console only takes about a week. It actually takes longer to gut the old studio equipment than it takes to install the new digital systems.

John Davis and Andy Klarer of Logitek's tech support have been right there for everything I need. There's a bit of a learning curve with digital consoles but with their help, things go smoothly. When I call them with a question concerning the writing of a command or trigger, the answer comes back right away. I had been used to fighting for tech support with the manufacturer of our old consoles; not the case with Logitek. It's obvious to me that Logitek has a philosophy that the sale is never complete without on-going responsive tech support.

Logitek consoles are cost-effective too. In 1989, we spent $60,000 for two analog consoles. Today I can buy a router and two digital consoles for $52,000. When you consider what the 1989 costs represent in today's dollars, the cost savings are remarkable and there's no comparison for the flexibility I have today.

For more information, contact Logitek Electronic Systems in Houston at (800) 231-5870 or visit www.logitekaudio.com.

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World Radio History

TECH UPDATES

SAS ICM-32 Offers 32 Talk/ Listen Keys

Sierra Automated Systems says its new ICM-32 is more than an intercom. It is a command and control center for producers, directors and editors that can be integrated into the company's 32KD digital router/mixer and Rubicon series of consoles, with features including signaling, call answer and dialup.

The ICM-32 offers 32 talk/listen keys, each with dynamic four-line eight-character display, that enable the user to listen to multiple sources at a time; adjust their individual listen level; and talk to each of those sources such as a control room, talent, intercom station, ISDN, four-wire remote or phone hybrid.

Operating features include source (listen) and destination (talk) dialup; group talk; party line; pages for more than 32 talk/listen at one time; store and recall of pages for different shows or productions; and on-the-fly temporary reprogramming of a key.

Hardware features include analog and IP connectivity including operation over the Internet; front-panel mic; speaker and stereo headset jack; line-level rear-panel analog I/O and GPI; and expansion panels.

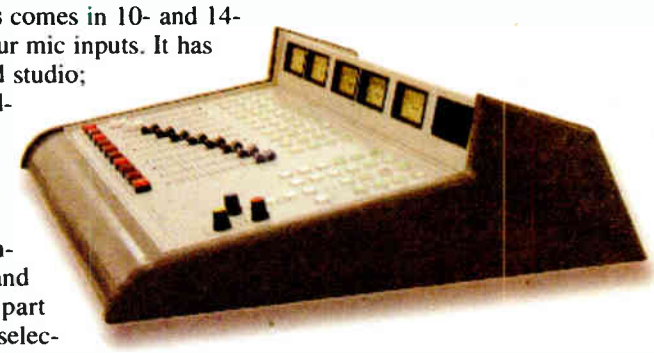
The ICM-32 is rack-mount; SAS says desktop and console mount stations will follow.

SAS also added a new series of alpha display dialup and pushbutton modules to the Rubicon series of consoles, as well as new features. Automatic mix-minus has been expanded to include ISDNs and other two-way shared devices in TOC. Show Control saves and recalls settings on the console such as source select, button assignment, pan/balance and mode.

For more information, contact Sierra Automated Systems in California at (818) 840-6749 or visit www.sasaudio.com.

X-Mixer Has LED Switches, Penny & Giles Faders

The Xtreme-Mixer digital audio console from **Arrakis Systems** comes in 10- and 14-fader versions supporting up to 10 analog, 10 digital and two to four mic inputs. It has three mixing busses; stereo cue; monitoring for a control room and studio; and a telephone interface for on-air talk shows and off-line recording and communication.



The X-Mixer features Penny & Giles slide faders, LED illuminated switches and stainless steel shafted headphone and monitor volume control potentiometers.

Additional highlights include LED digital timer and timer control, metering for the three output busses, selectable input levels and fader and off-line mix assignments. The chassis features two-part epoxy finish for scratch resistance. There are six-position remote selector switches for input selection, and a telephone mix-minus selector between PGM, AUD and offline mix.

The X-Mixer has a list price of $5,495 to $6,995.

For more information, contact Arrakis Systems in Colorado at (970) 461-0730 or visit www.arrakis-systems.com.

DAD Supports General IP Console, Router

ENCO Systems has new options to provide control for certain digital IP audio consoles and routers from several manufacturers into its DAD product line. The options allow broadcasters to configure, connect and control new IP-based consoles and/or console router combinations with DAD automation systems.

Additionally, broadcasters quickly can integrate IP routers and consoles with their DAD systems.

ENCO's IP console and router options support audio consoles and routers from manufacturers such as Axia, Harris, Logitek, SAS and Wheatstone. The new option is available now with DAD version 5.2a and later.

For more information, contact ENCO Systems in Michigan at (800) ENCOSYS (362-6797) or visit www.enco.com.

World Radio History

USER REPORT

Stations Go Livewire Route With Axia

Denver Radio Co. Likes Easy Wiring, Lack of Central Router and Livewire IP Audio Protocol

by Mark Smith
Director of Engineering
Denver Radio Co.

DENVER I have installed numerous consoles in several studios in the last 20+ years from just about every manufacturer. I was used to installing audio consoles with big bundles of good old reliable wire.

I ran across the **Axia** system at an NAB show a few years ago, and at first I was not sure about installing a console that's essentially a computer on an Ethernet LAN. It took me a while to get my head around an audio board that had no wires running between the studio and master control. But after a while I got past this old-line kind of thinking — and I am glad I did, because I got a chance to do something that not everyone gets to do: build two new radio stations from the ground up.

The Denver Radio Co. purchased two "move-in" stations, and we built the studio facility with all new equipment mostly from Axia and Telos. We had little time to install the studios, less than 13 days from the time the studio and master control areas were finished to the day we had to go on the air.

Fortunately, I made the decision to go with Axia. The system arrived about a month before we had to start the installation.

I set up and pre-configured the system in my house along with my IT manager, Lee Damschroder, while we waited to take possession of the new studio suite. This saved us many hours when "crunch time" came, requiring us to get the studios built and on the air in a hurry. I cannot imagine having gotten the first three of our five studios installed in such short order if we had decided to use a conventional system.

CAT-5 for audio?

The process of setting up the Axia system wasn't hard, but it was different than we were used to.

Lee and I worked out a good numbering scheme for all the sources, which are unique to each studio and the master control room. This included numbering the console outputs and audio nodes, and developing an IP address scheme to allow us to identify each Axia component and audio source through the browser interface.

It only took a short time to learn how to configure the consoles and audio nodes, and after a few days we became pros at setting up the system. After that, installation became "plug-and-play," as every console source, profile and input had been configured.

I also spent several evenings fabricating XLR-to-RJ-45 connectors with Cat-5 so the wiring was the correct length and ready to go when we mounted the equipment in the racks.

I know what you are thinking: Cat-5 computer cable for audio? I was used to standard audio cable, but soon got past that as well. Category cable is twisted so it offers excellent rejection to noise, and the audio is all balanced so we have had no trouble with noise even though there is an FM transmitter right next door (which I had to filter out of speakers and several other things). I have never heard it in the Axia system, or on our air.

Additionally, the impedance of the Cat-5 wire is close to the 110 ohms preferred for AES runs.

With Axia, every new audio node or other equipment that is Axia-aware automatically shows up on the network whenever it is plugged in. As we fired up new nodes, they would appear one-by-one and we'd make routing assignments. I built the KSYY(FM) studio in one afternoon, and it was ready to go on the air. I can't say it would have been that easy had we chosen another console manufacturer and had to run wires to each channel.

Consider this

There are several great features the Axia system offers. Here are a few things to consider when you decide to build your next studio.

Axia networks have no central router to fail. Every console, audio node, router, etc. is a stand-alone unit. This offers great risk distribution. In the event that any one of these devices should fail, it would be a local failure and would not jeopardize the system. It is easy to move program output between studios, and you can configure profiles for any scenario you might think of, which can be loaded to make any console "on-air" ready in seconds.

There are no direct connections to the console. Audio enters at 1 RU rack units that have eight inputs and outputs, and becomes a networked source that can be made available to any console and become part of any profile.

Smith, shown with the Axia system, likes that Axia networks have no central router to fail: 'Every console, audio node and router is a stand-alone unit. This offers great risk distribution.'

Wiring is easy. I don't have a single DA or punch block in the building. When I talked to Rod Graham at Arrakis, which built my studio furniture, he wanted to know how big the hole for the wire needed to be and how many punch blocks I needed. He thought I was joking when I said I just have one small cable from the console and no blocks at all. Sorry, Rod, there isn't anything there other than a few wires for monitors and headphones.

Axia's newest console software provides EQ for all sources, and great audio processing for each mic source, with compression and de-essing capabilities similar to the familiar Symetrix 528E. Plus, the Axia microphone nodes can take anything from microphone to line level, and provide phantom power. There is really no need for an outboard mic processor anymore, which eliminates even more wire and is another box in the line to either fail or induce noise into your mic channel.

Best of all, these settings can either be permanently associated with the source or loaded as part of a specific show profile. This means you can make customized console settings for any jock, which can include individual microphone processing, board layout and source EQ.

The days of live off-the-air monitoring have passed, but the Axia guys have a solution for that too. You can select an Omnia processing preset and additional EQ for the headphone monitor channel, so that on-air talent can still enjoy "super stun" in their headphones while you process your station's sound separately.

I also have noticed that audio throughout the system is super clean, likely due to reducing or eliminating digital conversions and keeping everything in the same format.

Axia is built around the "Livewire" standard, which is a protocol for transporting audio over IP networks. A driver can be installed in your on-air and production computers that eliminates the need for expensive audio cards and drops the audio directly into the network via Ethernet.

When the driver is loaded, it looks to the computer just like any standard audio card, so it works with any audio production software. Most automation companies are collaborating with Axia to provide Livewire output with their system. The driver that comes from the automation companies gives the computer on which it is loaded 16 stereo ins and outs, but you can get a single-stream version for audio workstations.

It is nice to see an audio computer with no audio card, but it's even nicer not to have to use a 1/8 inch unbalanced audio jack to feed your professional audio system.

Telos is now including Livewire on the Zephyr Xstream, its latest phone systems and Omnia audio processors. Other equipment makers are catching on as well. Some of these devices don't even need audio connections — just a power cord and a 100Base-T Ethernet connection to your Axia network. You can configure them through your Internet browser without even having to visit the device in person.

The days of having to go to the studio and hook up wires, and saying "no" to individual operator settings, is now over — and the transition is virtually painless. As more equipment manufacturers begin to include Livewire connections, life will get easier and easier.

From day one, the air talent just came in and started playing the hits and I have had exceptionally few questions or operator problems. It is an extremely powerful system, but for the operator, exceptionally intuitive and easy to learn. Every change is as easy as browsing the Internet, and I can quickly change a profile for any reason.

After making the jump from installing traditional audio systems to IP networks with Livewire, I can't imagine installing a standard audio console again.

For more information, including pricing, contact Axia Audio in Cleveland at (216) 241-7225 or visit www.axiaaudio.com.

I was used to standard audio cable, but soon got past that. Category cable is twisted so it offers excellent rejection to noise.

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The essence of the Innova Line lies in combining modular components with custom tailored shapes to fit particular requirements of On-Air, Production and Imaging Studios. Cable raceways are integrated into the structural design to facilitate wiring and create logical access points throughout. Conventional casework and cabinetry is produced so that an entire facility has a unified look and feel.

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World Radio History

USER REPORT

Commonwealth Converts to HD With Harris

by Steve Newberry
President
Commonwealth Broadcasting

BOWLING GREEN, Ky. Commonwealth Broadcasting owns and operates 22 stations in four regions across Kentucky: Bowling Green, Elizabethtown, Campbellsville and Madisonville. Since the summer of 2006, Commonwealth gradually has been converting to digital, beginning at the studio — the most important part of the audio chain excluding the transmitter.

Like many other small-to-mid-market broadcasters, we found it not economically feasible to upgrade the entire audio chain at once. After careful consideration, it made sense to undergo a staged process that would begin at the origination point and work up to the transmitter. We decided to incorporate a full studio systems package from **Harris** featuring VistaMax studio networking and NetWave digital consoles.

I first saw the NetWave console at NAB2006. The combination of the technology, price point, flexibility and freshness of the configuration were attractive. The fact that it was a digital console that could still host analog inputs was another bonus. This is a nod to the significance of flexible technology, as most radio stations that convert to digital still work with a host of analog sources.

Conversion tactics

Bowling Green, the largest of the four regions, was the first of two sites to convert. The studio complex, located in nearby Glasgow with Commonwealth Broadcasting's business headquarters, is home to three stations: WOVO(FM), WPTQ(FM) and WHHT(FM).

As our largest market, the Bowling Green conversion was significant as it also was our first planned site for HD Radio broadcasting. The NetWave consoles replaced DynaMax consoles. These consoles, still in good working order, were moved to other facilities that remain analog for the foreseeable future.

The Glasgow facility features three NetWave consoles with VistaMax networking. Our chief engineer, Mike Graham, was a proponent of the VistaMax technology, noting it as a crucial component for the studio-to-studio flexibility we sought.

Flexibility is vital in a small-market, multi-studio facility. VistaMax allows us to route and share audio sources between all studios, and drives the NetWave consoles in each studio. It is a powerful tool that gives each studio access to sources in every other studio.

While the VistaMax platform provides the flexibility and agility we need for our digital studio configurations, the ease of installation was a major benefit, as was the simplification of our traditional audio routing and technical core-to-studio connections. The VistaMax design eliminated an enormous amount of traditional wiring, including hundreds of audio cable pairs. Studio rewiring for the digital conversions proved simple.

The modern digital studio creates more options, and the NetWave console coupled with VistaMax allows us to reduce the number of direct channels required for each console.

When a broadcaster purchased a console 10 years ago, a separate input would be required for every source. A typical setup might have included five cart machines, two turntables and two CD players along with microphone, telco and satellite feeds. It was fairly easy to fill a 12-channel, 36-input console in a brief period of time.

The modern digital studio creates more options, and the flexibility of the NetWave console coupled with VistaMax allows Commonwealth facilities to reduce the number of direct channels required for each console. Our typical NetWave configuration uses several channels from automation and hard drive systems, two utility busses for phones and satellite feeds, and two microphones. Each NetWave can recall sources from NetWaves in other studios. This unlimited access allows us to use the smaller eight-channel NetWave consoles, which offer excellent value considering the low price point.

Our Elizabethtown market — WTHX(FM), WKMO(FM) and WRZI(FM) — is achieving similar success with the new NetWave and VistaMax platform. Unlike in Glasgow, the Elizabethtown facility was using much older consoles that had served us well but had run their course. The Harris platform is a major upgrade from the older analog system, and we are achieving the same business and technical benefits at Elizabethtown as we are at Glasgow.

For more information, including pricing, contact Harris in Ohio at (941) 639-1889 or visit www.broadcast.harris.com.

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World Radio History

USER REPORT

Sonifex S2s Installed at Radio Norwich

by Jim Warrack
Founder
Paddock Enterprises

GREAT BLAKENHAM, England I got into radio in 1967 after working as a ground radar fitter in the Royal Air Force. During a three-year apprenticeship at RAF Locking, I became involved in the small radio station feeding the tannoy on the barracks. I was then posted to the Maldives, which had a "proper" forces radio station with an MF transmitter, and on my return to the U.K. was stationed in West Drayton where I got involved with the local hospital radio station.

A friend from there became a journalist at Radio Victory, which was one of the U.K.'s founding commercial radio stations, starting in the early 1970s. When I left the army in 1976, I started work as a reporter at Radio Victory in Portsmouth, moving from there to Reading's Radio 210 in the same year as an engineer, until 1980 when I left to join Hereward Radio in Peterborough as chief engineer.

I took early retirement from Hereward in 2004 and started Paddock Enterprises, which specializes in studio installation and also has a sideline in motor racing, hence the name.

Tindle Radio owns and operates eight local commercial radio stations on the U.K. mainland, Channel Islands and Ireland, and has shareholdings in several others. I saw a press release from Ofcom, the U.K. regulator, that Tindle had been awarded a license for Norwich in the East of England. I joined forces with ex-commercial radio engineer staffer Simon Foster, now of Simon Foster Associates, to bid for the studio building contact and was successful.

The work split had me doing the wiring schedules and off-site cable production with Simon Foster handling woodwork and installation. We devised the layout and configuration and called on Simon Tims, Tindle Group's head of technology for the IT aspects. Local builders did the actual construction of the studios to a design by me. They are traditionally built of plasterboard on timber studwork.

Modular mixing

The Radio Norwich build is fairly standard for U.K. commercial radio, with two identical self-op studios and a further two smaller booths: one for news and the other multi-purpose for production and news work. One of the booths and both the self-ops can be directly selected to air.

When it came to the lynchpin of the whole operation, the consoles or mixing desks, I was clear on my reasons for choosing the **Sonifex** S2. When looking for a desk in today's climate, value for money has to come into it. What I like about the S2 is that it's a flexible mixer; individual modules make it easy to set up just how the client wants it.

'The split S2 desks allow for an uncluttered workspace,' said Warrack.

The range of modules available also made my life easier, enabling the desk to be configured to do everything we needed it to do, or to be easily modified to meet our required specification.

Each self-op studio has a split configuration S2 with two 10-channel frames fitted with a mixture of mono, stereo, telco and stereo mix minus channels. The desks also are fitted with a couple of six-way selector channels to bring in the less used sources such as Independent Radio News' secondary stereo feed from the satellite, the other studio, the two booths and a few spares for future expansion.

One of the stereo mix-minus channels is for the ISDN codec while the other is for use with RCS Master Control for voice tracking. To make record feeds to RCS more flexible, a three-way switch controlled by buttons in the S2's meter bridge (specially made for me by Sonifex) selects between the mix-minus feed and the S2's Program or Audition outputs.

Radio Norwich uses the PhoneBox system from Broadcast Bionics to comprehensively control phone-in callers and this, in turn, feeds an HY-03T twin Sonifex telephone hybrid. The HY-03S outputs are fed to S2 telco channels in each studio with the hybrid latching fed back from the desk. The two booths each use single 10 input frame S2 desks with a smaller selection of channels fitted.

I selected Sonifex's Station Master for audio routing and monitoring. The unit combines transmission switching, signal distribution and talkback in a single box. Designed to interface with Sonifex products, it also can be used with most other makes of desk. In this case I chose it as a result of past experience.

I'd used a Station Master for KLFM in Kings Lynn and was impressed with it; it's a value for a box of tricks. We've got three studios for on-air selection plus a fourth input, which is derived from a box made by Audionics that takes the three RCS audio outputs and mixes them together, and then is able to switch in an external stereo feed like the satellite-fed Network Chart Show and the mono Independent Radio News satellite feed. The switching is controlled by RCS.

I also built a 1U box to replicate the offer/accept buttons in the studio, which is above the Station Master in the racks room to select this configuration to air.

To enable the studio cable looms to be made, the furniture temporarily was assembled in an upstairs room, the S2s placed on top prior to the holes being cut for them and then the cabling was cut to size. This meant that there was more room to achieve this than with the furniture and desks in situ.

One novel solution to the old problem of where to put the IDC frames in the studio was to actually hide them inside the walls. The multi-pair cables arrive from the racks room (in this case on the floor above) via cable trays and the cables to and from the mixer exit below. The IDC frames are screwed to plywood panel and then a material-covered panel fits over the whole thing. You can actually sit on a chair to do the jumpering; much better than crawling around under the desk, especially at my age.

As with most RCS installations, the CPUs are housed in the main racks area with audio and control extended to the individual studios. Even a relatively small station like Radio Norwich manages to fill up four bays with equipment. There are several off-air receivers installed to enable cross-logging of other Tindle Group stations within receiving distance. Logging is done on Sonifex's NetLog unit, which allows comprehensive logging and monitoring across standard computer networks.

The studios are neat and compact. The split S2 desks allow for an uncluttered workspace despite the presence of no less than three computer/playout screens.

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

The range of modules available made my life easier, enabling the desk to be configured to do everything we needed it to do, or to be easily modified to meet our required specification.

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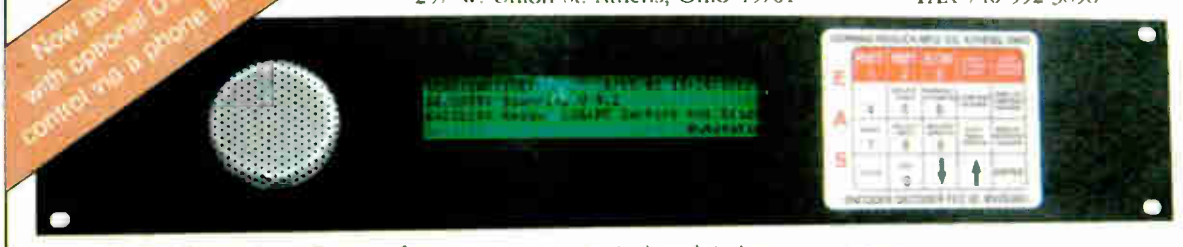

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World Radio History

USER REPORT

Wheatstone Air 2+ at Home in Home Studio

by Mike Erickson
Independent Recording/ Production Engineer

HOLDBROOK, N.Y. As a full-time engineer and a part-time on-air personality, I sometimes end up taking my work home from both sides of the fence. I test some audio gear, and sometimes I end up recording full-length shows in my own absence.

My home studio consisted of a Mackie mixer and a source switcher harvested from an '80s stereo system to switch processed and unprocessed source audio to recording and streaming devices (which include two PCs, a MiniDisc and a cassette deck). The system worked, but only for me. It was confusing and complicated for anyone else who wanted to use the studio.

I wanted something more elegant for home use and the Audioarts Air 2+ radio console from **Wheatstone** fit the bill. Unlike the rotary consoles I was offered from rundown transmitter sites and passed up over the years, the Air 2+ could be assigned to either program bus or both program busses at the same time. The built-in cue speaker was a plus; no more pre-monitoring off an aux bus on the Mackie.

The additional features of a full-fledged console — monitor muting for mics, talkback, impulse starts, external monitor inputs, mix minus for phone hybrids — made the Air 2+ a bargain. The clincher? RCA phono on all but the mic inputs.

Erickson's Air 2+. The clincher for him? 'RCA phono on all but the mic inputs,' he said.

Install, setup

The console arrived well packed direct from Wheatstone. I and three other engineers interested in the console gathered for the install in my home studio. The consumer line-level input and outputs were wired in about the time you would need to wire a remote, literally 10–15 minutes. The PCs used balanced TRS plugs that we matched using Henry Engineering boxes. Same for an aux input; we wired for a friend who records some production items and uses a 360 Systems Instant Replay.

The mic inputs were a little tricky. I have a Symetrix 528E for my Shure SM58 and a Hnat Hindes Mic Maze for my SM7. The Air 2+ has two preamps built into the back of the console on Phoenix jacks. The idea, although it is not documented well, is to bring the microphone audio to the Phoenix jack, then take the RCA phono output labeled Mic Out and insert the microphone audio into whichever of the 12 channels you want to bring the audio up on.

We thought we would have enough gain out of the microphone processors to go directly in, but that was not the case. We ended up using the built-in preamp with the mic processor. Fortunately, the audio is very clean. In fact, it is as clean if not cleaner than the preamps in the previous mixer.

Outputs also are on Phoenix connectors. Each program bus feeds an 8x2 DA, and that feeds whatever equipment requires audio from that particular bus, eliminating the cheesy (and not as clean) stereo consumer switching device that preceded it.

If I had a beef about the console, the documentation about the implementation of microphone audio would be one. The other would be the rear panel, which should be an easier flip up. Currently it is a multiple screw-on panel that makes it more difficult to reach the connectors.

I also would secure the DC plug to the console in a better way. It is currently a DIN connector that did fall out once while we were installing the console. The power supply is external in the form similar to that of a laptop. The outlet plug is a traditional three-prong, no wall wart.

The project took a little more than four hours to complete from the time we set the console until the last recorder was balanced with tone. The audio sounds great,

I wanted something more elegant for home use and the Air 2+ fit the bill.

there is a lot of headroom and the console feels like something that costs a lot more than the price it is offered for (retail price $2,995). As a ham operator, I have used my 2 meter rig near the console and have not had any problems with RF issues with the unbalanced consumer inputs.

For educationals, LPFM, home studios or even your main studio, the Audioarts Air 2+ is a great console that does a good job without doing a job on the bottom line.

For more information, contact Wheatstone in North Carolina at (252) 638-7000 or visit www.wheatstone.com.

TECH UPDATES

Arena Customizes Routing, Distribution

AEQ Broadcast says its Arena digital broadcast console offers improvements over the previous version BC2000D mixer. Among them is the ability to monitor all signals present in the system, as well the use of the configuration presets in relation to the Swap Page.

Furthermore, the dedicated controls for Dynamic, EQ, Routing and Select located above the faders have dual function. In the other mode of operation, these controls turn into send buttons which routes the signals to busses such as Master 1, Master 2, Aux 1 and Aux 2.

Users can customize fader assignments, routing, summing, distribution and audio processing (including limiting and compressing of audio signals).

Other Arena improvements include the exterior design, operation and modularity. The user may request the On/Off controls on top or below the faders. To facilitate easy maintenance, each console offers changeable modules.

The Arena console also retains existing features on the BC2000D such as the simultaneous control of several studios, and the possibility to program an unlimited number of mix-minus channels. In the Mix-Minus mode, the channel becomes input or output of the phone conversation.

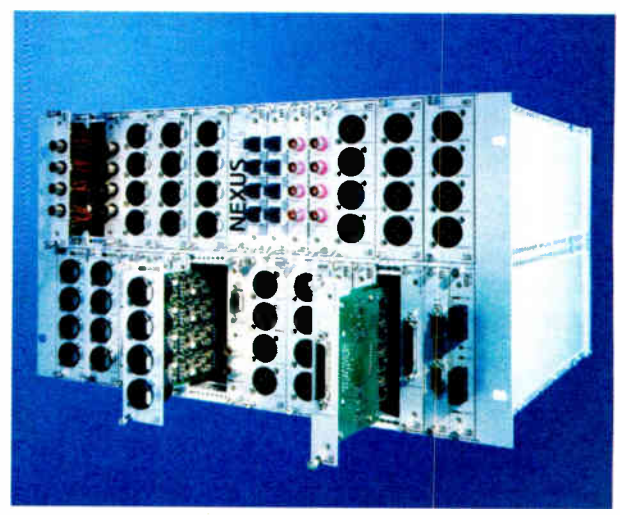
Its control surfaces, the DM5 and D10, are linked to an audio processing frame via a single Ethernet cable. This frame houses the audio processing, inputs and outputs as well as the control boards. Users can attach an Ethernet hub to the control board's Ethernet port and then plug a computer into the hub for access to the system configuration and setup.

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

StageTec Digitizes Unprocessed Mic Signals

StageTec offers the XMIC+, a microphone-input board for its Nexus audio networks and Aurus/Auratus mixing console systems. The XMIC+ board is 3 RU high, and digitizes up to eight unprocessed microphone signals to a 28-bit signal.

The company says analog preamplification is not necessary due to the high resolution. The board also handles higher levels up to 24 dBu and can consequently be used to receive line-level signals.



For live applications where source signals need to be made available to multiple destinations, for example, sound reinforcement and recording consoles, a digital splitter is implemented on the board itself. Each of up to eight input signals can be distributed to a maximum of four separate paths with independent gain and subsonic filter settings.

StageTec says the XMIC+ also demonstrates thermal efficiency by consuming just 6 watts, and producing less heat than conventional solutions. It is therefore suitable to broadcast applications where space, power and air-conditioning capacity are in short supply.

For more information, contact Salzbrenner StageTec Media Group in Georgia at (888) 782-4391 or visit www.stagetec.com.

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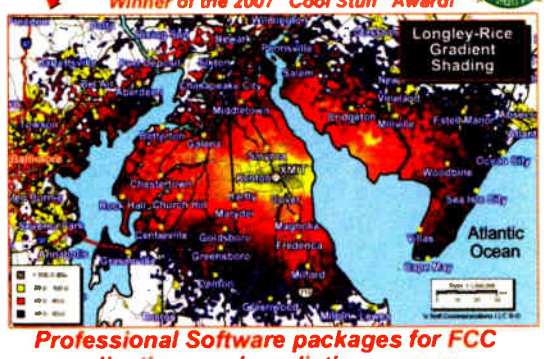

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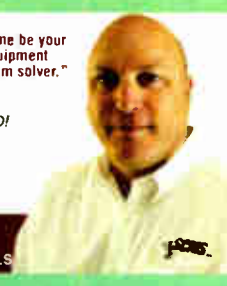

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World Radio History

KVKK

▶ Continued from page 46

suggested we use a 1 kW transmitter that he could overnight UPS. Fortunately he had a crystal in stock and told us he would drop everything he was doing and put the full factory's efforts behind us. This was late Monday afternoon.

I called Broadcasters General Store for a Sine System and other gear, and they said it would be overnighted to us.

Electric panel for temporary building.

KVKK Engineer Richard De La Hunt looks at the wreckage.

Tuesday came and Tuesday went. Wednesday morning our front lobby was loaded with the peripheral equipment.

I called Jack Wise, Bernie's son, and checked the progress. He said the transmitter was under test and was being shipped and should be in our lobby Thursday by noon. The transmitter arrived Thursday at 1:30 pm; we loaded up the truck and arrived at the site to find the new building in place and electricity wired in to the building by Northwoods Electric of Staples.

Team effort

We had everything installed and ready to go when we noted a small difficulty: the transmitter required 220 volts instead of 110.

We called the electrician and he said he would be there first thing in the morning on Friday. We were waiting for a new Optimod, which arrived at noon. We went to the site, installed it along with a temporary STL and the Sine System, and returned KVKK to the air with 1,000 watts at 4:30 pm. The signal was very good, although certainly not 10,000 watts.

The fire marshal and our insurance adjustor say it looked like the fire started on the outside of the building near the power mast. Regardless of where it started, the most important thing is no one was hurt; equipment can always be replaced.

Our Verndale Fire Department tried so hard to save the building that they were even pouring water on the fire before the company disconnected electricity. Kind of crazy, but it showed how much they cared.

Fifty-two years of engineering and being in the broadcast business, I've never gone through anything like this. I'm not looking forward to the rebuild as it will be time- and labor-intensive.

I want to thank, publicly, everyone who helped us. Every one of our local people broke their backs helping, and this was the Easter weekend. We had 100 percent cooperation from everyone and owe a great debt of thanks to our good friend Bernie Wise of Energy-Onix for a yeoman's job in getting us back on the air. From time of order to time of arrival, they did the job in 24 hours.

As I said initially, "Have a fire and you'll find out who your friends are."

Ed De La Hunt is the owner of De La Hunt Broadcasting in Park Rapids, Minn.

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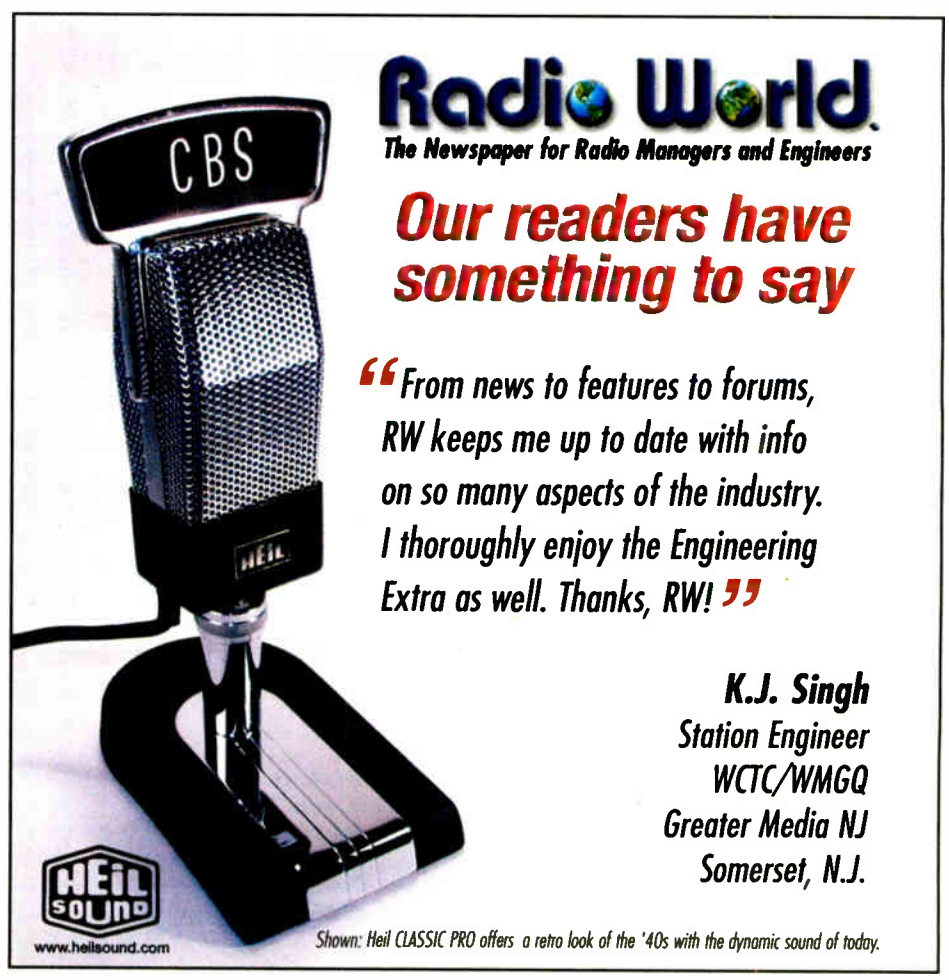


World Radio History

De La Hunt Gets Help From Its Friends

Broadcaster Credits Local Fire Dept., Supplier With Getting KVKK Back on the Air After Fire

by Ed De La Hunt

If you want to find out who your friends are, have a fire.

KVKK(FM), a 10,000 watt station on 1070 kHz, had a fire break out Monday morning, April 2. It burned the entire transmitter building and all its contents to the ground.

The first clue that we had a fire was when the Sine System called and said our transmitter was off the air. We called back but the system did not answer; in the interim period, a passerby called the Verndale Fire Department and said fire was coming out of the building.

We tried to call again and the line was busy, which we assume happened shortly after the phone melted. We went to the site from our headquarters at Park Rapids, Minn., 40 miles north of Verndale. When we arrived the fire department was still pouring water on the remains of the building. The building had burned to the ground completely.

The burnt remains of KVKK.

'Let's get back on the air'

The facility had been built 15 months earlier. Equipment in the building, which included an Energy-Onix 10,000 watt solid-state transmitter, was destroyed. The fire chief informed me that the state fire marshal had been notified and was en route to the scene. There was absolutely no salvage, although the tower alongside the building appeared to be in good shape.

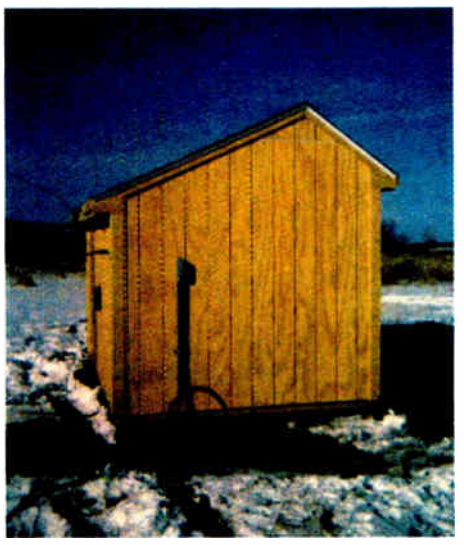
My son David and I immediately switched into "let's get back on the air" mode and called Bernie Wise at Energy-Onix in New York. We told Bernie what had happened and he informed us that they would do everything in their power to get us on the air as soon as possible. I told Bernie we would contact the insurance company and ask them what they wanted us to do. Upon talking with the insurance people, they said to get back on the air as soon as possible.

We drove to Central Building Supply in Staples, Minn., and asked them if they had any pre-built buildings. They had just what the doctor ordered, a 12 x 8 building, and said they would deliver it to the site.

We returned to the transmitter site; the fire department was still there and the fire marshal had arrived. The power company people from Todd-Wadena Electric also were on site and we told them we needed a temporary service. The building was still smoking three hours later when they had the temporary installed.

At that point we called Wise back and told him we were authorized to order. He

See KVKK, page 45 ▶



KVKK's new standby building

It looked like the fire started on the outside of the building near the power mast. The most important thing is no one was hurt; equipment can always be replaced.

Open Up the Online Option

Technology continues to push the envelope of broadcast automation in the area of "command and control." Remote control systems come with a variety of monitoring options and interfaces. Test equipment is similarly capable. RW believes it is time the FCC rules reflect these improvements.

The commission regularly levies fines to stations that are in violation of rules that are superfluous in the age of the Internet. Failure to keep records as arcane as "The Public and Broadcasting" in the station's public file can warrant a fine, even though that tutorial is readily available online. Perversely, these enforcement efforts would seem to affect the ability of the commission to keep pace with the increasing number of stations; thus less and less time is devoted to ensuring compliance with important rules, such as adherence to nighttime power reductions for AM stations and modulation levels on FM stations. Instead of worrying about whether the heart, lungs and brain are working properly, the commission is devoting its time and efforts to keeping the toenails trimmed.

RW believes there is a simple solution, one that can benefit broadcasters and the FCC equally.

The FCC should change the rules to permit, but not require, stations to place all technical monitoring and public documentation on the Internet.

These Web sites would be published for the public on the commission's own Web page, and all interested parties, including the Enforcement Bureau, would have full access in real time, on a "read-only" basis. Power levels, modulation levels, tower light functioning, pattern status through tower base currents, EAS messages; all these and more could be made available.

In addition, the commission should extend the current practice of having station documentation available on the Internet and treat the electronic version as an adequate substitute for hard copies of the Public File in the station's files.

By certifying (again, via the Internet) certain physical issues are in compliance, such as main studio staffing/operation and AM tower fencing, a participating station could be placed on a "Presumed Compliance" list, and avoid FCC inspections for a predetermined period of time.

Participating stations would avoid the uncertainty of a spot inspection and would be inclined to pay attention to the things that count.

Relieved of inspections to resolve non-critical issues, the FCC, for its part, could concentrate on really egregious violators, and in the process, clean up the airwaves to a degree that is not currently possible.

(This question is not hypothetical. Even as we were preparing this commentary, the FCC, in its recent IBOC rules, raised wider questions about how stations service the public interest. One question it asked is whether it should require all licensees to make the contents of public inspection files available on the station's or a state broadcasters association's Internet Web site. Stay tuned.)

— RW

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Classified & Product Showcase: Claudia Van Veen	703-998-7600 x154	Fax: 703-671-7409	e-mail: cvanveen@imaspub.com
European Sales Mgr., Africa, Middle East: Raffaella Calabrese	+39-02-7030-0310	Fax: +39-02-7030-0211	e-mail: rcalabrese.imaspub@tin.it
Japan: Eiji Yoshikawa	+81-3-3327-5759	Fax: +81-3-3322-7933	e-mail: callems@world.odn.ne.jp
Asia/Pacific: Wengong Wang	+86-755-5785161	Fax: +86-755-5785160	e-mail: wwg@imaschina.com

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