BUTTER SPINS A TEXAS RADIO TALE. Page 4

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Small-Market Paradigm

Steven Ludwig believes in 'Super-Regional Clusters'

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Radio Head Start

'Magnets to Megahertz' helps develop the electronic wizards of tomorrow.

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Radio World

$2.50 The Newspaper for Radio Managers and Engineers September 1, 2008

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▼ Should you buy this add-on car HD Radio sold at Target?

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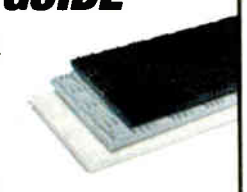

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NewBay Media

Buc Fitch's Certification Corner is now archived at radioworld.com

DIGITAL RADIO

Eke More Power Out Of Your IBOC Tx?

Operational Aspects to Consider in Preparing For an HD-R Power Rise

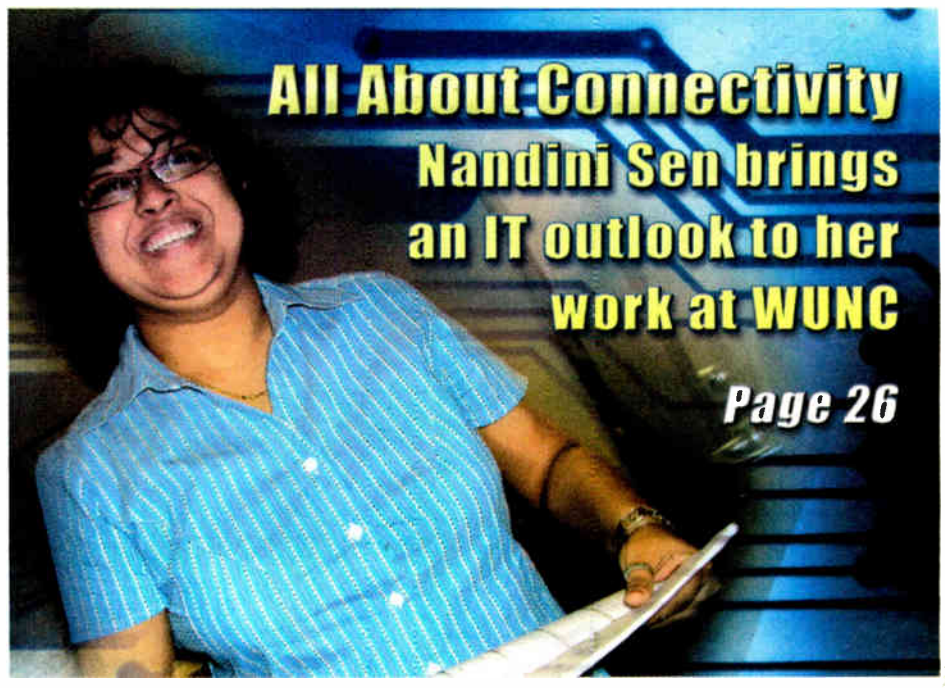
by Benjamin H. Brinitzer

The pending request to the FCC by the NAB, a consortium of broadcasters and manufacturers for a power increase for FM HD-R by up to 10 dB has ramifications for planned HD-R installations. It is prudent to think through all aspects of a construction project to avoid increased costs in the future. A well planned installation will reduce future costs.

Common questions to ask: What technology method will I employ? Is my current installation obsolete or can I reuse some or all of the new gear?

Is there enough utility power available for the new installation, do I need to upgrade the emergency power and transfer switch? Will the installation survive future technology advances and new requirements?

See POWER, page 6 ▶



NPR Labs: Unrestricted HD-R Power Boost Comes at Cost

Technologists Suggest Studying Use of Digital Boosters, Separate DA Systems and Asymmetrical IBOC Sideband Power

by Leslie Stimson

WASHINGTON NPR Labs says in its more than 260-page study of digital coverage and interference analysis it found the impact of a 10 percent digital power increase to analog service varied considerably.

At 10 percent IBOC transmission

See NPR LABS, page 8 ▶

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World Radio History

NEWSWATCH

FEMA to Adopt CAP

WASHINGTON In the first quarter of 2009, the Department of Homeland Security's Federal Emergency Management Agency intends to adopt an alerting protocol in line with Common Alerting Protocol 1.1 as the standard for the Integrated Public Alert and Warnings System. IPAWS is a network of alert systems through which FEMA is upgrading the Emergency Alert System.

The CAP 1.1 format for exchanging emergency alerts allows a consistent warning message to be disseminated at the same time over many warning systems. FEMA says EAS participants, including broadcasters and state and local emergency managers, must be in compliance with the CAP 1.1 standard within 180 days of its formal adoption.

"Arriving at standards and protocols that work for everyone is a complex process," said Martha Rainville, assistant administrator of FEMA's National Continuity Programs Directorate. FEMA is working "with partners across the government, private sector and non-profit community to develop a CAP profile that ensures the interoperability needed to deliver alerts and warnings to more people in more locations through more paths."

FEMA's partners in developing CAP profiles include the National Weather Service; the Federal Communications Commission; DHS Science & Technology Directorate's Command, Control and Interoperability Division; Emergency Interoperability Consortium; Organization for the Advancement of Structured Information Standards; and the International Association of Emergency Managers.

CBS Radio to Divest 50 Stations

NEW YORK CBS Radio intends to spin off 50 stations, mostly in small and medium markets.

"By selling selected stations in these markets we can focus on the larger-market stations, many of which are showing growth," the company said in releasing its second-quarter financials. "Management intends to use the value received from the divestiture to reduce its shares outstanding."

According to its Web site, CBS Radio now operates 140 radio stations, all but one in the top 50 markets. It sold 40 stations not long ago.

Radio revenue fell 10 percent in Q2 for CBS to $416.4 million, compared to the same quarter a year ago. President/CEO Leslie Moonves said the company has taken steps to generate long-term growth, citing its recent acquisition of CNET Networks and of IOA, an outdoor business in South America.

News Roundup

CLEAR CHANNEL: Clear Channel Communications completed its merger with an indirect, wholly owned subsidiary of CC Media Holdings, the corporation formed by the private equity group led by Bain Capital Partners and Thomas H. Lee Partners. Officials pegged the deal value at about $24 billion. Clear Channel's shareholders are entitled to receive either $36 in cash, without interest, or one share of CC Media Class A common stock for each share of Clear Channel common stock held," they stated. Clear Channel common stock ceased trading on the New York Stock Exchange.

ALEXANDER: The Society of Broadcast Engineers named W.C. "Cris" Alexander the recipient of its Broadcast Engineer of the Year Award. He'll be

See NEWSWATCH, page 12 ▶

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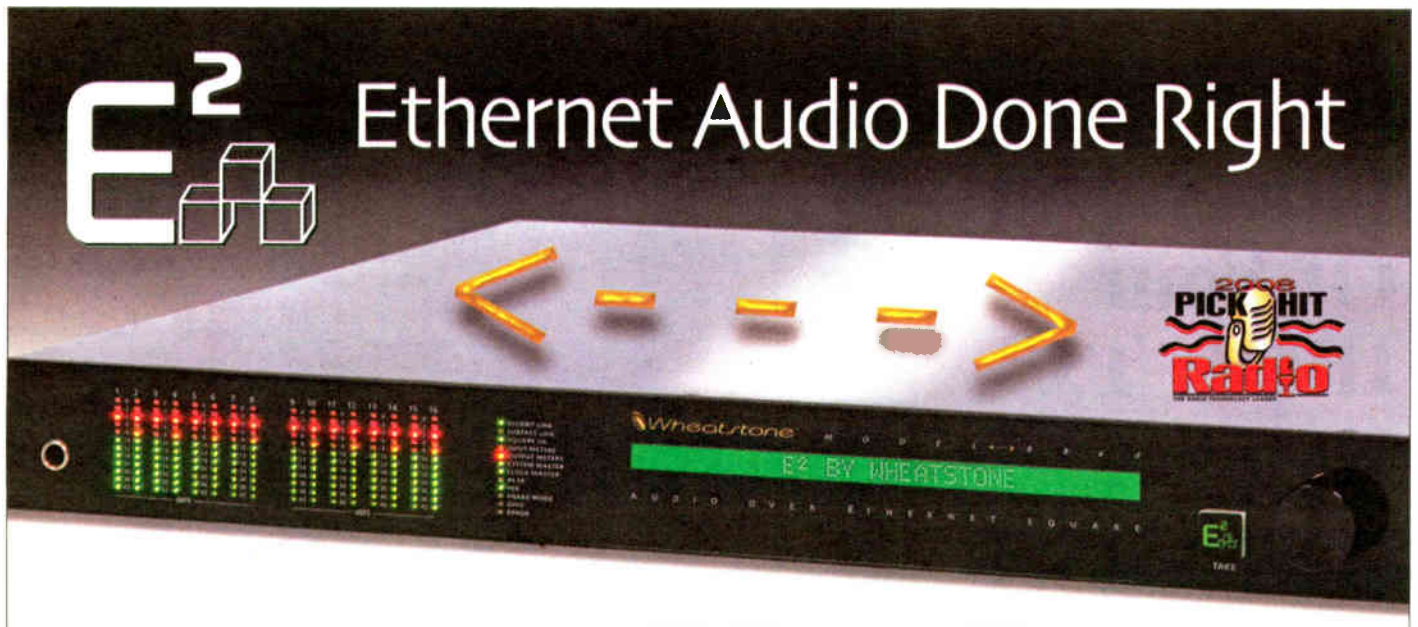

MEET THE SQUARE

The Wheatstone E² (E SQUARE) gives you the convenience of Ethernet audio without all the IP hassle. It just *knows*. The built-in Setup Wizard lets you configure an entire system with just your browser and a laptop. Unplug it when you're done and there's no PC between you and system reliability.

SQUAREs are totally scalable: use one as a standalone 8x8 studio or transmitter site router, with browser access from anywhere. Plug two together and have a standalone digital snake. Add a fanfree mix engine and build yourself a studio using analog and digital I/O SQUAREs.

All the power is *in* the SQUARE. Distributed intelligence replicates all configuration data to every unit. Profanity delay and silence detection are done *in* the SQUARE. Even virtual mixing (w/automation protocol) —it's *in* there; all with real front panel meters, 32 character status indicators and SNMP capability.

88D I/O: 8 digital inputs and outputs. You can headphone monitor and meter any of the SQUARE's inputs or outputs in real time. The 32 character display gives you all the information you need about your audio and system configuration. And because you can operate in either 8-channel stereo or 16-channel mono mode, 16 channels of metering are provided.

88E DIGITAL ENGINE: Just plug an E-SERIES control surface or GLASS E computer interface into this engine and get all the mixes, mic and signal processing you need. Fanfree, so it can stay in the studio where it belongs.

88A I/O: 8 analog inputs and outputs. You can bring a new SQUARE up in seconds and of course use the front panel encoder for your X-Y control. Front panel status LEDs give you continuous link, status, and bit rate information as well as confirmation of any GPIO activation.

88AD I/O: 4 analog plus 4 digital inputs and outputs—perfect for small studios or standalone routing.

88 I/O CONNECTIONS: E² has both DB-25s for punchblock interface and RJ-45s for point-to-point interface. All SQUAREs have 12 individually configurable opto-isolated logic ports that can be either inputs or outputs.

Because the E² system doesn't rely on a third party GUI, tech support is straightforward (and 24/7). Likewise, system operation doesn't require external PCs for continued full functionality. Best of all, 1 Gigabit protocol eliminates the latency and channel capacity restrictions associated with older technology.

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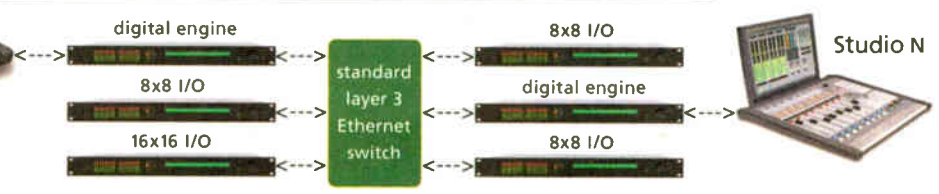

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World Radio History

Satcasters Are Now One: Sirius XM Radio

The FCC Didn't Mandate HD Radio But Says It Will Study That Question

by Leslie Stimson

WASHINGTON The newly-combined satellite radio company, now called Sirius XM Radio Inc., has begun integration efforts.

It plans to have new radios in time for the holiday selling season and the first of its new "a la carte" program price packages for this fall.

After 412 days of review, in late July the Federal Communications Commission approved the satellite radio merger with several conditions, including a fine of about $20 million to satisfy enforcement investigations. The deal closed soon after approval.

Sirius XM has more than 18.5 million subscribers, saying it is the second-largest radio company based on revenue, after Clear Channel Radio.

Wall Street analysts pegged the deal's value at around $3 billion at closing, $2 billion less than when the satcasters proposed combining in February 2007. Obtaining credit has become more expensive and the satcasters' sales dropped due to consumer uncertainty while regulators reviewed the transaction.

The new company's stock is trading on NASDAQ under Sirius' former symbol, SIRI, and XM shareholders received 4.6 shares of Sirius stock for each share of XM. XMSR stock ceased trading at the closing bell on July 28.

Sirius XM's corporate headquarters will be located in New York, while XM will remain in Washington as a wholly-owned subsidiary.

In SEC filings just after the deal closed, the company named a new board of directors. Gary Parsons, chairman of the XM board, becomes chairman of Sirius XM. Mel Karmazin will be CEO and is on the board, as are a handful of members who had served on the boards of XM and Sirius. Members of note include former DirecTV Vice Chairman Eddy Hartenstein and OnStar President Chester Huber; both had been on XM's board. The board expands from eight to 12 members.

Two notables not listed on the new board are former Sirius Chairman Joe Clayton and XM President/CEO Nate Davis. Clayton has resigned and Davis planned to resign after a transition period following the merger, according to SEC filings.

And next?

The Justice Department cleared the transaction in March of this year, saying it posed no antitrust concerns. The FCC's review was more complicated because it had to decide what to do about the rule it adopted in 1997 that said the companies couldn't combine in order to protect competition in the marketplace. The agency repealed this rule when it approved the deal.

The FCC said it would initiate an NOI seeking comment from automakers, electronic manufacturers and the public about whether to mandate HD Radio in future satellite radio receivers.

According to Sirius just before the transaction gained commission approval, combining would mean cost savings of $400 million in 2009. Karmazin said afterwards the company planned to pare expenses such as duplicative channels.

After the deal closed, he said the companies were integrating their management teams and operations. "Our laser focus on subscribers will continue and listeners can be assured that there will be no disruption in service. We also believe that the completion of the merger will eliminate any confusion that has been lingering in the marketplace."

Karmazin had said earlier that the company probably would retain both brands for marketing purposes as the separate systems would exist for some 10 years until new satellites can allow technical operations to merge.

The nuts and bolts

Full details of the decision were not available in early August; however some elements of the FCC order were made public.

Chairman Kevin Martin said the merger was in the public interest. "Consumers will enjoy a variety of programming at reduced prices and more diversified programming choices. It will also spur innovation and advance the development and use of interoperable radios, bringing more flexible programming options to all subscribers."

The company said it will have interoperable radios to retailers in nine months rather than the year Sirius had originally expected and that it will open its receiver-manufacturing process to all companies.

The FCC did not mandate that HD Radio be included in future satellite radio tuners, as HD-R proponents had hoped; but Sirius XM cannot sign deals to block that technology from being part of new satellite radio gear.

In a statement, Republican Commissioner Deborah Tate, who cast the deciding vote, said she consulted automakers about mandating HD Radio; they opposed a mandate, citing costs that were much higher than the $12 to $15 estimate suggested by Ibiquity. Given that the auto industry is struggling, Tate thought it would be unreasonable to require automakers to require them to assume a cost, or worse, pass that onto consumers "for a technology that has not yet proven the strength of consumer demand."

The FCC did say it would initiate a Notice of Inquiry within 30 days seeking comment from automakers, electronic manufacturers and the public about whether to mandate HD Radio in future satellite radio receivers.

Several radio groups — including NAB, Ibiquity, Clear Channel and NPR — as well as lawmakers and citizen groups had pushed for such a provision.

The new company also committed to make its intellectual property available to any device manufacturer to develop equipment that can deliver an SDARS signal.

The companies already had agreed to a la carte pricing and a three-year hold on price increases, and to set aside 8 percent of their combined channels for public interest and minority programming. Currently that equates to six channels each on the Sirius and XM platforms. Immediately after the decision, it was unclear how the commission will define this spectrum and who will be eligible to use the set-aside spectrum other than "qualified entities" and "NCE" programming.

Within three months of closing, the company also must file applications with the commission to serve Puerto Rico with terrestrial repeaters. Several areas not covered by the current satellites wanted service in addition to Puerto Rico, including Alaska, Hawaii and the U.S. Virgin Islands.

See SIRIUS XM, page 5 ▶

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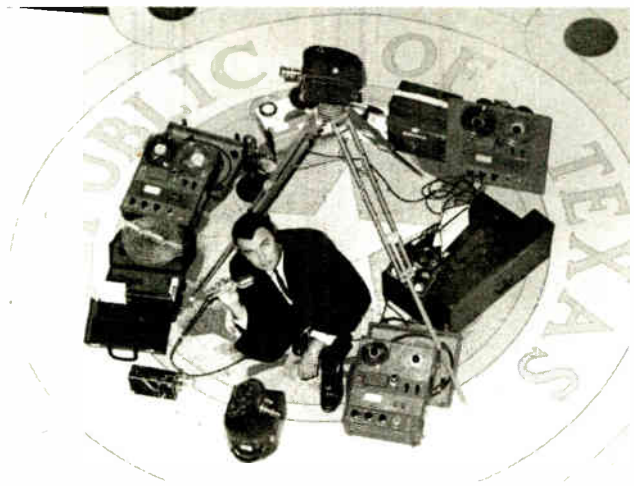
World Radio History

Butter Spins a Texas Radio Tale

Autobiography Is Like Sitting With the Broadcaster On a Porch Overlooking a Lone Star Cornfield



Clyde Butter sent me a signed copy of his book "Theater of the Mind: Three Quarters of a Century of Radio Across Texas," which he describes as personal reminiscences and a history of broadcasting in that state and Louisiana.

Butter spent a career in radio as an air talent, newsman and manager. This is a conversational, first-person chronology of a love affair with the medium, from his exposure to radio in the late 1930s and the Third Class test he later took in order to seek work as a "combo man," through his days as a station owner decades hence.

We hear about his first job at WTAW in College Station, Texas; his employment at stations like WJMR in New Orleans and KONO in San Antonio; his call to duty in the U.S. Navy Air Corps Reserve; and how he launched Capital Broadcast News Service in 1958, the first broadcast news service in Austin. (Charter subscriber: Dan Rather at KTRH in Houston).

Along the way he interviews a range of performers and newsmakers: fiddle players, singers, politicians, storytellers — Debbie Reynolds, Floyd Tillman, John Henry Faulk, Roger Miller, Vicki Carr and Michael Martin Murphy. He talks to Van Cliburn for NBC's weekend "Monitor" program and he meets Duke Ellington. The interviews are snippets that remind me in style of Bill O'Shaughnessy's radio books.

Butter discusses his purchase of KRIG(AM) in Odessa, which he redubbed KRIL. He talks about his work there with Chief Engineer Harland Johnson, the day one of his towers fell in a West Texas wind and the time a rattlesnake visited the control room.

The tone is anecdotal and light; in fact many of the topics and interviews are too short. We'd also love to get more flavor of the man himself and his time.

We do receive a welcome, more insightful look into the author's personality when he devotes a chapter to a beloved black lab named Newshound and another to an essay about why the phrase "radio news" should now be considered an oxymoron. That's Butter at his best. He also spends a chapter discussing Texas as a breeding ground of national journalists — Rather, Walter Cronkite, Bob Schieffer, Bill Moyers, Jim Hightower and some less expected names too.

This is radio autobiography as it would be told on the porch overlooking a cornfield, preferably with two tall lemonades nearby: folksy and enjoyable, from a man who has seen a lot of Texas radio come and go. You'll enjoy spending time with Butter and wish you could have more of it.

Retail: $21.95, published by Eakin Press. You can order direct from the author by calling (432) 333-7971.

★ ★ ★

"Disk Recording, 1930–1960" —

From the Editor

Paul J. McLane

Robert K. Morrison worked for Ampex Corp. throughout the 1960s, then founded Standard Tape Laboratories. He remained involved in that company after its sale until he retired in 1995.

In this glossy and beautifully illustrated softcover, Morrison, who died in 2003, talks about equipment, techniques and recollections used in making phonograph records and electrical transcriptions.

Jay McKnight of the Audio Engineering Society describes the book in its

See DISK, page 5 ▶

Magnets to Megahertz

I spotted this photo in the newsletter of the Pavek Museum of Broadcasting and had to share.

Pavek holds a class in electricity basics on Saturday mornings. It consists of two semesters of seven classes each, aimed at kids age 10 to 14.

The course starts with winding magnets and telegraph keys, and it progress into radio. The folks at Pavek tell me it is a challenging class with content that approaches college-level material; it gives the students (who are interviewed before they participate) an understanding of electronic theory that puts them years ahead of what they would otherwise have. Some grads have gone on to study engineering at places at MIT and the University of Minnesota.

"Students are treated like young adults and we ask them to view themselves that way while they are with us," the organization states. The course has been offered since 1995; Pavek calls it "hands-on enrichment for the electronic wizards of tomorrow." That's Karl Eilers with a recent class.

The museum in the Minneapolis suburb of St. Louis Park, Minn., also regularly holds a broadcast workshop for kids grades 4–6 to learn about the history of electronic communication; a historical perspectives program for post-high schoolers; a vintage radio service class for collectors and hobbyists; and a class to help people get started in ham radio.

Good on ya, Pavek. Thanks for your efforts to help keep radio fundamentals alive and meaningful to young folks — and everyone else.

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World Radio History

Sirius XM

▶ Continued from page 3

The commission retained the ban prohibiting SDARS licensees from using their terrestrial repeaters to distribute local programming or advertising that's different from what is transmitted nationwide.

The company also is banned from entering into any agreement that precludes terrestrial stations from airing live local sports events. Although this was not explained in initial information gleaned on the deal, presumably broadcasters sought the provision so as to prevent big-ticket sports events from becoming satellite-only.

Down to the wire

The FCC vote was 3–2, split down party lines. Tate had the final vote. But before she cast it, she insisted the enforcement actions against Sirius and XM be settled.

They entered into Consent Decrees terminating FCC inquiries regarding radios with modulated FM transmitters that were over-powered and the compliance of some terrestrial repeaters that were in the wrong location, over-powered or both.

Under the agreements, XM and Sirius agreed to make "voluntary contributions" to the U.S. Treasury of about $17.4 million and about $2.2 million respectively. Tate stated that the company will be under a five-year compliance plan — almost twice the normal period — requiring reporting every three months, hiring of a compliance officer and consumer notifications regarding non-compliant radios.

Adelstein said approval before enforcement resolution 'never would have crossed our minds' if violations had involved terrestrial broadcasters.

Before the deal was done, the companies said they expected to agree to adopt compliance plans and take steps to address any potentially non-compliant radios remaining in the hands of consumers. XM would, within 60 days of an agreement, shut down 50 variant terrestrial repeaters and shut down or bring into compliance an additional 50 variant terrestrial repeaters; Sirius would bring into compliance up to 11 repeaters within 60 days of the order adopting the Consent Decree. Sirius says it shut off these repeaters in October 2006.

'Stunning'

The Democratic commissioners voted against the transaction.

Commissioner Jonathan Adelstein, who'd indicated he would vote for the deal under conditions such as mandated HD Radio and a six-year price freeze, changed his position to oppose the transaction once it became clear the majority would not agree to conditions he'd floated.

He found it "stunning" the commission was ready to approve the merger before resolving the "brazen" enforcement matters. Approval before enforcement resolution "never would have crossed our minds" if they'd involved terrestrial broadcasters, he said.

His GOP colleague Robert McDowell, however, called the merger order "one of the most heavily conditioned in FCC history" and said the satellite companies combined only comprise only 5 percent of the audio market, which now includes MP3 players, HD Radio, Internet radio and "still vibrant" AM/FM radio.

NAB EVP Dennis Wharton said the outcome was a disappointment. "We continue to believe that consumers are best served by competition rather than monopolies."

NPR, which programs two public radio channels on Sirius, said the deal was not in the public interest and undermines public radio, and in turn, the public's access to public radio's services.

"While NPR, other public radio producers and public radio stations have had long and mutually-beneficial relationships with both companies, this new monopoly — wielding unprecedented control over spectrum and without the mitigating conditions we sought — will limit the public service mission of public radio and dilute the significant investment our community, our audience and Congress have made in HD Radio technology."

XM carries the daily interview show hosted by former NPR "Morning Edition" host Bob Edwards, as well as programming from Public Radio International and American Public Media.

Public Knowledge President and co-founder Gigi Sohn said it appears the FCC got the companies to agree to some of the conditions the public interest group sought yet wanted to see the details "to see more closely the degree to which the conditions will serve the public interest." Overall, consumers will be better off than had the merger been granted without any conditions, she said.

Disk

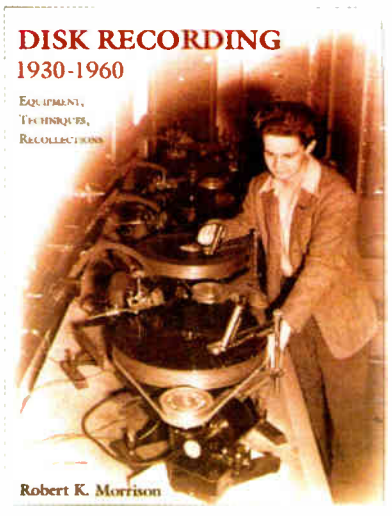
▶ Continued from page 4

marketing as "a practical recordist's feel for the business, equipment and art of recording in the period between the birth of electrical recording and the event of the stereo disk." You'll enjoy reading the text, though you'll breeze right through it. If you are interested in the history of disk recording, the photos are what you'll treasure.

Thanks to Jim Wood of Inovonics for pointing this one out to me.

Retail: $19.95; *visit www.highlandlab.com.*

★ ★ ★

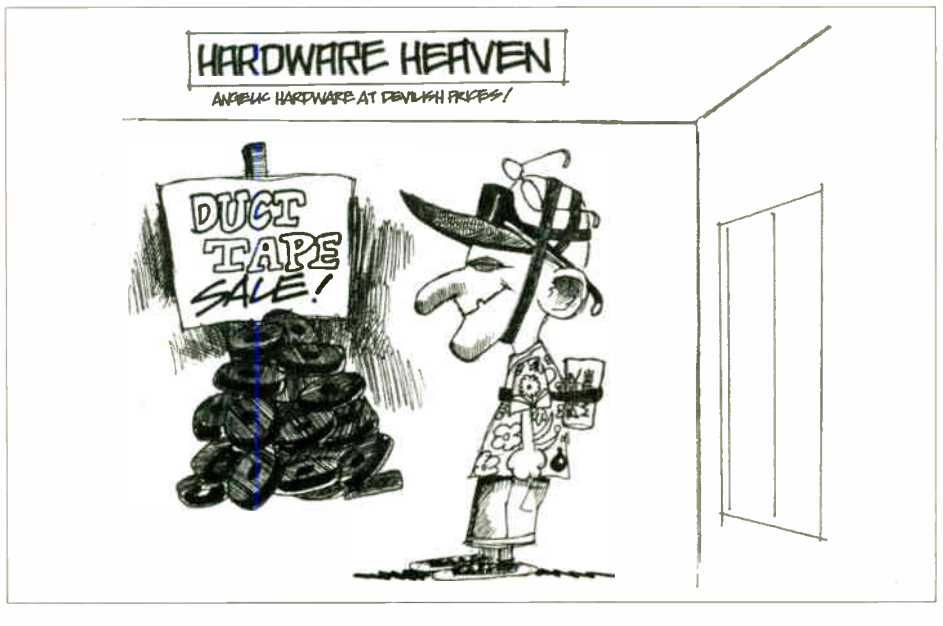


"The Funnier Side of Retirement for Engineers and People of the Technical Persuasion" — What does a newly retired engineer do on his second day at home? Why, map out a tour of golf courses situated near nudist colonies, of course.

This fun, insubstantial little paperback by Gregory K. McMillan is really just an excuse for publishing a bunch of cartoons by Ted Williams about older technical people in funny situations, accompanied by slight musings from McMillan, often conversing with himself, on what life is like after a technical career. Topics include "Geeks for Geezers" and "When Death Sounds Good [The Tragic Story of Engineers Who Have Worked *Way* Too Long]."

This is not a broadcast thing; the book (or booklet) is published by the Instrumentation, Systems and Automation Society, and its jokes are aimed at folks in corporate life and process automation. But engineers everywhere will chuckle. Stick a copy in the bathroom.

Retail: $25.



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World Radio History

Power

▶ Continued from page 1

Existing installations

The last question is the most important for anyone planning an HD-R installation.

The proposal for an increase in effective radiated power for HD-R provides unique challenges for existing installations. We can plan around these issues in new installations.

An important point is that the proposed increase is for power levels *up to* 10 dB. If this is approved and enacted, stations will be able to choose any level from –10 to –20 dB below the analog to transmit FM HD Radio.

If doing a new installation, choose the technology you will install carefully. The three current methodologies may be narrowed to just two with this proposal.

High-level and split-level systems are no longer practical due to the losses involved when operating at –10 dB digital vs. the current –20 dB. That leaves low-level and separate amplification as possible methods to employ.

However, facilities that have previously installed 10 dB high-level systems may only need to install a new antenna and line — either a dual-fed main replacement antenna or a separate antenna.

Many stations chose to do high level combining to avoid a tower or antenna change. That was driven by the fact that many towers and community antennas are leased from other companies that want big surcharges to add HD Radio capability with more feedlines, hybrid combiner retrofits, etc.

The same high level HD-R transmitter may be reused and will be capable of the new maximum power level, assuming the gain and losses of a new separate antenna are the same as the main. You will eliminate the lossy reject load and remove the injector/combiner.

Don't forget, you will reduce the analog TPO by 10 percent. Utility costs may be reduced as the total HD-R and analog power generated will be radiated. You will produce less analog output than current high level systems require because the injector and reject will not be used. Power will no longer be lost in a reject load.

Facilities that have previously installed 8 dB injector/combiners to take advantage of producing power in the more efficient Class C amplifier operation (analog) may still be compliant with the proposed increase by reusing the HD-R transmitter. Under certain conditions stations chose to use 8 dB splits instead of 10 dB. This allowed an 85:15 split in power in which 85 percent of the digital and 15 percent of the analog power were burned off in the load.

The advantage is power loss in the load is generated more efficiently in the Class C amplifier operation of the analog and thus a smaller digital transmitter could be used. This is not the same thing as split level which uses the digital transmitter to generate some of the analog.

As an example, let's look at a station with a TPO of 30 kW. Using 10 dB injectors the digital transmitter will need to generate 3 kW digital and 33 kW analog, But with 8 dB high-level injection, the analog power required is 35.6 kW and digital power is only 1.89 kW. Using 8 dB injectors resulted in a 15 percent:85 percent power loss in load vs. 10 percent:90 percent of a 10 dB injector install, thus a smaller digital transmitter was required as well as less capital and ongoing utilities costs. At the time, this was a good solution for –20 dB operations.

If existing transmitters employed in 8 dB high level installations are reused, and antenna system gains/losses are matched, the current HD-R transmitter may only able to do an 8 dB increase in some cases. That is 12 dB below the analog, and within the proposed range of –10 to –20 dB below the analog carrier.

Antenna gains, losses

Some may argue that a 2 dB difference does not matter in these cases. Interleaving a digital antenna with analog main antenna is a good option if you plan to install a separate antenna. Interleaving will generate similar patterns and provide a duplicate antenna as backup while maintain similar elevation nulls close to the tower.

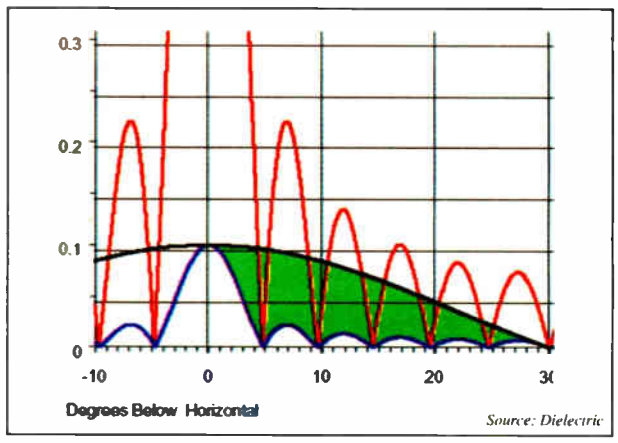
Each antenna should have the same gain (number of bays) to avoid self-interference close to the tower. If antennas with different gains and losses are employed you may need to address the increased power requirements differently.

Installing differing gains (number of bays) is *not* recommended. This is true if you are using interleaved antennas or a separate antenna at a different location on the tower.

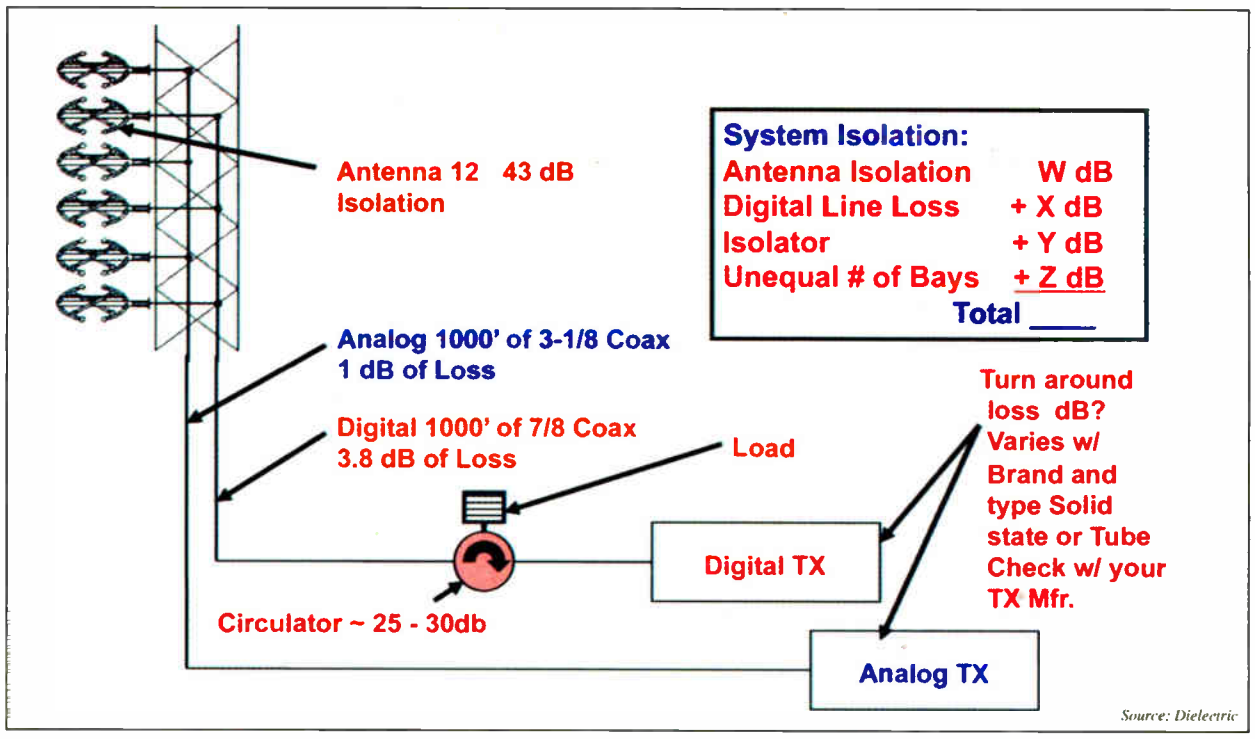
If different antenna sizes are employed, the locations and number of elevation nulls will differ close to the tower. Two antennas with different power gains — and all antennas regardless of gain, mounted at significantly different heights — not interleaved will result in locations close to the tower site where the digital level transmitted is far greater than the analog and vice versa. This is due to the physics of a multiple element antenna.

In the hypothetical example in Fig. 1, a two-bay antenna will have one null at a downward angle of roughly 30 degrees from the flat horizon of the antenna, whereas a 12-bay will have 11 nulls spaced roughly every 5 degrees downward starting at about 5 degrees and ending at about 65 degrees.

In this example, there will be 10 locations near by the tower site, where the digital signal will be at maximum and the analog will be virtually zero. This assumes the analog is using the 12-bay and digital is using the two-bay. This is a greater concern to facilities with high population areas located near the tower, rather than those where the tower site is in a cow pasture miles out of town.



In the hypothetical example in Fig. 1, a two-bay antenna will have one null at a downward angle of roughly 30 degrees from the flat horizon of the antenna, whereas a 12-bay will have 11 nulls spaced roughly every 5 degrees downward starting at about 5 degrees and ending at about 65 degrees. In this illustration, red indicates the 12-bay analog elevation plot. Blue is the 12-bay digital and nulls line up with analog. Black is a two-bay digital. Green reflects areas where the two-bay reflects different receive levels.



At least one company has been able to achieve greater than –40 dB of isolation between two interleaved antennas.

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At least one company has been able to achieve greater than –40 dB of isolation between two interleaved antennas; see Fig 2. Isolation is important to minimize the potential of inter-modulation re-growth products as well as the need to protect one system from cross talking to the other.

A system with low isolation numbers, less than –35 dB, will result in analog power crosstalk into the digital operation and vice versa. The power will show up on directional couplers as returned power.

This will be seen by the opposing system as a "VSWR" indication. However it is not VSWR, it is only represented in the measurement device as independent power leaking back into the transmitter from the antenna and displayed as VSWR. Therefore it's important to understand this crosstalk power is present on the output of your transmitter even if the transmitter is off and the opposing transmitter is on into the antenna.

Low-level systems are reported by at least one manufacturer to require de-rating in excess of –50 percent to achieve an additional 10 dB of digital, and an additional –6 percent de-rating once the digital bandwidth MP11 mode is activated. Remember there are many modes of operation for HD-R. Each mode is represented by acronyms beginning with "MP."

The current mode is MP1, Future MP3 and MP11 add additional OFDM carriers to the transmitted signal allowing greater amounts of data to be encoded. These additional carriers will result in greater peak-to-average ratios and thus may further de-rate transmitters by an additional –6 percent. This means the combining of two low-level transmitters is not likely an option, if you are running at near full rating of the transmitter now.

Don't limit yourself to a particular antenna make; there are antennas available with less than half the wind loading of certain popular antennas. The obvious advantage of going with the lighter antenna is that you can put twice as many bays (interleave) with the same or less wind load of your existing antenna with few changes to the structural of your tower.

Tower study vital

Don't forget to have a tower study conducted that includes a separate additional transmission line if interleaving or installing a separate antenna.

Several manufacturers have recently announced new products that consolidate many of the different HD-R components into a single exciter, and both Harris and BE have announced shipping an embedded exporter standalone device. Both of these are seen as significant improvements resulting in lower capital cost and cost of ownership.

Data delivery is another area where costs may be controlled. Plan on using a wireless delivery system, either your existing 900 MHz path or a new unlicensed or licensed spread-spectrum path. These delivery options will tend to be more robust in emergencies than land lines and will also be less costly.

Check with your transmitter manufacture for information on bandwidth of different modes of HD-R operation, to ensure you design a link that will be sufficient for future growth.

Brinitzer, CPBE, is regional VP of engineering for Clear Channel Radio's Southeast and Gulf Coast region.

World Radio History

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Cape Town's Heart 104.9FM's hot, new ACCESS opens new horizons!

*Above: Heart 104.9FM DJ **Koketso Sachane** doing his show from the streets of Cape Town.*

*Top: **Saskia Falken**, Heart 104.9FM Mid Morning Mix host broadcasting from Table Mountain.*

With ACCESS, Heart 104.9FM left its competition literally standing still by offering innovative, superb sounding remote broadcasts that kept listeners (and advertisers) coming back for more. Whether it was from a sailing yacht, from the top of majestic Table Mountain or from the vibrant streets of downtown Cape Town, ACCESS always delivered with its winning combination of pristine audio and ease of use.

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World Radio History

NPR Labs

▶ Continued from page 1

power, most stations would gain covered population, approximately equally analog indoor and portable and exceeding auto.

However, that gain would come at a steep price: an unqualified 10 percent increase in the IBOC power "is predicted to cause substantial interference to analog reception of a significant number of first- and second-adjacent" channels.

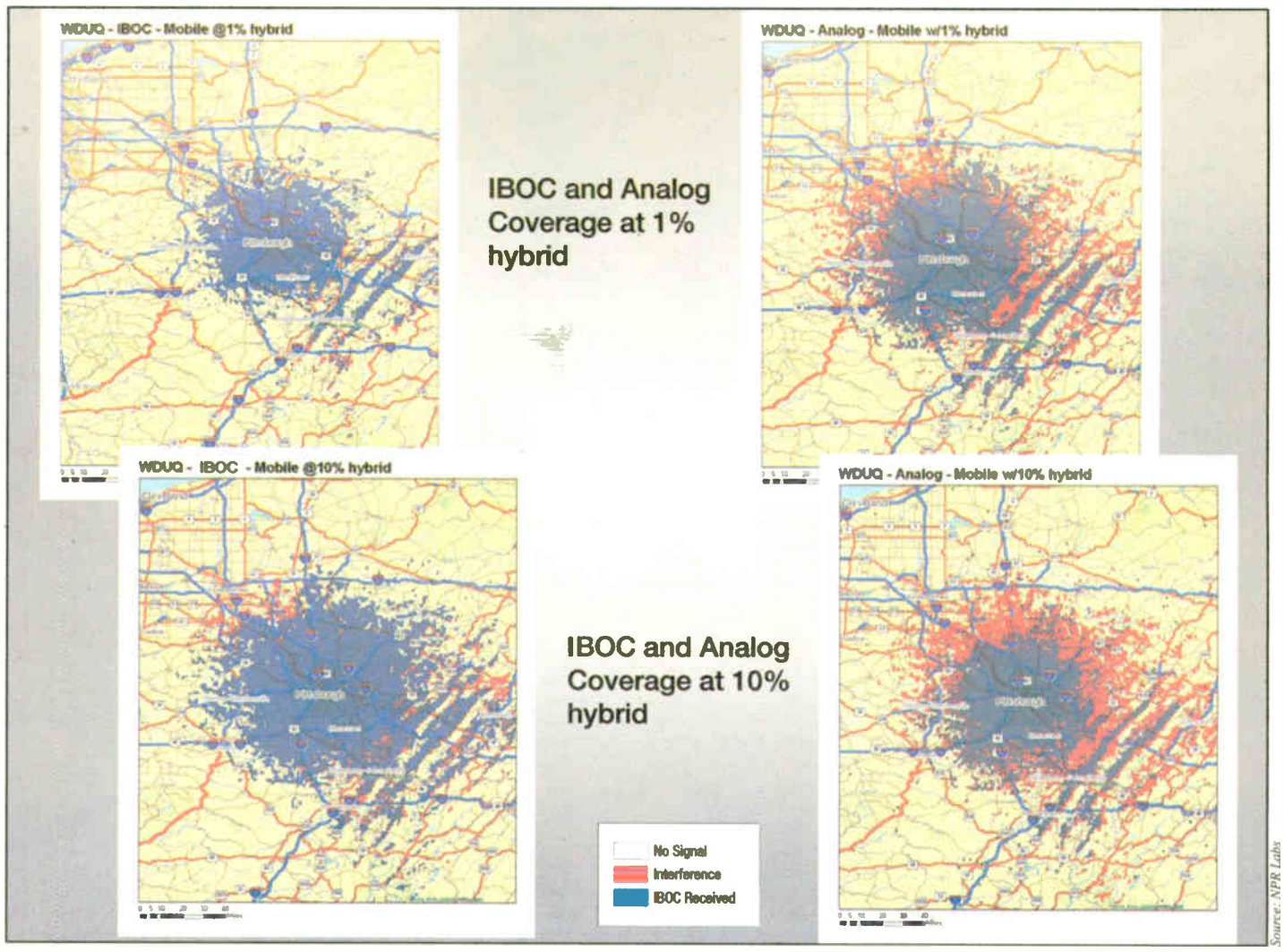
In addition, "While elevated sideband approaches are being contemplated by some in the radio industry," states NPR Labs in the document, "the data developed in this study indicates substantial adverse analog interference tradeoffs would result at many stations from an unqualified increase to 10 percent sideband injection if all stations were transmitting at 10 percent injection."

One station may have a projected potential dramatic decline in analog coverage if all nearby stations began transmitting in HD-R, while another may have virtually no adverse impact. One station may experience a huge gain in mobile HD coverage, and another almost none, according to the study, which adds that these factors are the inevitable result of overlaying a new, channel-incompatible service on a fundamentally uncorrelated series of local signal environments.

Because of these variables on the impact of adjacent analog channels, methodology must be developed to predict the potential for interference due to elevated IBOC transmission power and apply it as a regulatory control on such operation, concludes NPR Labs in the study.

These are some of the major top level conclusions in the study of digital coverage and interference analysis.

While NPR has presented some findings from the study — including a serious look at the likely results of elevated power levels — to broadcasters in public settings such as the spring NAB Show, in July it released the entire document on its Web site (*www.nprlabs.org*)



Of the 75 stations NPR Labs studied in detail as it applied its IBOC Coverage Prediction Model, results for WDUQ(FM), Pittsburgh were average in terms of predicted coverage and predicted received interference. Note results assume all stations in a region are digital.

The Corporation for Public Broadcasting funded the 18-month study, concluding testing in March 2008.

In creating its coverage-prediction model, NPR Labs said unlike traditional maps based on nominal field strengths, such as the F(50,50) 60 dBu contour, it based its coverage maps for more than 800 public radio stations, on a set of what it called "signal link budgets" for each service type. This model, according to NPR Labs, represents a realistic coverage prediction, based on factors such as receiver performance, receive antenna efficiency, building penetration loss and signal availability under fading conditions.

Improvements, consequences

In general, NPR concluded that raising the digital power level would substantially improve the reception of auto, indoor and portable HD-R receivers.

NPR Labs looked at how the IBOC power levels at 1 percent and increasing to 10 percent would affect 75 noncoms.

In addition, "While elevated sideband approaches are being contemplated by some in the radio industry," states the labs in the document, "the data developed in this study indicates substantial adverse analog interference tradeoffs would result at many stations from an unqualified increase to 10 percent sideband injection if all stations were transmitting at 10 percent injection."

It also takes a hard look at the costs of optimizing transmission equipment to accommodate any digital power increase for noncoms and concludes, "Initial projected system-wide estimates of the costs of deploying a combination of optimization strategies for indoor digital coverage parity could approach a doubling of transmission investments."

It says there appears to be little difference in the potential impact of IBOC on analog service between the reserved and non-reserved bands.

Results

In general, the labs found that at the current 1 percent IBOC power on all stations, auto, called "mobile" in the study, only slightly underperforms quality analog coverage (85 percent), while indoor (38 percent) and portable coverage is substantially smaller than analog.

At 10 percent IBOC transmission power, most stations would gain covered population approximately equaling analog indoor and portable and exceeding auto. However, they'd pay the price from digital interference to their analog signals.

At this power level, stations would lose an average of 26 percent of their FM auto population coverage because of IBOC interference, the lab concludes. "Interference would affect some stations severely," 41 percent could lose a third or

See NPR LABS page 10 ▶

World Radio History

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World Radio History

NPR Labs

▶ Continued from page 8

more of their covered population and 18 percent would lose more than half of their population.

And how would a 10 percent IBOC level affect indoor and portable reception?

The digital covered population totals would be 83 percent and 81 percent of analog coverage, respectively. Analog FM indoor and portable covered population totals are reduced by 22 percent and 6 percent respectively due to interference from the digital signal; 27 percent could lose one-third or more of their covered population and 16 percent could lose more than half of their population, said NPR Labs.

Recommendations

Transmission-based remedies worth exploring include the use of single-frequency network boosters to improve indoor digital coverage while controlling analog interference effects.

It's apparent that a digital-only booster could fill in a shortfall in IBOC coverage, relative to analog service, without aggravating analog FM multipath, said the labs, however, there are some engineering hurdles to accomplish. For example, the cost of a full digital generation and amplification system currently costs tens of thousands of dollars. In addition, digital data framing and encoding at both transmitters much be precisely synchronized.

The data stream carrying audio and control signals must be relayed to the booster, which is likely to be located a large distance from the studio. These requirements make the current cost of a booster prohibitively high when limited numbers of listeners are served.

A low-cost booster system that meets the strict signal integrity and synchronization standards of IBOC DAB must be researched and developed, according to the study.

NPR Labs also says a system to raise the IBOC power in increments less than the proposed 10 percent should be developed and tested, as well as the use of separate directional antenna systems and asymmetrical IBOC sideband power.

A low-cost booster system that meets the strict signal integrity and synchronization standards of IBOC DAB must be researched and developed, according to the study.

"Because of the variable impact on analog coverage, as well as our field experiences with surprisingly good single sideband performance, unequal sideband power strategy could dramatically reduce the potentially serious negative analog impact of elevated sideband power, while also providing important coverage improvement at specific stations." Both lab modeling of expected results with analog and digital receivers should be followed with field trials to demonstrate the potential viability of this approach, believes NPR.

NPR Labs studied the performance of 50 IBOC receivers and doesn't expect improvements in HD-R receivers and antennas to be a significant remedy for the shortfall in indoor and portable reception. NPR Labs Senior Technologist John Kean, project manager for the study, also said this at the spring NAB Show, as well as noting the possibility that cost pressures could cause some manufacturers to reduce the quality of their front-end design and components used in HD-R radios. Other techniques, likely transmission-based, will be needed to improve service.

More testing of the impact of raising the IBOC power levels on HD-R receivers is needed, says NPR Labs, including testing of radio reading-service SCA receivers, to develop a national policy for sideband power increases.

'Defacto' car radio by 2012

NPR stresses in the study that the digital transition is a multi-year event with three phases. In 2008, we are still in the launch phase, which NPR expects to come to a close with the substantial completion of the initial 1 percent IBOC build-out that is on-track for 2011–2012 across public radio.

This timeline will coincide with the shift to HD Radio dominance in receiver manufacturing as the shift to "digital IF's and high density DSP technology will be substantially complete by 2012 and result in nominal costs for OEM automakers to embrace HD Radio as the defacto radio offering of new vehicles in those model years."

NPR bases that on information from CE automotive suppliers, which project 2012, four years from now, will be the breakthrough year with more than 10 million HD-R radio receivers in the field — a figure typically associated with achieving mass market penetration.

Phase two, predicted to occur somewhere between 2010 and 2013, will see commercial broadcasters complete their digital infrastructure. This optimization phase will see ubiquitous indoor signal replication.

The third and final all-digital phase could begin by 2020.

To date, NPR hasn't received reports of an adverse economic impact from any loss of analog listening from IBOC operations. It has only received two reports of received interference beyond the protected contours to FM listening. Beyond the protected contours, translators are used to supplement weak signals.

In conclusion NPR believes, "The question of getting from here to there without substantial penalties to analog coverage is likely a matter of successive, calculated strategies, potentially trading off some increments in analog interference risk for more digital coverage, commensurate with increases in digital receiver penetration."

NPR briefed members of the Media Bureau and Audio Division at the Federal Communications Commission on its findings in July.

The results of this study differ greatly than those of 18 organizations, mostly commercial radio groups, that have asked the FCC to bless a voluntary digital power increase of up to 10 percent from the current –20 dB up to –10 dB (search for "Digital Power Boost Is on the Table" at *radioworld.com*). The coalition said its tests results found there would be "minimal risk of harmful interference" to the existing analog service.

MARKET PLACE

Eaton Service Monitors UPS Systems

Eaton offers Powerware eNotify Remote Monitoring & Diagnostics Service for its UPS service contract customers.

eNotify provides customers with monthly reports detailing the health of a Powerware UPS. The Customer Monitoring Report delivers information about the unit's voltages, loads and external factors such as temperature and humidity, depending on the model.

"Additionally, the report provides information about the attached batteries and system availability," the company said.

"All of these factors contribute to the Relative Health Index score that allows a customer to compare their unit's health relative to Eaton's optimum Powerware UPS operating levels."

The eNotify Service informs customers about critical events. It alerts its 24x7 Customer Reliability Center of any critical events and provides for proactive monitoring.

"Anomalies are checked for in incoming parametric or event data logs, upon receipt of a status or event e-mail, respectively. If an anomaly is detected, a CRC Analyst further analyzes the data for possible impending failures."

The service relies on a Web Card attached to the UPS sending one-way status and event e-mails to Powerware Remote Monitoring servers that analyze and store the data. Those servers take the appropriate actions of sending off notifications and reports. *For information visit* www.eaton.com.

World Radio History

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FM tri-mode transmitters featuring multiple PA modules and power supplies for maximum redundancy. When used with the FlexStar™ HDx Exciter, the ZX™ Series can operate in either digital only or FM/FM-HD. ZX transmitters are available from 500 W to 3500 W.

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Highly efficient, medium-wave transmitter, and the latest in the DX™ family of world-class digital AM transmitters. Fully compatible with HD Radio. Harris AM transmitters are available from 1 kW to 2 MW.

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World Radio History

ROOTS OF RADIO

A Fantasy of WLW's Studio A

If a Cincinnati radio history buff dozed off in his armchair, his dream might look like this.

Radio World reader Dave Burns is on the advisory board of Media Heritage, which is developing a museum celebrating contributions of Cincinnati and the Ohio region to the history of radio and television.

He shares a montage "allegorical" photo showing Studio A at WLW(AM) and stars of yesteryear, mostly the 1930s and '40s. The montage and photo tinting are a recent project of Skip Merten of the Merten Company, a printer in Cincinnati.

The studio was on Arlington Street in Cincinnati on the top floor of a Crosley factory. It measured 63 by 39 feet, with a 39 foot ceiling; it floated on 2 inch felt damping and used the latest in ceiling and wall sound absorption. The facilities at that location were compared favorably to other major radio and network facilities by the stars who performed there over the years.

The room photo was taken circa 1933. Merten has added Western music performers the Drifting Pioneers surrounding the mic at left, including the legendary Merle Travis on guitar and master fiddler "Sleepy" Marlin. Behind them, WLW's Wurlitzer organ console is visible; its pipes are hidden by the ornate grilles at rear.

The Mills Brothers are on stage, while Thomas "Fats" Waller plays the piano below and to the right. The Morin sisters are at the mic. A small studio staff band plays to the right, one of many combinations that were possible with WLW's full staff orchestra.

Depicted on the wall, from left to right, are film and early radio soap star Minta Durfee, sports broadcast icon "Red" Barber and actress Doris Day; she broke into show business at WLW as Doris Kapelhoff.

Others in the photo are not identified. If you know who they are, e-mail *radioworld@nbmedia.com.*

Clyde Haehnle and Mike Martini provided information about the photo. Media Heritage was founded by Martini and Mark Magistrelli eight years ago. In 2001 it acquired the Frederic W. Ziv Archive, a collection of 11,000 recordings, photographs, contracts and other memorabilia of the former Ziv Company, the world's largest syndicator of radio and television in the 1940s and '50s.

Media Heritage is now part of the effort to convert the former Voice of America Bethany Relay Station into the National Voice of America Museum of Broadcasting in West Chester, Ohio. For information about Media Heritage visit *historyofbroadcasting.com.*

There's an interesting technical postscript to the photo of Studio A.

Burns said WLW abandoned the studios in 1941 as World War II reached into American businesses, because other floors at Crosley were being used for confidential research work and manufacture of the "proximity fuse."

To view an interesting post-war YouTube video on that topic, visit *www.youtube.com* and type Radio Proximity Fuse in the search field.

To view an interesting post-war YouTube video on that topic, visit *www.youtube.com* and type Radio Proximity Fuse in the search field.

Newswatch

▶ Continued from page 2

honored at the annual SBE meeting in Madison, Wis., in October. An SBE member for 23 years, Alexander is director of engineering for Crawford Broadcasting and a long-time contributor to Radio World. Alexander is a member of the SBE national board and the certification committee; he is certification chair of Chapter 48 in Denver.

STEVENS: Sen. Ted Stevens, R-Alaska, has given up his vice chairman post on the Senate Commerce Committee following federal charges of making false statements about his financial disclosure forms. Stevens, who chaired the committee following the departure from that position of Sen. John McCain, R-Ariz., said he is not guilty and will fight the charges. Sen. Kay Bailey Hutchison, R-Texas, was named as ranking Republican on the committee. According to the U.S. Attorney General's Office, a seven-count indictment charges Stevens, the former chair of the Senate Appropriations Committee, with concealing his receipt of more than $250,000 in things of value from VECO Corp., formerly an oil services company in Alaska, and former company CEO Bill Allen.

INDECENCY: FCC Chairman Kevin Martin expressed disappointment about the federal appeals court ruling on the Janet Jackson indecency fine. The Third Circuit ruled that the CBS airing of the Jackson's brief breast exposure was not indecent, turning over the FCC's ruling and $550,000 fine against CBS Corp. for airing the incident during the 2004 Super Bowl half-time show. Saying he was surprised and disappointed, Martin also said he's glad the Supreme Court has agreed to hear a different case involving "fleeting" indecency this fall. That case involves Fox TV; the FCC appealed a different court's finding throwing out the agency's fines for fleeting, single utterances that the FCC said were indecent.

TOTAL TRAFFIC NETWORK: Clear Channel Radio said its Total Traffic Network was chosen by ASUS as its traffic provider for the launch of its first portable navigation device. ASUS technology is used in motherboards in many desktop computers.

WORLDSPACE: Aiming to position itself as a "world-class identity and brand," the Maryland-based satellite company has adopted a new name "1worldspace." The satcaster wants to emphasize its position as "the world's largest global satellite radio footprint owner."

IEEE: The IEEE is moving its 58th Annual Broadcast Symposium to the Westin Hotel in Alexandria, Va. The event is Oct. 15–17. The symposium will include application-oriented papers such as IP for broadcasters and transport stream management. Richard Wiley, head of communications law firm Wiley Rein and former Federal Communications Commission chairman, will be the keynote speaker for the joint AFCEE/IEEE BTS luncheon on Oct. 16. For the Awards Luncheon on Oct. 17, Peter Fannon, vice president of technology policy for Panasonic U.S., former president of Advanced Television Test Center and chair of CEA Government Affairs Council, will speak on the past and future of digital media.

World Radio History

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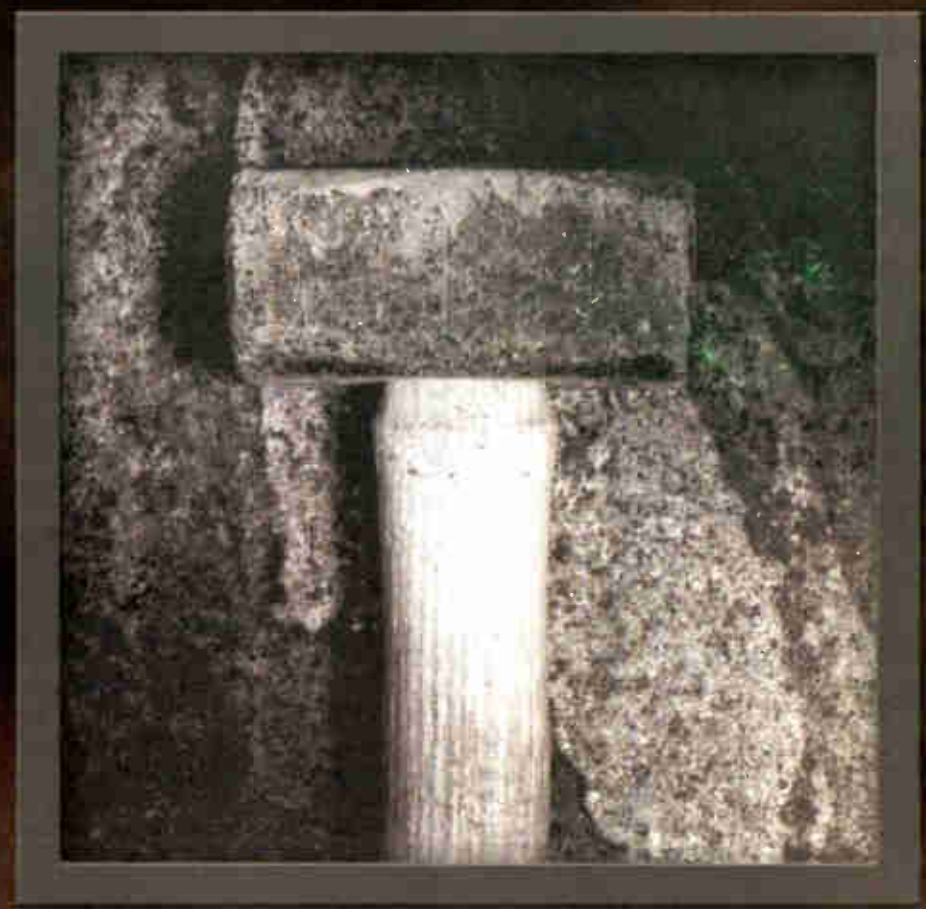

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World Radio History

Can a radio console be over-engineered?

(Only if you think "good enough" really is good enough.)

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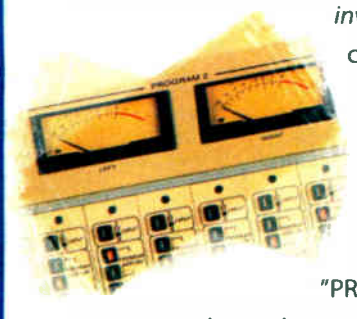
Building great consoles is more than punching holes in sheet metal and stuffing a few switches in them. Building a great console takes time, brain-power and determination. That's why we've hired brilliant engineers who are certified "OCD": **Obsessive Console Designers,** driven to create the most useful, powerful, hardest-working consoles in the world.

How It began

"20-odd years ago," says Axia President Michael "Catfish" Dosch, "I was designing custom consoles for recording studios. Somebody at **PR&E** – it was still called **Pacific Recorders** then – liked what I was doing and invited me to move there. Work with Jack Williams, the guy who practically *invented* the modern radio console? I jumped at the chance; BMX consoles were ultra-reliable, sounded great, and nearly indestructible!



"PR&E was a dream job. Jack taught me how to design consoles without compromise — how to **over-engineer** them. It's great to see, 15 or 20 years later, that many of the boards I designed are still on the air.

"By the late 1990s, computers and routing switchers were becoming an essential part of the broadcast studio, and I'd been thinking about how useful it would be to combine console, router, and computer network. I shared some of my ideas with Steve Church, who'd introduced digital phone hybrids and ISDN codecs to radio. He thought the same way I did about computers in radio studios, and we decided to work together."

A new kind of console

In 2003, Axia was launched to make digital consoles, but with a twist: Axia consoles would be integrated with the routing switcher, and **networked** to share resources and capabilities throughout the studio complex. This intelligent network of studio devices lets Axia build consoles that are **more powerful** and easier to use than ever.

First Axia console prototype. Nice test stand, Catfish.

Our team of engineers blended the best ideas from old-school analog consoles with innovative new technology to produce **bullet-proof boards** that can actually make shows run smoother and sound better.

There's a reason these board-ops are smiling. Axia consoles are in more than 1000 studios worldwide.

And we invented a way to network studios, consoles and audio equipment using Ethernet. It's called **Livewire™**, and it's now an industry standard. Livewire carries hundreds of channels of real-time, uncompressed audio plus synchronized control logic and program-associated data on just one skinny CAT-6 cable.

Lots of well-known broadcast software and hardware companies (over two dozen already) now make products that work directly with Livewire. Thanks to this scalable network technology, **integrated router control** is a standard feature of every Element. Any source in any studio can be loaded on any fader with no need for add-on panels.

And Livewire lets you bring computer audio into the air chain without going through multiple A/D/A conversions. Our **IP-Audio Driver** lets you connect computers directly to the network without any intermediate I/O — all that's needed is a CAT-5 cable and your computer's Ethernet port.

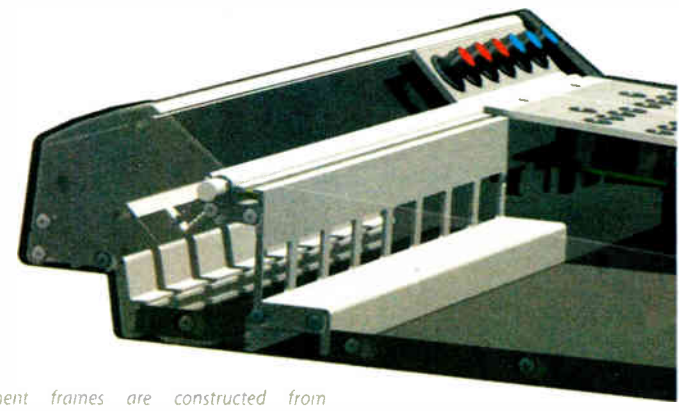
Feature packed

Board-ops told us they wanted a console that's **powerful, yet easy to use.** So we designed Element to be user-friendly, yet still have all the power of a full-on production board.

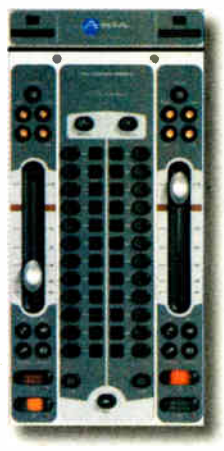
For example, Element Show Profiles can **recall each operator's favorite settings** with the push of a button — audio sources, fader assignments, monitor settings and more. And each jock's Show Profile contains personalized **Mic Processing** and **Voice EQ** settings that load every time they're on the air (so the midday guy will stop badgering you for "just a little more low end"). There's even a "panic button": one key-press returns a Show Profile to its default state instantly. (No more 3 A.M. "Help!" calls.)

Did we say "mic processing"? You bet. Every voice channel gets **studio-grade compression, de-essing and expansion** from the processing experts at Omnia, plus three-band parametric EQ to sweeten the deal. There's even built-in **headphone processing** so you don't have to waste money building a separate side-chain just for the studio cans.

Jocks have complained for years that making a mix-minus is too hard — so Element **constructs mix-minuses automatically**. Plus, mix-minus settings are saved for each audio source, so that sources, backfeed and machine logic all load at once. And every fader has a "Talkback" key to **communicate with phone callers**, remote talent or other studios using the console mic.



Element frames are constructed from custom aluminum extrusions for maximum rigidity. Module face plates and console side panels are machined from thick plate aluminum. Even the hand rest is a beefy extrusion. With all this heavy metal, even that ham-handed overnight jock won't be able to dent it.



Speaking of phones, board-ops have enough distractions without having to reach for an outboard phone control panel. Element has **hybrid controls with dedicated faders** for Telos talkshow systems; there's even a **dial pad** so jocks can dial, pick up, screen and drop calls without ever diverting their attention from the console.

Nearly every air talent has accidentally changed a fader's audio source while it was on-the-air. To prevent that error, **Element "queues" source changes**: the operator must turn the fader off before the next assigned source "takes".

World Radio History

The radio console, redefined.

Element was designed to fulfill either a **production or on-air** role, with amazingly powerful features waiting just beneath the intuitive surface. For instance, Element can mix in 5.1 Surround as well as stereo. That's standard; **nothing extra to buy** (except more speakers). There are four stereo Aux Sends and two Aux Returns, so production guys can use their favorite outboard FX boxes. Great for **custom IFB feeds**, too.

Clear the junk out of your studio. Element has 8 submixers built in.

Got a PA mixer tucked away in a studio corner to mix mics for live performers, talk shows and such? Element has **8 Virtual Mixers** — no outboard gear needed. And the Virtual Mixers emulate ACU-1s, allowing tight integration with automation and satellite systems.

You can **administer Element remotely**, from home, the airport — wherever there's network access. A password-protected web server lets you examine the state of the console, see what's on the air and even fix operator mistakes, without ever leaving the comfort of that new Aeron™ desk chair you (ahem) "requisitioned" from the Sales department.

Small VU meters mounted at desk level are hard to read, so we re-invented the traditional meter bridge. Element's **big meters** are presented on an easy-to-read computer monitor along with large analog and digital clocks, event and countdown timers, and tallies that light when mics are open, delay is active, or during phone calls. You can even customize the display by adding your station's logo.

Beneath the surface

There's more to building a great board than just features. **Consoles have to be rugged,** to perform flawlessly 24/7, 365 days-a-year, for years at a time. So when it came time to choose the components that would go into Element, we literally scoured the globe for the absolute best parts — parts that would take the torture that jocks dish out on a daily basis.

First, Element is fabricated from thick, **machined aluminum extrusions** for rigidity and RF immunity. The result: a board that will stand up to nearly anything.

With so many devices in the studio these days, the last thing anyone needs is gear with a noisy cooling fan. That's why Element's **power-supply is fanless**, for perfectly silent in-studio operation.

Element modules are **hot-swappable**, of course, and quickly removable. They connect to the frame via CAT-5, so pulling one is as simple as removing two screws and unplugging an RJ — no motherboard or edge connectors here.

Faders take massive abuse. The ones used in other consoles have a big slot on top that sucks in dirt, crumbs and liquid like the government sucks in taxes. By contrast, our silky-smooth conductive-plastic faders actuate from the side, so **grunge can't get in**. And our rotary controls are high-end optical encoders, rated for more than **five million rotations**. No wipers to clean or wear out — they'll last so long, they'll outlive your mother-in-law (and that's saying something).

Element's **avionics-grade switches** are cut from the same cloth. Our design team was so obsessed with finding the perfect long-life components that they actually built a mechanical "finger" to test switches! Some supposedly "long life" switches failed after just 100,000 activations; when they found the switches used in Element, they shut off the machine after **2 million operations** and declared a winner. (The losers got all-expense-paid vacations to the landfill.)

Individual components are **easy to service**, too. Faders come out after removing just two screws. Switches and rotary volume controls are likewise easy to access. And all lamps are LEDs, so you'll likely never need to replace them.

Engineers have said for years that console finishes don't stand up to day-to-day use. Silk-screened graphics wear off; plastic overlays last longer, but they crack and chip — especially around switches and fader slots, where fingers can easily get cut on the sharp, splintered edges. We decided that we could do better. Element uses high-impact Lexan overlays with color and printing on the back, where it **can't rub off.** And instead of just sticking the Lexan to the top of the module like some folks do, our overlays are **inlaid on the milled aluminum module faces** to keep the edges from cracking and peeling — expensive to make, but worth it. For extra protection, there are **custom bezels** around faders, switches and buttons to guard those edges, too. Element modules will **look great for years.**

By the way, those on/off keys, fader knobs and bezels are our own design, custom-molded to give **positive tactile feedback**. The switch is flush with the bezel, so it's easy to find by touch. But if something gets dropped on it, the bezel keeps the switch from being accidentally activated.

More than just products

Catfish learned something else important from his time at PR&E: "Even the best products are nothing without **great support.**" So Axia employs an amazing network of people to provide the best support possible: Application Engineers with years of experience mapping out radio studios... the most **knowledgeable, friendly** sales people in the biz... Support Engineers who were formerly broadcast engineers. Plus a genius design team, software authors who dream code... one of the **largest R&D teams** in broadcast.

And now Axia has become radio's **first console company to offer 24/7 support**, 365 days a year. Chances are you'll never need that assistance, but if you do, we'll be ready for you. Our 'round-the-clock help line is +1-216-622-0247.

Proudly Over-Engineered

Are Axia consoles over-engineered? **You bet.** If you're looking for a cheap, disposable console, there are plenty out there — but this ain't it. Not everyone appreciates this kind of attention to detail, but if you're one who seeks out and appreciates excellence wherever you may find it... Axia consoles are built **just for you.**

AXIA
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World Radio History

HD Radio News

WTMD, Towson, Md. HD-R Install

Page 18

Radio World | Covering Radio's Digital Transition | **September 1, 2008**

PRODUCT EVALUATION

Good Audio, Few Features for Low-Cost VR3

VR3 VRHDUA100 HD-R FM Converter From Roadmaster USA Is an 'Add-on' Tuner

by Aaron Read

Wandering through Target in June, I spotted a big "HD Radio" logo on a box in the auto section.

Target is known for attracting shoppers who are younger and have higher median household incomes — qualities many stations like in listeners, too. Perhaps the VR3 VRHDUA100 HD-R car converter from aftermarket audio manufacturer Roadmaster USA would be a real boon.

Sadly, while I found it to be a decent tuner, the radio itself has a clunky user interface and is limited in features as to be problematic.

First pitch: power supply

The VR3 is an "add-on" tuner, designed to be used through your existing car stereo.

There are three parts: a main unit that you tuck away behind the dashboard, a control unit that you attach somewhere in the interior and a power supply/cord.

That power supply mates with any 12VDC "cigarette lighter" power jack in a car. But there's no way to wire it "permanently" to the usual car stereo power wires.

This is a bit limiting, but it *does* make installation a lot easier. However, it also hogs a power source you might need for an iPod or cell phone charger. And a lot of these jacks have poor alternator noise filtering; mine sure did.

Hmmm ... strike one.

Curve ball: main unit

The main unit is the size of a small paperback book (6.5 inches W x 3.75 D x 1.2 H) and easily fit behind my existing car radio. It's designed to go in-line of your car's existing antenna.

However, the main unit's cord, which runs to the existing car stereo, is just 18 inches long. This significantly limits where you can put that main unit, and not every car has a lot of room behind the dash.

The main unit also has two RCA line-level outputs for audio. They work fine, but there's no RF modulator in the VR3.

Photo by Aaron Read

So if your existing car radio doesn't have RCA line-level inputs, you're outta luck. Or you have to buy a separate add-on FM RF modulator, which aren't sold at Target.

Str-r-r-r-ike two!

Behind in the count: control unit

The control unit is discreetly small (only 5 inches W x 1.25 H x 0.6 D) and the package includes a handy snap-in cradle with a suction mount. There's a two-line LCD display (white letters on backlit blue) and eight buttons: Power, Band, Scan and Menu on the left of the display, and Tune Up, Tune Down, Enter and Preset on the right.

Enter also doubles as a "Change Display" button, which can be set to show the song title, artist, call letters, frequency, a signal strength bar graph meter or scrolling text.

The radio will show Program-Associated Data from RDS/RBDS or, if HD-R carriers are present, the Program Service Data from the HD-R station. If neither is present, it just shows the frequency.

Usually the top line is reserved for call letters and an HD Radio indicator. The bottom line of the display is controlled by the Enter button, and the varying PAD/PSD that stations send out makes this an erratic experience. I wish the display would cycle automatically through each field.

The VR3's bright display is good for day viewing but too bright for nighttime. There's no way to change it, either.

Similarly, the lack of contrast control means you have to orient the control unit's cradle carefully, and this isn't easy. The cradle's suction cup only sticks to windshields, not dashboards. I don't like leaving things stuck to my windshield; it's a magnet to car thieves.

And while we're piling on with the annoying quirks: When you shut off your car, the VR3 doesn't stay on the last station

See VR3, page 19 ▶

Product Capsule:

Roadmaster USA VR3 VRHDUA100 Receiver

Thumbs Up

- ✓ Decent tuner selectivity
- ✓ Pretty good sound / fidelity
- ✓ Small, discreet size of the control unit
- ✓ Fairly easy installation

Thumbs Down

- ✓ Poor user interface
- ✓ Requires an existing car radio with line-level inputs
- ✓ Cigarette-lighter plug power can be limiting
- ✓ Inexpensive price reflects few features

PRICE: $169.99 MSRP

Info: *www.roadmasterusa.com/vr3.html*

New HD Radio Multi-Monitor with Audio, Status and Data Alarms!

M3 Features

- 3 independent AM, FM analog and HD Radio™ multicast tuners in 2RU
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- Separate antenna inputs for each tuner
- 6 assignable relay status alarms per tuner section — 18 total
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World Radio History

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Radio World's HD Radio™ Scoreboard

The HD Radio Scoreboard is compiled by Radio World using information supplied by iBiquity Digital Corp., the HD Digital Radio Alliance, BIA Financial Network and other sources. Data reflect best information as of the end of July. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.

HD Radio in West Palm Beach-Boca Raton

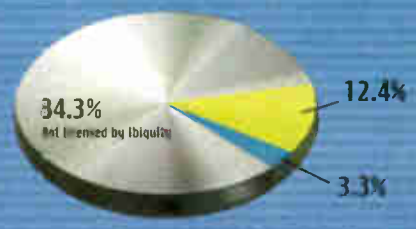
Frequency	Station	Band	Format	Licensee
640	WMEN-HD	AM	Sports	Crystal Boynton Beach, Inc.
740	WSBR-HD	AM	Bus News	Beasley Broadcast Group
1600	WMNE-HD	AM	Family Hits	Radio Disney
90.7	WXEL-HD	FM	Clscl/NPR	Barry Telecommunications
92.1	WRLX-HD	FM	Soft AC	Clear Channel
92.1-2	WRLX-HD2	FM	Jazz Fusion	Clear Channel
94.3	WZZR-HD	FM	Talk	Clear Channel
94.3-2	WZZR-HD2	FM	Comedy	Clear Channel
95.5	WLDI-HD	FM	CHR	Clear Channel
95.5-2	WLDI-HD2	FM	Pride Radio	Clear Channel
98.7	WKGR-HD	FM	Clsc Rock	Clear Channel
98.7-2	WKGR-HD2	FM	Rock	Clear Channel
102.3	WMBX-HD	FM	Rhymc/CHR	CBS Radio
102.3-2	WMBX-HD2	FM	Old School Hip-Hop	CBS Radio
103.1	WPBZ-HD	FM	Altve/Rock	CBS Radio
103.1-2	WPBZ-HD2	FM	AAA	CBS Radio
104.3	WEAT-HD	FM	AC	CBS Radio
105.5	WOLL-HD	FM	AC	Clear Channel
105.5-2	WOLL-HD2	FM	AC - Rhythmic - Cosmos	Clear Channel
106.3	WNEW-HD	FM	Urban AC	CBS Radio
106.3-2	WNEW-HD2	FM	Urban - Gospel	CBS Radio
107.9	WIRK-HD*	FM	Country	CBS Radio
107.9-2	WIRK-HD2*	FM	Country & Southern Rock	CBS Radio

* planned

Data is from iBiquity Digital Corp.

HD Radio in the United States

Total stations: 13,977



The HD Radio Bottom Line

	Total Licensed	On the Air	FMs Multicasting
	2,201	1,740	903
Last Month:	2,173	1,775	888
Last Year:	1,900	1,384	666

World Radio History

Towson's WTMD Goes IBOC

University Licensee Outside Baltimore Has a Small Space But Big Dreams

by Leslie Stimson

TOWSON, Md. Towson University's 10,000 watt WTMD(FM) is broadcasting an HD Radio signal and plans to launch at least one multicast channel this fall, after first asking listeners and members about their preferences.

The station at 89.7 MHz has wanted to go IBOC a long time but waited until it could afford to pay its part of matching grant money from the Corporation for Public Broadcasting. The total conversion cost was some $175,000, according to General Manager Stephen Yasko.

"Public radio music stations can provide compelling service," especially through HD Radio and multicasting, said Yasko. "The demographics of this country are changing. People do want a variety of music experiences" and what they want is not necessarily based on their age.

WTMD has been on the campus for more than 26 years, beginning as a facility run by the student government and later providing a training ground for the electronic media and film department.

In 2002 the university recognized the station's importance as a way to reach out to the community and changed its format from jazz to contemporary music. When Yasko came to the station in 2002, it had three full-time people; it now has 11 full-time and a number of part-time workers.

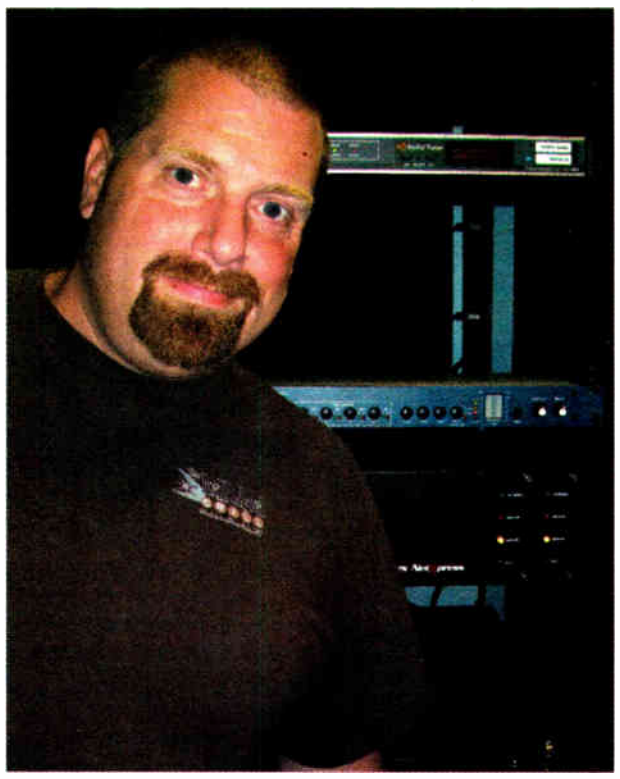
Channel Partner

Yasko came from NPR where he worked in program distribution, placing the network's programs on member stations.

While WTMD does have an engineer, Ryan Glaeser, who handles the chief operator role, the station needed someone versed in transmitters to handle the IBOC conversion, Yasko said.

Ed Bukont of Comm-Struction Services in Bel Air, Md., was project manager. His systems integrations firm is a Harris Channel Partner. Bukont served as the point person between the station and subcontractors, such as electrical and HVAC, as well as selecting and installing the equipment.

Yasko credits Bukont with making the install quick and simple, especially for a station with a small staff that uses contract engineering services. "He made understanding what pieces were needed and why easy." Bukont also recommended areas where the station could economize.



WTMD DJ John Mathews in front of the Harris HD-R gear.

The Channel Partner Program provides the user with one place to buy all the equipment they need, said Bukont, who also arranged for an antenna inspection and removal of the old transmitter.

WTMD purchased a Harris FlexStar package, including a Harris importer, exporter and HD-R exciter.

On the day of the install, WTMD was off the air no more than four hours, estimated Bukont, who made sure the gear was delivered and staged ahead of time. About three site meetings were held ahead of the conversion and Bukont said the university sent a senior project manager to every meeting, "a rare treat."

Bukont, a veteran of several IBOC installs, said such meetings are vital to a good outcome. "I find consistently where these projects go awry, someone didn't think about the weight of the new transmitter, or the HVAC, door size or access to the roof."

On one such earlier project, all the elevators in the building were being replaced — an unexpected twist. The elevator used for the install was replaced last. "They took apart that elevator while we were on the roof," said Bukont.

Radios for donors

Bukont said the Towson project was unusual in that he was able to configure E1 lines for the Harris Intraplex transport by using the university's existing fiber links for the STL, saving WTMD some $30,000 rather than using a wireless STL. WTMD transports its analog FM, main HD-R channel from its studio located in the basement of the media center, to the Harris ZCD12+ transmitter on the 13th floor of a nearby dorm using an existing Harris Intraplex STL Plus system.

The wider E1 lines will have the robustness needed for transporting multicast signals, Bukont said. The 2 Mbps STL link travels perhaps a quarter of a mile, according to Yasko.

The station is promoting the fact that it's digital and conducts product demos in the station. In a recent fund drive, WTMD offered new Polk iSonic HD Radio receivers to high-level donors. Nearly 60 such donors took up the station on its offer to help pitch in to fund the conversion in exchange for a receiver.

Yasko said they key to success with multicasting is to program such channels with relevant content and promote the extra channels on the main channel. "It doesn't have to be sophisticated. You just tell people what's on the HD2."

The station continues to provide content for one of the multicast channels for another non-commercial station, WAMU(FM), Washington. Currently the WTMD content is heard overnights on WAMU's HD3 channel.

WTMD hired a webmaster to help get the Internet site components on track and is hiring business development personnel to find sponsorship funds.

Towson University also is home to a joint effort by Towson, NPR and Harris to develop accessible radios — the International Center for Accessible Radio Technology (I-CART), launched this January. "When they need us we are ready to help test," said Yasko, who added the university is helping Dr. Ellyn Sheffield, assistant professor of psychology at Towson and co-director of I-CART, recruit sight- and hearing impaired people to help test radio interfaces.

The station's HD3 channel could have some involvement with this effort, he said.

DIGITAL NEWS

MOBILE ELECTRONICS SUPPLIERS: In Car Experts, a group of mobile electronics retailers, and Ibiquity Digital signed a marketing deal to provide ICE's members with products and services. Ibiquity and ICE plan to focus on the consumer experience as well an educational campaign to ensure ICE sales associates understand HD Radio. Ibiquity will provide ICE members with Web training and technical assistance. ICE is a $250 million collective with 200 member storefronts in 43 states; it provides members business tools, group marketing, ideas and vendor programs. "ICE members provide expertise on the sales floor which generally is not available at big box stores," said ICE Director of Vendor Relations David Schwartz. "Specialists are used to launching new technologies. Additionally, many industry suppliers are working closely with Ibiquity, which is a big positive for ICE members." Ibiquity VP of Retail Business Development Bernie Sapienza said Ibiquity believes that with mobile electronics specialists presenting HD Radio, consumers will realize the benefits.

RADIOSOPHY: The Radiosophy HD100 HD Radio receiver is $49.95 after a mail-in rebate. The rebate is part of a text message campaign from the HD Digital Radio Alliance. Consumers text "UPGRADE" to 34343. Once consumers opt in, they'll receive weekly text messages that include a URL for a $50 rebate when they purchase an HD Radio receiver. Additional messages will include station guide and buyer guide information. Consumers have the option to opt out at any time. The rebate offer runs to Sept. 29. The HD100 is multicast-capable and includes a line input that allows users to play MP3 and other audio devices. "Scan HD" and "Scan All" features, clock radio functions and up to five FM and five AM presets.

'CORDLESS' HD-R RECEIVERS: Coby Electronics has introduced two "cordless" HD-R tuners. The HDR-700 Portable HD Radio System and HDR-650 Component HD Radio Receiver were due to ship to stores in August. The HDR-700 features splash-proof housing and an integrated rechargeable battery and includes an SD card slot for digital MP3 playback. The company says the battery provides up to five hours of play time. List price is just under $150. The HDR-650 has a brushed-aluminum casing designed to complement existing stereo and audio systems and features a high-contrast digital LCD screen, a built-in alarm and sleep timer function. The unit lists for around $100.

BOGOTA FM: An FM station in Colombia is airing an HD Radio signal, according to Broadcast Electronics. The Bogota installation at Tropicana 102.9 is part of a test granted under temporary authorization by the Telecommunications Regulatory Commission of Colombia. The station is using an FXi 250 digital FM exciter and FSi 10 HD Radio exporter into an existing FM 20S solid-state transmitter. The station is owned by Caracol Radio Network, one of the main radio networks in Colombia with more than 130 stations.

HD-R in Asia

Hal Kneller, Ibiquity

HD Radio technology is making inroads around the world, Ibiquity Digital said. In June, its broadcasting equipment was featured at Broadcast Asia in Singapore, the largest broadcast equipment trade show in the region. Numerous countries are testing HD Radio technology, the company said.

World Radio History

VR3

▶ Continued from page 16

it was playing. Instead, it goes to whatever the station was when you last pressed the Power button on the VR3.

This isn't really a big deal, but it's one more vaguely annoying thing in a radio that has a lot of vaguely annoying things.

Somewhat more seriously, the radio has an annoying tendency to just tune to "white noise" even if you *know* there should be a viable signal there. Tuning one notch away and then back usually clears the problem, but still!

Last, and most damning: the presets are very difficult to use. You must hit Preset first, then use Tune Up or Tune Down to scroll amongst the 20 presets (10 each for AM and FM) then hit Enter to switch to that frequency. This effectively requires you to take your eyes of the road for several seconds each time.

Strike three! This radio's outta there!

Arguing with the ump

Now that I've kicked the VR3 while it's down, I should point out some of the positives.

The radio's sensitivity is pretty good. it's not the world's best, but it's not bad at all. You can feel fairly comfortable recommending this tuner to the non-radiophile for signal selectivity.

I was particularly impressed with the AM sensitivity (listed at –87 dBm in the manual) which was markedly better than most stock car radios. I couldn't find a spec on it, but my ears told me the VR3 dynamically adjusts the AM bandwidth to adjust for signal conditions … and when it had a solid signal it must've been very wideband because it sounded fabulous.

Sometimes the bandwidth narrowing was jarringly audible; but when it was good, it was impressively good.

Also, the radio touts how easy it is to install and it does mostly achieve that goal. Even the simple manual does a good job tackling a universal installation concept.

And, it's fairly cheap: at my Target in Rochester, N.Y., it was $150 in May. That changed to $104 in June, and just $38 in July. Yes, under forty bucks! Not quite "throwaway cheap," and the 75 percent price reduction probably means "new model coming," but at that price I might overlook a lot of flaws. For example, the VR3 could be used for in-house monitoring, with its automatic power-on after total loss of power. And you can indirectly control what frequency it powers on to.

Unfortunately, you can't force it to tune to a multicast channel after a power loss, nor can you force it to tune to digital signals only. Plus, loss of signal causes the VR3 to drop the multicast channel and go back to the main. That makes it a little questionable for HD-R FM monitoring. It could work for HD-R AM, though.

Tossed

It's nice to be able to walk into a store and walk out with an HD Radio, and if you really want to add HD Radio but keep your existing stereo, the VR3 has an attractive price. But the lack of features and poor UI just are deal-killers for me.

Aaron Read is the general manager for WEOS(FM), Geneva-Ithaca, N.Y. Find more of his articles at www.friedbagels.com/blog.

Beasley Miami Debuts 'Pirate' Format For HD2 Station

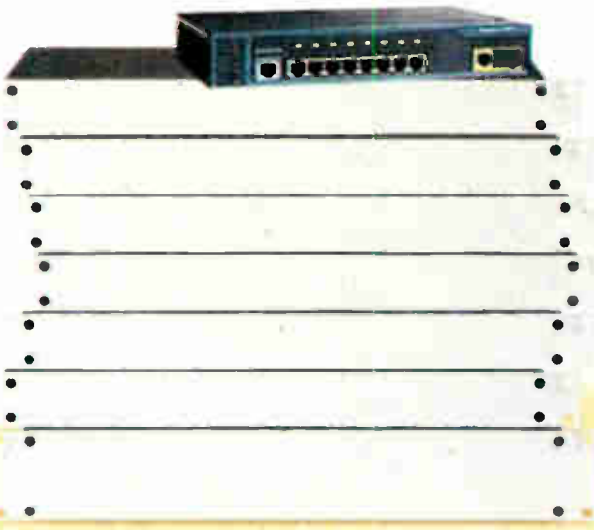
Beasley's Miami cluster thought it would make the most of the explosion of pirate radio stations in the southern part of the state when it changed the format of one of its HD2 stations to a "pirate" format.

The company said WPOW(FM)'s new HD2 format captures the essence of pirate radio while abiding by FCC rules. The new "96 Dash 2 Pirate Radio" is available to those who have an HD Radio receiver. The multicast station airs reggae, calypso, dance hall, soca and roots — island sounds, with sassy delivery and imaging that capture the essence of pirate radio, according to Beasley.

"With South Florida being the pirate radio capital of the world, this was a natural for us," said Program Director Tom Calococci. "It's also a great way to get people excited about HD Radio."

The main station sports a rhythmic CHR format. Beasley launched the HD2 station in 2005 with a dance format.

Antiquated IP Audio



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The Choice is Simple.

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World Radio History

Workbench

Radio World, September 1, 2008

Guard Against Copper Theft

by John Bisset

On a Friday morning at about 5 a.m., the remote control at one of Tim White's sites called and told him the line voltage had dipped below normal.

Tim is the market engineer for the Clear Channel cluster in Sarasota, Fla. He cleared the alarm, took readings on the transmitter and, after ascertaining that all was normal, rolled back over and went to sleep.

Tim monitored the station throughout the day and noticed that it kept momentarily shutting down, something it does when the generator is running and the air conditioner is also running. He decided to drive to the site and investigate further.

When he got there, he found a burned meter box with the cover pried off from the top, seen in Fig. 1. Tim immediately recognized the work of copper thieves.

Fig. 1: Not the greatest way to start a transmitter site inspection.

Fig. 2 shows the meter box and what's left inside. Tim could see where the attempt was made to cut the wires, and where phase 2 met phase 3! This is insanity when you realize that this is a 480V three-phase circuit. Copper can't be that valuable!

Tim's pictures are a good reminder to carry a camera. In addition to documenting the electrical damage, he was quick to pick up fresh tire tracks and a footprint near the box, all neatly captured in the soft Florida sand.

Tim White can be reached at *tim.white@webweather.com*.

★ ★ ★

It's not just copper any more.

Engineer Paul Sagi in Kuala Lumpur sends word that steel thieves caused a massive blackout across eastern Malaysia recently. As reported in the International Herald Tribune, Paul says, the thieves removed 20 iron beams from an electricity

See THEFT, page 22 ▶

Fig. 2: Also not much left inside this 480 three-phase box.

Fig. 3: Tire tracks may offer clues for the police.

Fig. 4: Watch where you walk, Watson! Footprints too can help track the thieves.

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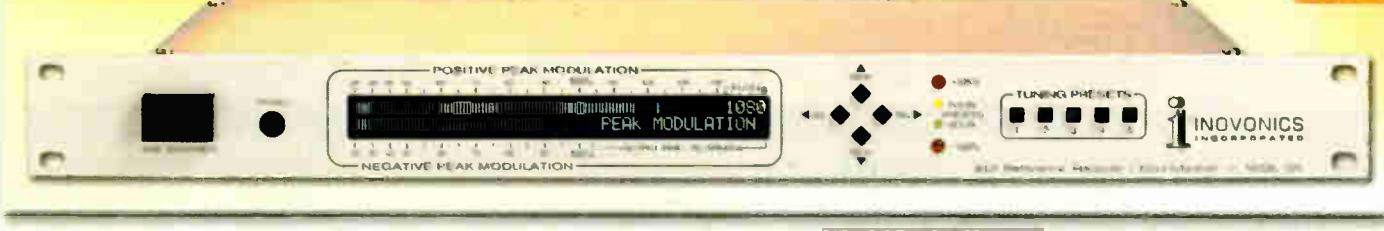

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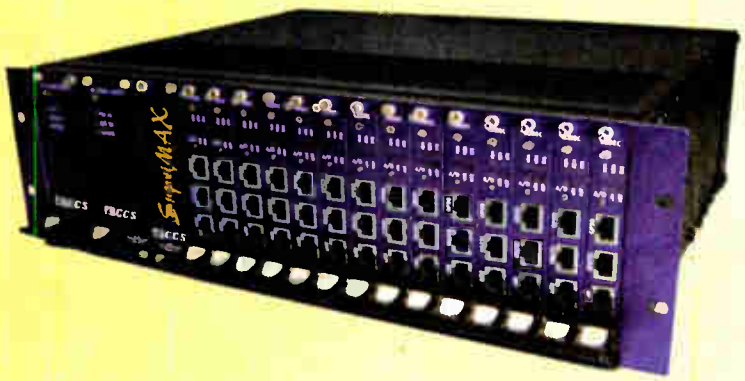

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World Radio History

Theft

▶ Continued from page 20

pylon, causing it to collapse. The beams were likely to net the equivalent of about $13, but the utility said the repairs will cost over $300,000.

Sobering are some of the theft pictures on the Internet showing burned and charred bodies of would-be thieves.

Because the problem is so widespread, put together a plan. Topics to be addressed are whether you have a backup site, a backup generator, a tower rigger on call to help string replacement coax and the numbers of your local police, sheriff and FBI as a start. Let your GM know you've taken these preparatory steps.

Fig. 5: Genuine Square-D circuit breaker

Several engineers have told me that because of EAS, Homeland Security looks upon radio station vandalism as a threat and has called in the FBI to investigate copper thefts. At the very least, dropping by your local police station or sheriff's office to make them aware of the theft potential is time well spent. Perhaps they can patrol the transmitter site on the weekends.

Don't forget to take along some station T-shirts or ball caps to pass around.

★ ★ ★

Buc Fitch attended an annual continuing education day for electrical contracting in Connecticut recently and heard a lot of discussion about Chinese counterfeit QO Square-D circuit breakers (CB) that have filtered into the United States.

An original estimate of about 50,000 counterfeit units has been upgraded to a potential 370,000 or more CBs drifting around out there. The real QO Circuit Breakers are the Mercedes-Benz of circuit breakers and are used everywhere a reliable, cost-effective power distribution and protection system is needed.

Buc says he has probably specified at least a million dollars' worth of QO series switchgear in homes, offices, hospitals, factories and show rooms where he has done electrical design over the 20 years.

The ubiquity of such equipment is probably why they were such a tempting target for counterfeiting.

Distribution of counterfeit units permeated even into local hardware stores and home centers, so it's possible there may be some in your station or office or home.

It's problematic whether the counterfeits will trip when subject to over-current; even if they trip, will it be at the rated current and with the fuse curve you expect? Needless to say, if a CB does not trip when needed, you, your equipment, your station or your home could burn.

Buc provides references to help.

For Square-D counterfeit circuit breakers, go to *www.cpsc.gov* and enter "08-151" and "08-054" in the search field to read relevant recall announcements by the U.S. Consumer Product Safety Commission.

The counterfeit issue is not to be confused with the recall of some suspect early AFI CBs actually manufactured by Square-D. That recall is addressed at the Square-D Arc Fault Interrupters (AFI) recall notice: *http://tinyurl.com/6gocgg*.

Visit the sites and inform yourself. Thanks, Buc, for offering these references.

RW contributor Buc Fitch can be reached at *fitchpe@comcast.net*.

John Bisset has worked as a chief engineer and contract engineer for 39 years. He is the northeast regional sales manager for Broadcast Electronics and in 2007 received the SBE's Educator of the Year Award. 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.

SUPPLY SIDE

Radio Illuminated Is A New Mapping Source

One in an occasional series about suppliers to the radio broadcast industry.

Debbie Webber

Radio Illuminated in Camarillo, Calif., is a new venture, launched this year, that produces radio coverage maps and studies based on FCC data using V-Soft Communications technology. Target clients include brokers, GMs, engineers, consultants and other radio managers.

The company positions itself as an alternative source to clients who would rather order V-Soft mapping and research products on an as-needed basis.

RW spoke to owner Debbie Webber to learn more.

RW: *What is V-Soft's involvement? Are you a software licensee or are the companies working together in some way?*

Webber: I am a licensee. We are not working together, but they know of me and what I am doing, and have been encouraging.

RW: *How did you get into this business?*

Webber: I've worked in radio in one capacity or another for most of my life, the last 18 years with Salem Communications, the latter of those 10 years in the Tech Research Department writing technical studies for Edward Atsinger III, which incorporated the maps that I now produce. He was interested in acquisitions and upgrades of his holdings.

I also make available many of the same studies to my clients now as I did for Mr. Atsinger.

RW: *What can a typical customer expect to pay?*

Webber: A basic AM color map with terrain background and one contour with population is $135. These maps can be used for sales presentations at the FM 54 dBu or the AM 0.5 mV/m, or they can be used to determine viability at the FM 60 dBu and the AM 2.0 mV/m or any other contour the client is interested in seeing.

Obviously, media brokers should be interested in these types of maps.

The client can also add on additional contours, or backgrounds which show 2000 U.S. Census population (where the population lies) to illustrate how much of the market the station covers. Ethnicity counts are also available, as are overlap of two stations or permutations (License vs. CP and/or Application).

All the client need do is provide the calls and frequency and the contour value they would like to see studied or compared; I work the software and provide the quality V-Soft product via e-mail as a PDF attachment. I take payment via my merchant account, and it is a clean and easy process for everyone.

RADIO Illuminated

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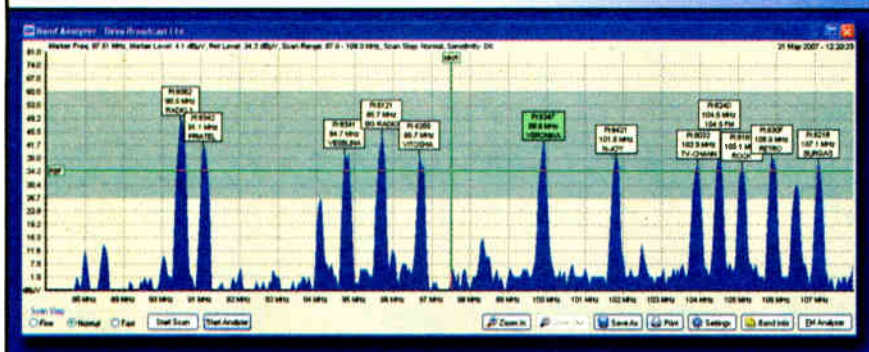

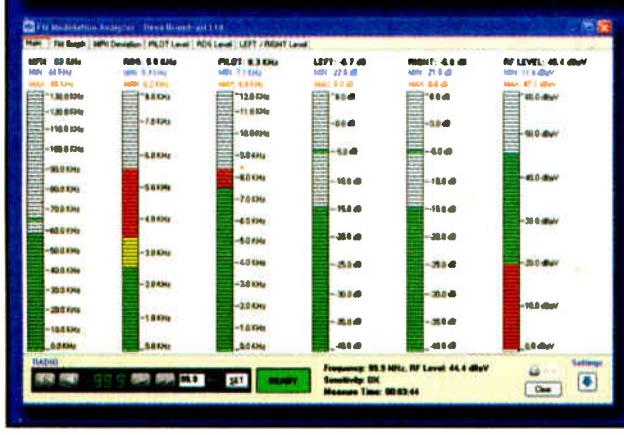

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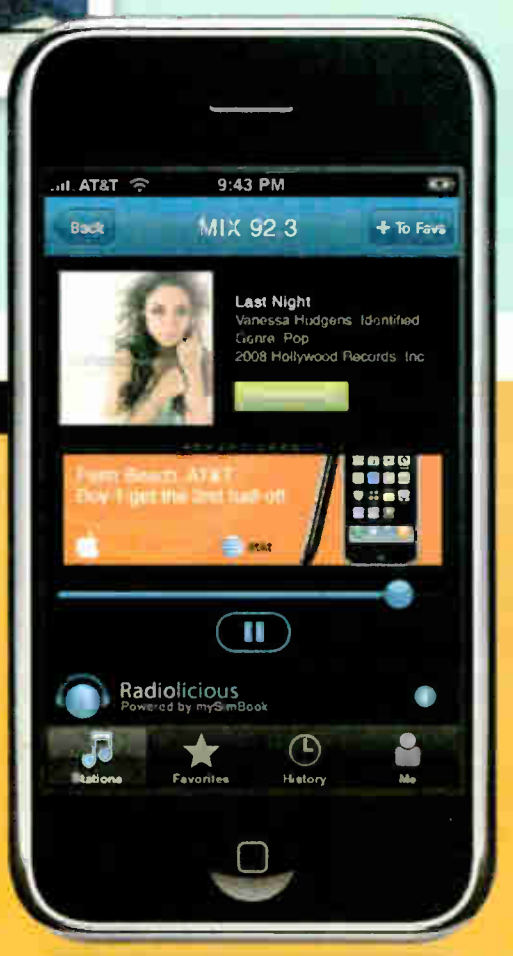

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ENGINEER PROFILE

Nandini Sen Is All About Connectivity

WUNC Director of Technologies and Engineering Brings an IT Outlook to Her Work

by Ken Deutsch

It is likely that few broadcast engineers pursued their dream jobs based on their enthusiasm for a specific radio station. Yet that is the case with Nandini Sen, who this year was promoted to the job of director of technologies and engineering at North Carolina Public Radio WUNC(FM), owned by the University of North Carolina.

"In 2001 I was looking for a job in IT in Chapel Hill when I heard about an opening here," she said. "I always loved this station and listened to it all the time. They had two engineers who were doing everything from transmitter maintenance to production to tech support, but they were expanding and changing formats. I thought it would be great to work here so I applied."

But even though she loved the sound of the station, she was less impressed by the physical plant.

"I did not know 'engineering' at the time; all I saw were wires and cables strung everywhere. The back of the equipment racks in both the technical center and the studios was scary.

"I had never seen so many wires, literally thousands of them," she continued. "They were just everywhere and I kept thinking I couldn't handle the job. How would I trace down problems? It was a huge, messy technical center with ancient servers and computers."

Fortunately, while Sen came from a pure IT background, she'd always liked to tinker.

"When I was growing up I would take all my toys apart and put them back together," she said. "My watch, my CD player, whatever I had.

"But when I considered the job at WUNC, the draw really wasn't the engineering side of it; it was the on-air product, which was news and classical music at that time. I wanted to be a part of that product. The place was not behind the times in terms of its programming, but they did not have IT people on staff.

"The old equipment definitely made me think twice. In fact, several times."

Wright start

However, she took the job. That same year the station dropped music and added talk programming, much of which is locally originated.

Sen helped rebuild its technical center in Chapel Hill — "My first project was to upgrade the server, purchase new hardware, install newest version of the NOS and provide technical support to the staff" — and five years later she helped design and construct additional studios in nearby Durham. The man who hired her, David Wright, guided her and became a mentor.

"It keeps me excited to take on projects that are way beyond my technological knowledge, and David was a big help," she said. "I just want to continue to benefit from his knowledge. I would be remiss if I did not also mention John Francioni. With their collective knowledge and experience of over 60 years, I will never run out of things to learn." The station does not use the title "chief engineer," but Wright is WUNC's site engineer at the Durham location and Francioni is site engineer for Chapel Hill.

Sen considers the design and construction of the Durham studios a highlight in her career.

"Before we started, we visited some other facilities around the country to see what they were building," she said. "When we got back, I became involved with furniture design, equipment purchases, ADA compliance, acoustics and even the colors of the walls. We built five studios and two control rooms in Durham and we still have two control rooms and five studios here in Chapel Hill."

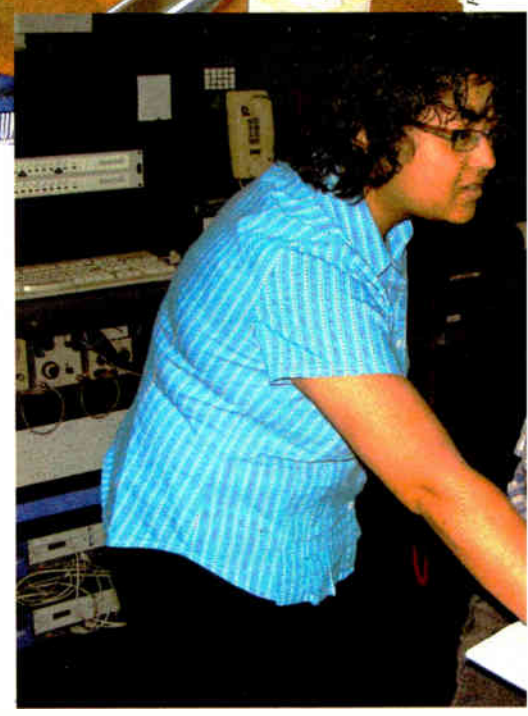
Why build a second studio not far away in Durham when North Carolina Public Radio owned a facility in Chapel Hill?

"We had outgrown our place here, and we received the Durham space as a gift from Jim Goodman of Capitol Broadcasting," she said. "Even though he is involved with commercial radio, he is a champion of public broadcasting. The Durham location was also a way we could be more visible and be part of our community."

Sen has seven full-time and several part-time employees reporting to her; she in turn reports to the general manager, a position that is vacant at this writing. Prior to her promotion she had been the director of IT and operations.

Patrick Crowley, WUNC

In Studio C in Chapel Hill, Sen discusses next year's production needs with the host of 'The Story With Dick Gordon.'



Nandini Sen consult site supervisor for Chapel Hill

'How to Provide It in Real Time'

Nandini Sen's responsibilities encompass production engineering, including oversight of the station's audio engineers; operations, including continuity, automation scheduling, automation and downloads from ContentDepot; scheduling underwriting; IT systems and management; and five transmitters in central North Carolina and east to the Outer Banks, including the main site near Chapel Hill and four repeaters.

The Chapel Hill and Durham studio locations are about nine miles apart, and the main RF plant is about the same distance from Chapel Hill. A DS3 on fiber connects Chapel Hill and Durham over a Broadcast Electronics Big Pipe codec carrying 16 channels of audio, bidirectional video, four RS-232 serial data channels, variable bandwidth private Ethernet for the station's Wheatstone network and a E1/T1 with eight channels of dial tone. A 50 MB Layer 3, point-to-point, switched Ethernet system extends the campus network to the Durham studios.

In addition to a satellite downlink, WUNC also has a licensed uplink, a SCPC 300 kb bandwidth channel; it also has a 3 MB Ethernet point-to-point connection to the NPR network operations center.

Between Chapel Hill and the WUNC RF plant are two traditional 950 MHz digital microwave links.

WUNC and translator WRQM(FM) are broadcasting in HD Radio, though the organization has not implemented multicasting. Translator WUND(FM) is analog but is a solid-state transmitter that could be upgraded to HD. "On WURI and WBUX, we broadcast classical music in partnership with WCPE," the classical station in Wake Forest, she said.

WUNC's operation also includes podcasting and three Web streams, plus special streams of various events around the state.

As to her IT and studio infrastructure and policies, "We use an EMC2 Storage Area Network at both locations mirroring each other. We have always been primarily a Novell shop," she continued. "Before we built Durham, I wish we had converted to Windows and taken advantage of clustering. That would have been ideal.

"We use ENCO and Adobe Audition primarily for audio production. On the customer relationship management and fundraiser side, we use Enterprise Access International, Blackbaud and Act!, and Marketron DeltaFlex for traffic, and we are getting ready to upgrade in early 2009. We are pretty lenient on use of browsers, etc., within reason."

Radio World asked Sen to name the most important decision she had to make in overseeing expansion of WUNC's network infrastructure and storage systems.

"Connectivity," she replied. "How to provide that in real time. Playing something out of one location and accessing the on-air material from more than one location without a lag. We solved the latency issues.

"I have a special interest in making it easy for our reporters and producers to work from anywhere in the city, the state or wherever — making the world smaller for them in terms of connectivity back to the mother ship, accessibility of information."

Keith Weston, WUNC

Changing a hard drive

From IT to engineering

"I've only recently taken over engineering here and gotten involved with the RF side," she said. "My largest challenge is to expand my knowledge.

"I am in my element when I am in the technical center, or in my office, tinkering with things. Yes, I am a typical introvert engineer. But I try to get out of my comfort zone and meet with listeners, volunteers and donors. Their passion for public radio always surprises, energizes and enthuses me."

During her first weeks at the station, Sen was out of that comfort zone often and in fact, accidentally took the station off the air.

"I was petrified but it was a simple mistake," she said. "We were only off for a minute. I was supposed to reboot the applications servers. Instead I turned off the on-air server. Neither server was labeled."

Nandini Sen is a testimony to ongoing learning. She has received several

World Radio History

degrees and honors in her native India as well as in the United States.

She studied English literature at the University of Kolkata; computer and Web programming at UCLA and California State University, Fullerton; computer networking and database administration at Alamance Community College; and Internet technologies at Durham Technical College.

She also has participated in certificate programs in project management, management and communication at the University of North Carolina Chapel Hill; and she held a National Association of Broadcasters Education Foundation Connection Mentorship with Don Lockett of the Corporation for Public Broadcasting.

The biggest challenge Sen sees for the radio industry is finding more young people to enter engineering.

"There are a lot of people interested in the shiny side of broadcasting, the new media, but we need people who can open a box and fix what is inside a few minutes before going on the air."

Sen, 36, is a big believer in diversity as well as youth. "We have to make radio engineering attractive to women and minorities," she said. "I feel very lonely when I go to conferences.

"I remember when I started out, I would go to the NAB/Public Radio Engineering Conferences and there were no women but me! I commented on that this year at the PREC. Now there are a few other women and minorities who come to these things, but we need to find these people and teach them what we know."

Robert Levin is deputy director/CEO at North Carolina Public Radio; he is a supporter.

"The past seven years she has overseen the expansion of WUNC's network infrastructure and storage systems," he said. "She's hard-working and exemplifies the team spirit at North Carolina Public Radio. Nandini is courageous in taking on monumental new tasks."

Passion

What do Sen and her engineering/IT colleagues discuss when they get together?

"There is so much to think and talk about, so much pull in so many different directions," she said. "An immense amount of new exciting stuff is going on in the industry, and we are trying to keep up with all of that, even at a very shallow level.

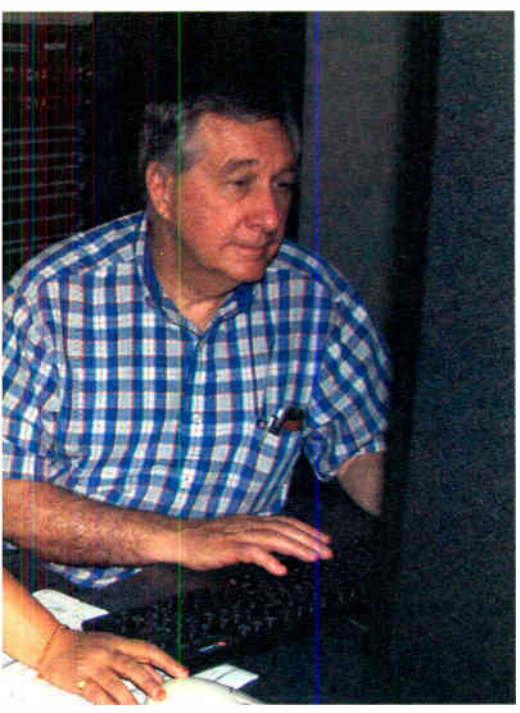
"I think what social media is doing for the broadcasting industry is amazing. Broadcasting in itself does not mean the same thing today as it did even when I started."

A big challenge today, she feels, is the lack of interest and information in and about broadcasting among IT engineers. "Broadcast engineering is converging. We need people who understand both sides."

Sen is single and plans to start a family soon.

"I have devoted much time to my career," she said. "But I have really found my calling, which is the expansion of the public's intellect through public radio. It is about engaging them, informing them and enhancing their quality of life through it. I like the technical side, but being able to work for a cause I believe in has been great. I have found my passion here."

There are a lot of people interested in the shiny side of broadcasting ... but we need people who can open a box and fix what is inside a few minutes before going on the air.'



with John Francioni,
on Wheatstone controller software.

The Big Picture

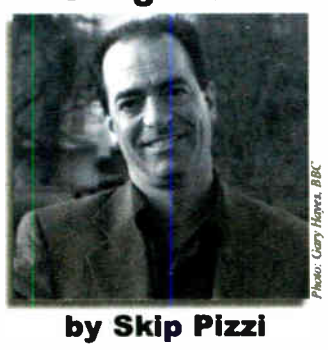


Photo: Gary Hayes, BBC

by Skip Pizzi

Skip Pizzi's column is on hiatus this week; he will return next issue.

Finally, a super-compact ultra-portable broadcast mixer that's ready to go when you are. It's loaded with the staples big professional radio consoles have to ensure your shows come off without a hitch. And unlike the big boys, it's got a bell and whistle or two that makes it the essential centerpiece of your next remote broadcast or emergency studio.

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World Radio History

WIRED FOR SOUND

You and the Search for 'E'

What We Can Learn From the Print Legend on That Piece of Cable

by Steve Lampen

There are lots of manufacturers of wire and cable, something like 170 companies in the United States alone, including my employer, and more than a thousand in Asia. Then there are "manufacturers" that don't actually make anything. They have products made for them by other manufacturers. Some of them put the connectors on the cable and call that manufacturing. I think the correct term for that is assembly house.

Then again, you can twist wires together, and even extrude plastic over them. And you could do all that in your garage or your basement and truly call yourself a manufacturer. But ask about quality control, or just basic testing of the cable, and you're liable to get a blank stare.

So how can you tell if a particular manufacturer is a hole-in-the-wall or a serious player?

Well, you can always ask questions. I go to a lot of consumer and "home theater" trade shows, and I talk to a lot of people who say they "manufacture" wire and cable. My first question to them is "Do you melt plastic?" Many of them give me a surprised expression and then think for a minute and say, quietly, "No." The technical term for melting plastic onto a wire is to "extrude" the plastic.

E ticket

If you don't do lots of trade shows, then most of the time someone just hands you a roll of cable and you're supposed to install it. How do you know if this is the real deal?

I supposed you could Google out the manufacturer and give him a call. But there is an even more elegant way to find out and that is to read what it says on the cable.

The "print legend" can tell you a lot. It usually contains the name of the manufacturer (or "manufacturer"), their part number, sometimes an abbreviated description of what the cable is or what it's made of.

The table is a short list of some of these abbreviations you might see and what they mean:

What It Says	What It Means
AWG	American Wire Gauge
C	Conductor(s)
RG	Coaxial cable ("Radio Guide")
PE	Polyethylene
PP	Polypropylene
PVC	Polyvinyl Chloride
HD	High Density
FEP	Fluorinated Ethylene Propylene ("Teflon®")
GIF	Gas-Injected Foam

So a cable that is labeled, in part, 1C20AWG is a single-conductor of 20 gauge. A cable that is printed HDGIFPE is made of high-density, gas-injected foam polyethylene. Of course, then you need to know what all those words mean, and that's another column right there.

Many manufacturers will include a number on the cable, an "E" number.

This indicates that the manufacturer is registered with Underwriter's Laboratory. If the cable was made for someone else, the E-number will tell you who the original manufacturer is. Just go to the UL Web site (*www.ul.com*) and click on the "certification" section. Where it says "UL File Number" put in the E-number from your cable, click on the "link to file" and, bingo, there is the name address, phone and other data for the actual manufacturer.

Of course, there are a few companies who have caught on to this and had a few cables "tested" by UL, or some other work done, so they have a file number but still do not melt plastic.

More than a few times, I have taken a piece of cable that said "Made in the USA" and put in the E-number, only to find out that the cable was made in Guangdong. Hmmm. Reminds me of the (apocryphal?) story of the town in Japan that changed its name to Usa (MADE IN USA).

And, I would guarantee you that the guy with the "extruder" in his garage did not draw his own copper wires (i.e., turn big wire into smaller wire). So we're back to the whole subject of quality control.

If a company draws its own copper wires, formulates its own plastics, extrudes those plastics on the wires and tests the construction when they're done, now we're talking about a real manufacturer. And by testing, I mean some industry standards, not just continuity. Now we're down to a handful of manufacturers worldwide.

Steve Lampen has worked for Belden for 17 years and is multimedia technology manager. His book "The Audio-Video Cable Installer's Pocket Guide" is published by McGraw-Hill. He can be reached at shlampen@aol.com.

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PHOTO PHILLIP ANGERT

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World Radio History

BBG Honors Journalists Slain in The Line of Duty

Ten broadcasters and reporters are honored in a memorial dedicated this summer by the Broadcasting Board of Governors.

The board supervises U.S. government-supported, non-military international broadcasting. The memorial is to journalists slain in the line of duty.

It honors Leonid Karas, Abdulrachmann Fatalibey, Georgi Markov,

The memorial is in the main corridor of the Wilbur J. Cohen building in Washington.

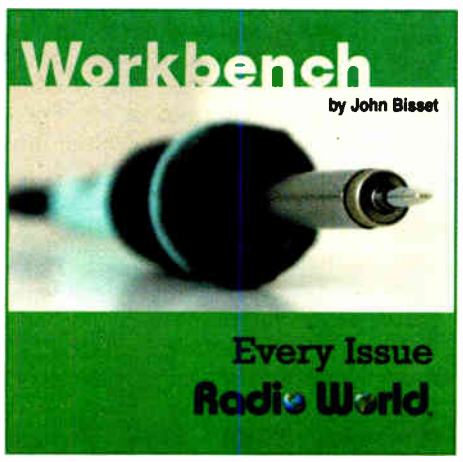
Iskandar Khatloni, Abdul-Hussein Khazal, Ricardo de Mello, Ogulsapar Muradova, Khamail Muhsin Khalaf, Nazar Abdulwahid Al-Radhi and Alisher Saipov.

Board member Steven J. Simmons called the memorial "a sad reminder that journalists risk their lives to protect a most basic freedom: the freedom to receive information. Information that sometimes is a matter of life and death."

Board member Joaquin F. Blaya said, 'Words are so powerful that the foes of freedom choose to fight them with force.'

Four BBG journalists have been murdered in the last two years, the organization said.

Information about the journalists is available in the News section of *www.bbg.gov*.

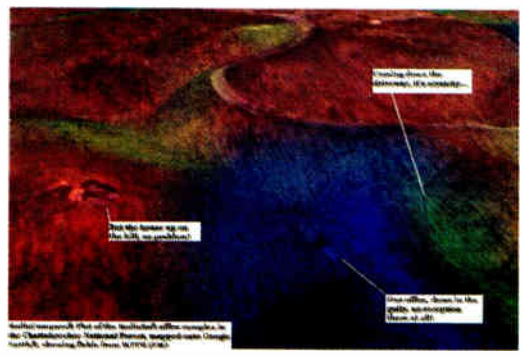


MARKET PLACE

RadioSoft Releases RadioCompass Software

RadioSoft recently released its RadioCompass software for mapping propagation.

Features include selectable interfaces for new and experienced users; automatic program updates at program start; compatibility with most Geographic Information Systems; and Layer Management including Road Map Layer, multiple background layers and transparency control.



New Land Mobile Interface protocols include Mobile-to-Base (two mobile areas received by one base station antenna); Mobile-to-Mobile (two random mobile-to-mobile paths from different areas); and 6.25 kHz super-narrowband adjacent channel analysis (in progress).

Additionally, satellite photography is available for accurate map reference location of coordinates, structures and other features.

Customers who purchase RadioCompass will receive a credit discount of what they originally paid for the ComStudy 2.2 suite of RF tools deducted from the RadioCompass price.

There is an annual fee when using RadioCompass that includes using the license, tech support, upgrades of the software, unlimited searching blocks, broadcast data and also FCC tower data, which is currently purchased separately.

Info: www.radiosoft.com

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World Radio History

USER REPORT

RAM Outfits SBS' New Miami Digs

by Ralph Chambers
Regional Director of Engineering
Spanish Broadcasting System

MIAMI Hispanic network Spanish Broadcasting System moved into the Miami market in 1986, purchasing a 25 kW AM and a Class C2 FM. In 1993 it moved out of the existing 2,200 square foot facility to a 12,000 square foot, two-story building. Preceding that move, SBS sold the AM and purchased two more FM stations in 1995. This facility had 11 studios equipped with a complete array of custom-built furniture that served us well.

In 2006, after several years of steady growth and success in the market, we were able to begin designs for our latest facilities, to be built in a newly purchased building located in one of the most prominent locations in the Miami area: the Palmetto Expressway in the Northwest part of the city. This beautiful, 70,000 square foot facility houses not only the three FM stations, but also our newly acquired TV station, Mega 22.

We were quite pleased with the furniture at the old facility, and it was something of a challenge to find furniture built as sturdy and that improved on the style as well. **RAM Broadcast** was above four other brand-name broadcast suppliers for a number of reasons. After serious comparisons of style, materials, construction design and features, RAM's attention to detail, and its uniquely pleasing designs, met our most scrutinizing demands.

Smooth installation

RAM provides a line of diversified products and services that fit into our overall plans for this operation. Our new radio facilities had to be a showplace. Our vice president of engineering, Bill Murdoch, designed them with four main control rooms and seven production studios, as well as a terminal room with 10 "RAM brand" equipment racks that house the transmission system equipment, which makes up the heart and soul of the facilities.

We chose Sierra Automated Systems Rubicon console control surfaces for the primary station digital audio routing network, so we were right at home with RAM again; Ron Mitchell, president of RAM Broadcast, was in tune with the operation and installation of the SAS systems and was able to come up with many well suited design ideas and options for our facility, incorporating the SAS systems into the furniture.

Ron played an important role in the design process of our facilities. He made a number of trips to Miami during the planning stages to meet with Bill and me, and spent many hours going over the various design options of the RAM furniture products, as well as the pre-wiring, equipment lists and placements for each room of the overall studios.

As it turned out, because we had key, creative, people working in each studio we ended up with a completely different furniture design for each studio in the radio complex. The final design of each studio's furniture is well suited for the ambitious and creative talents of our production people in the new SBS Broadcast Center here in Miami.

We also had intended to use RAM's turnkey integration services for the bulk of our installation and wiring for the new showplace. However, because of a prior commitment on the part of Ron and a major change in the scheduled buildout for our TV operation, we were unable to take advantage of Ron's services within our time frame. Although the RAM crew had completed our furniture wiring and options package buildout at his plant, we acquired the services of the capable Lindsay Collins Group (*www.lmcollins.com*). Lindsay and his men, also very familiar with the SAS gear, were able to spend a busy two months with us in Miami, installing most of our equipment, Cat-5 terminal wiring and coax for our radio facilities.

Installation of the RAM furniture was relatively straightforward. Bill and I handled the placement and assembly of the seven production rooms, from the first truckload arriving from Ron's Chicago-area factory. The second truckload came a couple weeks later. It included the Corian counter Control Room packages, which were massive in size and weight, all of which was installed by Ron's worthy crew.

WCMQ(FM) Afternoon Announcer Susy Leman

RAM's furniture designs consist of traditional configurations combined with under-counter pedestal units, reversible punch-block panels, cable trays, exceptionally neat cabling and for us, custom 8-RU counter top rack units for each studio.

I fly, so I prefer basic cockpit layout concepts in my studio designs, where any and all equipment specifically intended for regular use by the announcer/operators — including anything with buttons, switches, meters, remote controls, EAS, ISDN and IP codecs — must be mounted above the countertops. Only power supplies, monitor amps, mic-procs, computers for Scott Systems (now Google), VoxPro PCs and telco systems are mounted below the countertops.

RAM also provides microphone stands, rack-mounted keyboards and compact, single rack unit PCs, and has a unique design feature, Tower Legs, for all counters. These tower-style leg supports are made for radio and TV studios, and look great. We even used them to mount our Guest On-Air lights inside our studios. Guest tables, overbridges and script boards are optional items available to better match the furniture to the studio designs.

If you need both stand-up and sit-down option furniture in the same room, RAM has the solution: motorized surfaces that raise or lower at the push of a button. (We passed on that for this project.)

For more information, including pricing, contact RAM Broadcast Systems at (847) 487-7575 or visit www.ramsyscom.com.

World Radio History

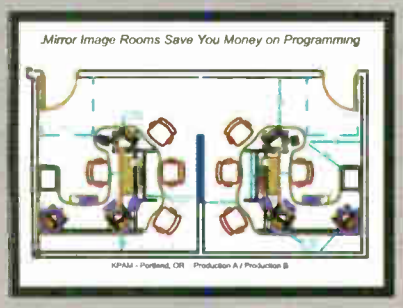
OMNIRAX "INNOVA" BROADCAST FURNITURE

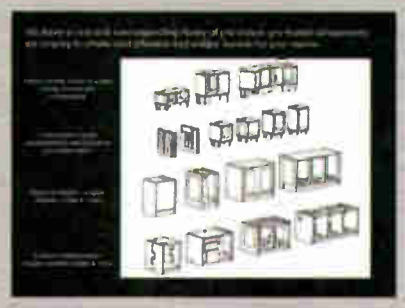
What differentiates Omnirax from other furniture manufacturers is our unique and detailed collaborative discovery and design process, coupled with our uniquely balanced blend of style, functionality, ergonomics, durability and our fanatical attention to detail. By directing the furniture design process, we guarantee the result that you want.

As you begin planning your next project ***please call us*** and let us help you get the furniture you want. We can make this part of the project go smoothly, and the sooner we are involved the easier this becomes.

3 Ways Your Radio Station Gains By Choosing Omnirax:

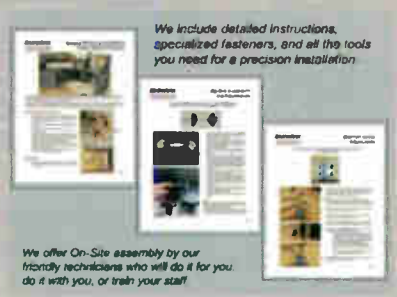
FINANCIAL GAIN





$ Use our pre-existing component library of modular components as building blocks for your room's unique design.

$ Our CAD/CAM saves money on duplicate and/or mirror image rooms



$ Omnirax Innova is designed to maximize ease of integration and assembly. By listening and responding to engineers' needs for simplicity of integration and maintenance, we have proven to be "The Engineer's Choice".

STRATEGIC GAIN

- Enhance your Radio Station's stature. Your new Omnirax furniture will help build and promote your identity.

WNYC, NewYork City 2008

- Teamwork! We collaborate well with any vendors, integrators, architects, program directors & talent, with whom you wish us to work.

PERSONAL GAIN

☺ We make your **"Furniture Headache"** go away!
Guaranteed results, guaranteed quality, guaranteed on-time delivery and guaranteed satisfaction!

Quotes are from various wonderful customers; the pictures are of Clear Channel in New York City 2008

"I was impressed with the exceptional care given packaging for shipment. A few very large and potentially fragile components made it cross-country completely unscathed."

"The Omnirax design makes these studios incredible for talent and operators on both sides of the console."

"I appreciate all the work you did, the studio looks FANTASTIC! The furniture went together very easily and looks awesome."

Corian™ solid surface example from NAB 2007

"Our furniture from you not only fit into our budget and timeline, it was very well constructed and looked beautiful. I expect to be outfitting many more facilities with Omnirax."

Omnirax P O Box 1792 Sausalito, CA 94966 800.332.3393 www.omnirax.com

World Radio History

USER REPORT

Omnirax 'Mothership' Lands in New York

Clear Channel Radio Taps Supplier to Design and Furnish Its 10 Air Studios

by Josh Hadden
Director of Engineering & IT
Clear Channel Radio — New York and Long Island

NEW YORK Designing and building a large-scale broadcast facility to meet the pace of changing technology, and broadcast shows that can change radically from time to time, is challenging under the best of circumstances. Doing so in a landmarked Art Deco building constructed between 1911 and 1932 in multiple stages raises the task to whole new levels of complexity.

Clear Channel's goal was to merge its five New York stations with strong individual branding and personalities into one cohesive location in lower Manhattan; in effect, creating a modern-day city of state-of-the-art radio stations in their own neighborhoods.

Luckett & Farley and Meridian Designs were called in to do the architectural design on the project, and they helped us create an amazing floor plan that clustered each station's air and production studios together, while creating avenues for flow and interaction amongst them.

When it came to furniture, the mission was to find a company to create a "most ingenious solution": an on-air showpiece that was monolithic, solid, modular, adaptable and sexy. Each of the stations had its own format, staffing and style — the solution had to be equitable and fluid — accommodating a host and up to six guests per air studio.

Omnirax was among several companies contacted for design and bids on the project. A dialogue with them ensued, and they conceived and developed a unique solution over the course of a couple of months.

The asymmetrical winged "mothership" would hold the Rubicon consoles and phalanx of monitors and keyboards. Arrayed around the perimeter would be one to three two-person guest "pods," depending on the needs of the station. Flanking the mothership would be a few below-counter racks bays and an upper turret.

WKTU(FM), New York

Omnirax presented a detailed concept rendering to demonstrate that they had the vision to create the look we wanted. With its futuristic metal legs holding up the pods and curved pedestals supporting the mothership, the "wow" threshold had been met. We chose Omnirax.

One studio at a time

In hindsight, this may have been the easy part. The approved concept then had to be further refined and fit to each of the 10 air studios; two per station. We continually had to consider the columns that were created when the different buildings were connected to create one structure; unavoidable holdovers from the building's past.

While the base concept remained — some rooms were mirror-imaged, others rotated and the rest subtlety morphed — each room had become unique, yet no one could claim that one studio was better or worse than any other. And this only took care of the air studios; there were another 16 Production, Voice, Imaging and Creative Services rooms to consider.

With a good working understanding between us, these were laid out in one marathon 16-hour design session. It's not easy making tight spaces turn into comfortable working environments, but Omnirax did it within budget and design parameters.

The first moment of truth came several months later on a site visit to Sausalito to preview the air studio prototype. Omnirax had taken on several new technologies at once, utilizing Corian solid surface, soft-formed lamination and state of the art fasteners to create a sleek and clean look.

The completed design was faithful to the rendering, but even more impressive in person. Once the "oohs" and "aahs" subsided, there was the in-depth under-the-hood inspection of everything from lamination quality to sturdiness, which resulted in short order of the approval to move on to production.

Delivery, assembly and integration took place over the course of several months — one station at a time cutting over as a careful orchestration ensued among the Omnirax installers, union carpentry and wiring teams, Technet Systems Group's integrators and SAS programmers, directed by the local engineering team.

On a project this large it is easy for the little things to get lost in the push towards completion. The Omnirax eye for detail, and its ability to maintain consistent high precision throughout the project, unified the look and feel of the entire facility. Complex assemblies were rigorously flat-packed, crated and then shipped 3,000 miles cross-country — with all but one item arriving intact.

The ease with which the furniture was assembled and integrated on-site was remarkable. Omnirax was the right choice, and is a large part of the success of the project.

For more information, contact Omnirax at (800) 332-3393 or visit www.omnirax.com.

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TECH UPDATES

Middle Atlantic Debuts Post/Control Room Desk Systems

Middle Atlantic says its Post and Control Room Desk Systems feature adjustable monitor supports for up to six screens per desk that allow placement of monitors at different heights to suit individual operators or line of sight beyond the desk.

The configurations enable linked multi-desk applications and easy setup. In addition to straight and curved patterns, serpentine layouts are possible. Repositioned cable entry points on the desk surface provide improved cable management with routing options from desk to monitors and uncluttered control surfaces.

Middle Atlantic's Desk Systems offer contoured edges for desktops and keyboard shelves to allow operator comfort and efficiency. Surface heights have been raised to 30 inches to accommodate various sizes of users. Keyboard support ergonomics and range of adjustments have been improved. Other adjustable options include a range of task lighting and phone supports.

Monitor mounting access area and cable management raceways have been redesigned to provide a more open workspace for integrators, according to the company. Front and rear doors make cabling areas more accessible, as cables can be run between desks, mounted equipment and remote equipment areas. A compact and compatible rack is available to mount equipment for the system.

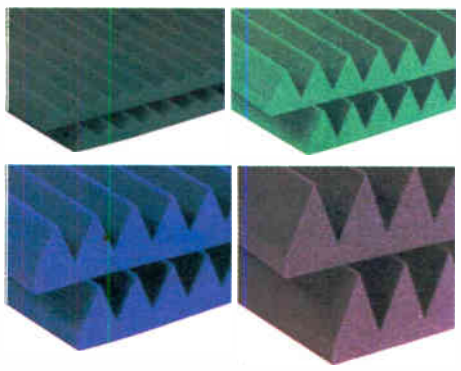
Desk System color options including Honey Maple, Dark Cherry and Pepperstone. Additional highlights include space-efficient cabinet/rack enclosures with thermal management to remove heat from equipment.

For more information, contact Middle Atlantic Products at (800) 266-7225 or visit www.middleatlantic.com.

Auralex StudioFoam Goes Green

Auralex Acoustics introduced its first "green" acoustical foam product, Eco-Friendly StudioFoam.

Its StudioFoam line now includes soy components, reducing petroleum-based chemical usage by up to 60 percent, and lessening dependence on fossil fuels, including foreign crude oil. Auralex says the greener formula helps reduce global warming emissions.



Auralex StudioFoam is manufactured without chlorofluorocarbons, which have been implicated in the depletion of the ozone layer. In making the conversion to the soy-based hybrid formula, these products boast an improved performance and durability over conventional petroleum-based foams.

"Green initiatives are no longer reserved for environmentalists, consumers as a whole are moving towards ecologically-friendly life-styles and products," said Dave Paxton, director of operations at Auralex Acoustics. "Auralex is proud to be doing its part in conserving the environment and reducing global warming and our dependence on fossil fuels. [We] will continue to create products that are beneficial to the audio industry as well as those that are conducive to our environment."

The StudioFoam line includes StudioFoam Wedgies, 1 foot squares of 2 inch thick StudioFoam for spot-treating sound studios; and StudioFoam Pyramids for small- to medium-sized areas including iso booths, control rooms and sound studios. The company says they kill standing waves and flutter echoes and, when used in conjunction with its LENRD Bass Traps, Venus Bass Traps or Sunburst Broadband Absorbers, can tame the full frequency bandwidth in virtually any acoustic environment.

For more information, contact Auralex at (317) 842-2600 or visit www.auralex.com.

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SINCE 1963

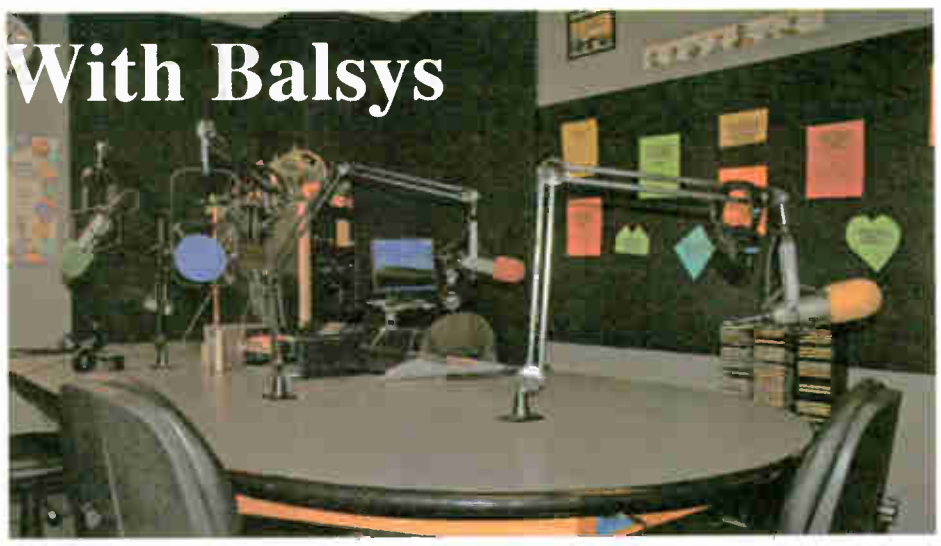
World Radio History

USER REPORT

WJCT Upgrades Studios With Balsys

Talk Studio and Radio Reading Studio Are Latest in a Series of Projects

by Bob Culkeen
Vice President, Technology & Operations
WJCT



WJCT Radio Reading Studio

JACKSONVILLE, Fla. WJCT is the community-supported public broadcasting station for Florida's First Coast, offering the finest national and local programming through its cutting-edge broadcast facilities — WJCT(TV), WJCT(FM) and WJCT Online.

As northeast Florida's NPR station, we reach out everyday to listeners and viewers, bringing them news, information and programs that celebrate human diversity, encourage joyful learning, promote civic participation and empower citizens to improve the quality of their lives.

Each and every day, 89.9 FM goes behind the headlines to provide balanced, insightful, in-depth information about local, national and global issues that affect First Coast residents. High-quality news reports and programs from the 89.9 FM News Team spotlight local issues and promote informed debate. Popular local music programs add a dash of spice to the mix.

Over the past few years we have been upgrading studios throughout the facility. **Balsys Wood Arts** previously had provided custom furniture for our television production control room, audio booth and FM studios, so when it came time to upgrade our Talk Studio and Radio Reading Studio we turned to Balsys.

Form meets function

The case of our Radio Reading Studio illustrates why we rely on Balsys.

WJCT provides this as a valuable service for community members who are visually or print impaired. We broadcast continuous readings of newspapers, magazines and books 24 hours a day, seven days a week. It is the only service of its kind on the First Coast. Listeners have access to a variety of local and national publications: The Florida Times-Union, The Wall Street Journal, popular magazines, best-selling books and a variety of other sources.

Balsys suggested a layout that made better use of the existing space.

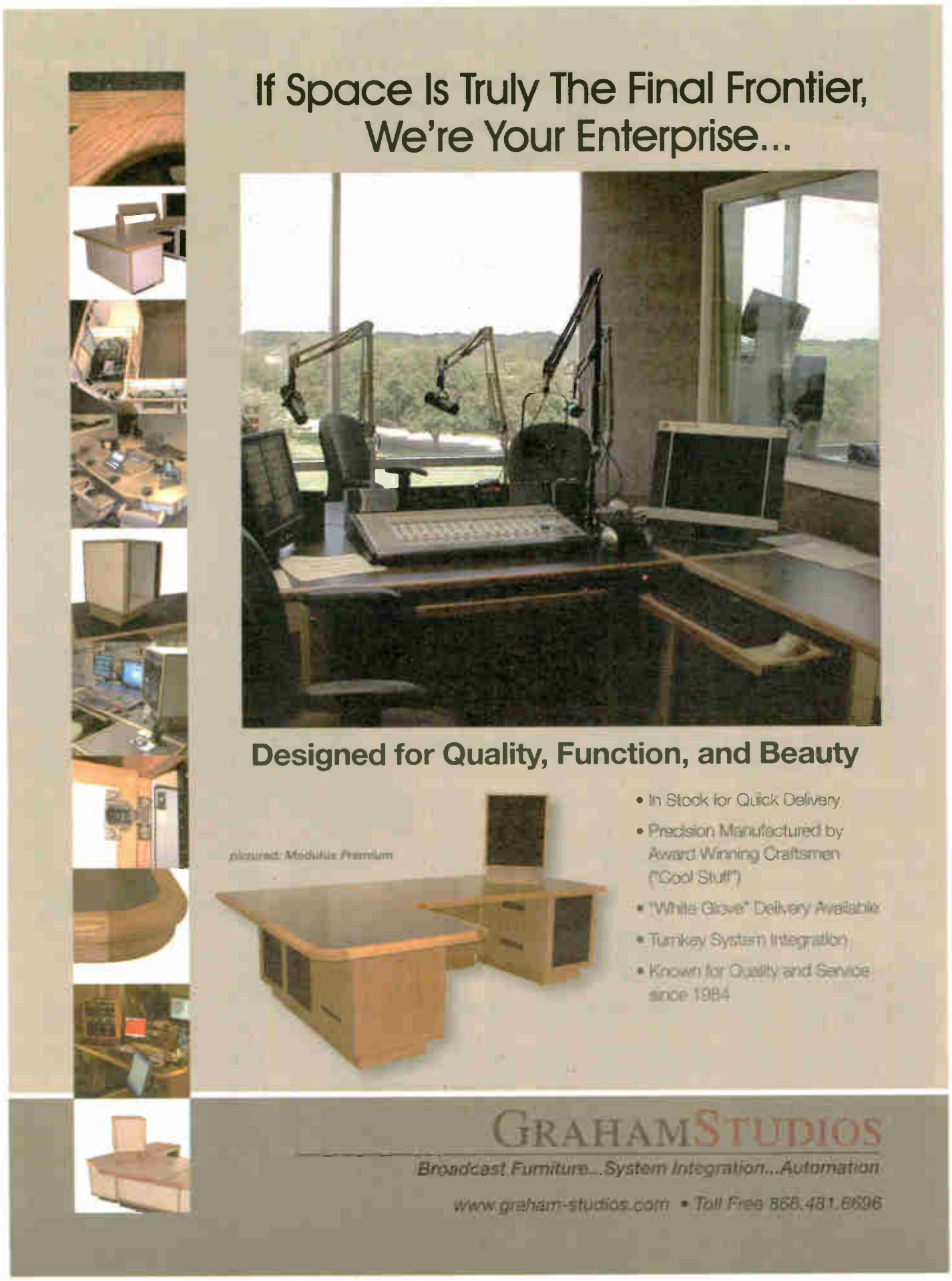
Our original idea was to merely replace the existing and worn furniture in exactly the same old but comfortable format; just new. However, during a site visit Balsys suggested a different layout that made better use of the existing space, adapted to existing house cabling restrictions, offered improvements in workflow and room for readers, as well as better personnel movement within the room.

The layout was rotated 90 degrees from our original concept, so it first seemed a bit radical. But once that the staff studied the proposed layout on paper it became obvious there was an improvement.

"I love the design and the fact that it was custom-made to fit our specific needs," said Pervalia Gaines, Radio Reading manager. "We needed a spacious audio console that would allow four people to read a newspaper in a roundtable fashion at the same time, and still have room to hold our supplies and books on it."

We upgraded our Talk Studio at the same time. Originally built as a recording studio, this room has eight non-parallel walls. Again, Balsys came up with a design that maximizes the functionality of the space.

See BALSYS, page 35 ▶



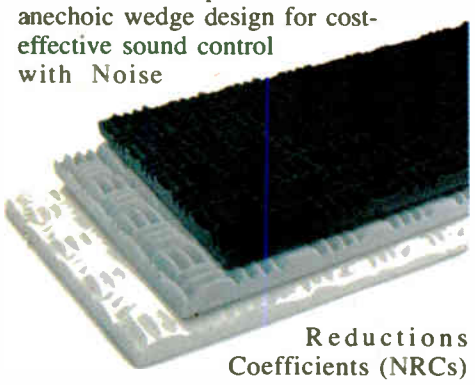
World Radio History

TECH UPDATES

Sonex Panels Have Anechoic Wedge Design

SonexClassic panels from **pinta acoustic** are available in natural, painted or Colortec finishes. The company says the advantage of Colortec finish is that the panels are dyed throughout the entire thickness of the foam panels, creating a consistent look even when pieces are cut to fit around obstructions. SonexClassic Colortec panels are offered in charcoal and light grey.

SonexClassic panels have a modified anechoic wedge design for cost-effective sound control with Noise



Reductions Coefficients (NRCs) ranging from 0.75 to 0.80, according to pinta. The geometric shape of the surface pattern on the panels provides deflection of sound waves, making them suitable for recording and broadcast studios. The panels also can be used in listening rooms, production areas and other locations where sound absorption is important.

Sonex panels are made from Class 1 fire-rated willtec, which meets ASTM E-84 standards for flammability and smoke density. They can be mounted to a wall or ceiling surface with pinta's AcouSTIC water-based adhesive.

For more information, contact pinta acoustic at (800) 662-0032 or visit www.illbruck-sonex.com.

Balsys

▶ Continued from page 34

Jacksonville is not far from Orlando so we picked the furniture up at Balsys and did the final on-site assembly ourselves without any problems. Duane Smith, WJCT director of technology, said working with Balsys is easy. "Site visits are thorough and a detailed set of proposed drawings are soon produced for review. One of the things we really like is that Balsys furniture is heavy-uty industrial quality, built for everyday use and abuse, providing long-term value for the investment made."

"I've been very pleased with the work done by Balsys," said Tom Patton, 89.9 station manager. "They have always worked with us closely on studio design, how the modules will best fit in our space and suggested creative solutions for some challenging design issues. The studios look great, and guests are impressed by the professional design and execution."

Our studios are now not only functional but also serve as a showcase. We were able to tie in design features of both the television and radio areas to achieve a unified look for our facility.

For more information, contact Balsys Wood Arts at (407) 656-3179 or visit www.balsys.com.

Studio Technology Offers Custom Configurations

Studio Technology designs, constructs, delivers and installs studio furniture for the broadcast industry. The company says its broad-based design and construction expertise enables it to provide a range of standard and custom furniture to its customers.

Individual needs can be different, so Studio Technology says it likes to work with each customer to develop a design that fits the operational needs of each studio along with its budget.

Studio Technology provides a custom configuration that it says is priced competitively with modular furniture, as well as higher-end furniture using solid surface or other alternative materials.

WRTI(FM) Temple University Talk Studio

The company has provided furniture for single-room studio renovations, as well as participated in major consolidation projects on both coasts and in Hawaii. It says it will work with any systems integrator or local staff, and provides delivery and installation of the furniture it manufactures.

Base cabinetry and upper equipment racks for the Basis line are constructed using black 3/4 inch thick melamine component panel.

Countertops are constructed with medium-density fiberboard built up to 1-1/2 inches around the perimeter.

For more information, contact Studio Technology at (610) 925-2785 or visit www.studiotechnology.com.

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World Radio History

USER REPORT

Radio One Taps Harris to Outfit Mo'Nique

by John Soller
Corporate Director of Engineering
Radio One Inc.

LOS ANGELES "The Mo'Nique Show" is a daily nationally syndicated radio program for the Radio One network hosted by actress and award-winning comedienne Mo'Nique. The show originates in Los Angeles and is heard on eight Radio One stations in medium and major markets.

Radio One recently completed the sale of its Los Angeles station and required a new studio space to produce the nationally distributed show. An existing space was purchased and converted to a radio broadcast studio, with **Harris** providing furniture from its Quickline and Smoothline ranges to accommodate hosts, guests and equipment, and ensure an aesthetically pleasing look and feel for the studios.

'Mo'Nique' Control Room

Prep course

The pre-installation phase involved preparations for each studio. Room measurements were taken to ensure the proper-sized furniture was ordered and installed, while power and mechanical availability was confirmed to accommodate the wiring and electronics required for a live studio operation. Furniture layout was determined after confirming room dimensions, reviewing sketches and considering the number of talent and guest positions needed for the program.

Radio One was on a tight deadline to construct the studio and accommodate the show rollout schedule. The deadline prevented any construction to customize the size of each studio, so the design and integration team had to work with the existing space and dimensions.

One interesting result was the installation of a "virtual window" between studios, using two 50-inch flat-screen TVs for visual communication and show cues, as there was no time to tear down and rebuild a wall and actual window. This lack of time to change dimensions also made ordering customized furniture difficult for the main studio.

Considering these factors, the team decided on Harris' Quickline range of pre-built furniture for the control/production studio. With more flexibility to work within the talk studio, Radio One ordered custom-designed furniture from the company's Smoothline range to accommodate Mo'Nique and other talent/guests.

Finishing touch

Harris' furniture manufacturing facility in nearby Vista, Calif., made it easier to build and deliver the furniture in a short time. The facility took less than a week to construct, including furniture setup, with three Radio One engineers leading the project.

Both the talk and control/production studios are configured in stand-up arrangements with counter height chairs for both rooms. The Quickline furniture for the control room was ordered with an equipment turret, but the team opted to house rack-mounted equipment in the base cabinets next to the operator and out of reach. This left valuable counter space for desktop devices such as a phone controller, phone editor and PC stations for Google automation and other purposes.

The control room was finished with a Harris NetWave on-air/production console and pre-wire package with a VistaMax Envoy router for audio routing and networking. Wires and cables were routed through punch holes built into the furniture. Harris also provided a headphone distribution system, mic and monitor arms and several World Feed panels to accommodate audio source inputs and outputs.

Additional studio gear supported by the furniture includes a Pro Tools editing package, Telos TWOx12 phone hybrid and Telos Zephyr codecs and EV RE27 microphones.

The customized Smoothline furniture in the talk studio accommodates a number of built-in features. Each guest position has a built-in microphone control panel with an on/off button and a "cough" feature, plus a headphone level control panel that communicates with the Harris headphone distribution system.

The three Radio One engineers on-site were supported by a Google technician for digital media configuration and a Harris technician who remained on-site to assist with furniture configuration and commissioning of the NetWave and Envoy. We could have been on-air in several days but took the extra time to train staff and perform dry runs of the on-air operation. The extra time to make everything right has served the show and its staff well in its early stages.

For more information, contact Harris Corp. at (513) 459-3775 or visit www.harris.com.

USER REPORT

Network Expands Rack Space With Stantron

Dial Global's Purchase of Pioneer Racks Extends a Relationship That Began in 1992

by Larry Wilson
Vice President, Engineering
Dial Global

VALENCIA, Calif. Dial Global is radio's largest full-service independent radio network, providing programming to radio stations nationwide via satellite link. Dial Global is owned by Triton Media Group LLC, and has offices in New York, Los Angeles, Chicago, San Francisco, Nashville and Valencia.

We provide national advertising sales representation to more than 60 independent producers and syndicators, in addition to Dial Global's own programming and barter services from our sister company, MJI Interactive.

For advertisers, we offer sales networks with exceptional market coverage and powerful targeting via our broad range of programming and station services including personality programming, digital formats, news and information services, prep packages, music libraries and interactive technologies. We offer a full-service partnership for content producers, which is unparalleled in the radio industry.

As the only (West Coast) StarGuide uplink in our area, there is no room for error. We must be on-the-air consistently 24 hours a day seven days a week. Approximately 10,000 receivers at radio stations in all markets depend on us everyday across the United States. Dial Global provides 11 music formats that broadcast via AMC8. We also carry a variety of other feeds to radio stations as well as our 11 music formats.

As our network radio business increased we knew we needed to add more rack space to our master control room. The additional rack space also has assisted our ability to add additional services for other clients.

We began a long-standing relationship with **Stantron** products when we moved our radio network from Hollywood, Calif., to Valencia in 1992. Our first purchase was 14 Pioneer racks for our Master Control Room, sold through its distributor, Pacific Radio.

Nice rack

Our next purchase eight years later was a single Stantron Pioneer rack in 2001. We also added a Stantron Frontier Console system for a computer workstation that controls our satellite receivers. That same year, we added new digital automation equipment to our studio system that required an additional rack in Master Control.

Format expansion in the spring of this year led to the purchase of four more Pioneer racks.

Those four racks came with Stantron's Vertical Power Strips, a feature we found appealing. The power strips design allowed increased versatility in the setup and integration of our rack system. They can be easily removed or relocated, and offer the added benefit of digital current monitoring and surge suppression, another way for us to maintain our consistency on air.

We also added four magnetic mount work lights to our racks. They provide repositionable and portable illumination and enhance our ability to access and maintain equipment.

We have approximately 18 computers, 47 audio encoders and other associated equipment stored in these racks. Despite the rather large quantity of components within it, I feel we have achieved an organized Master Control Room as a result of the Pioneer racks, and a well-ventilated system. Visitors have complimented us on our equipment layout in Master Control. The functional layout of the room, which allows enough room on the front and back of the rack, eases installation and removal of equipment.

Master Control Room, where Stantron Pioneer racks house network operations gear, such as uplink gear, encoders and digital automation equipment.

The Frontier console system houses a computer workstation that controls Dial Global's satellite receivers.

Equipment reliability is paramount in our business and as heat is a major factor when loading up a rack with equipment, cooling is of the utmost importance. We link our reliability directly to the efficient cooling options available in our Stantron racks.

Stantron has made several additions to its rack cooling

See STANTRON, page 39 ▶

World Radio History

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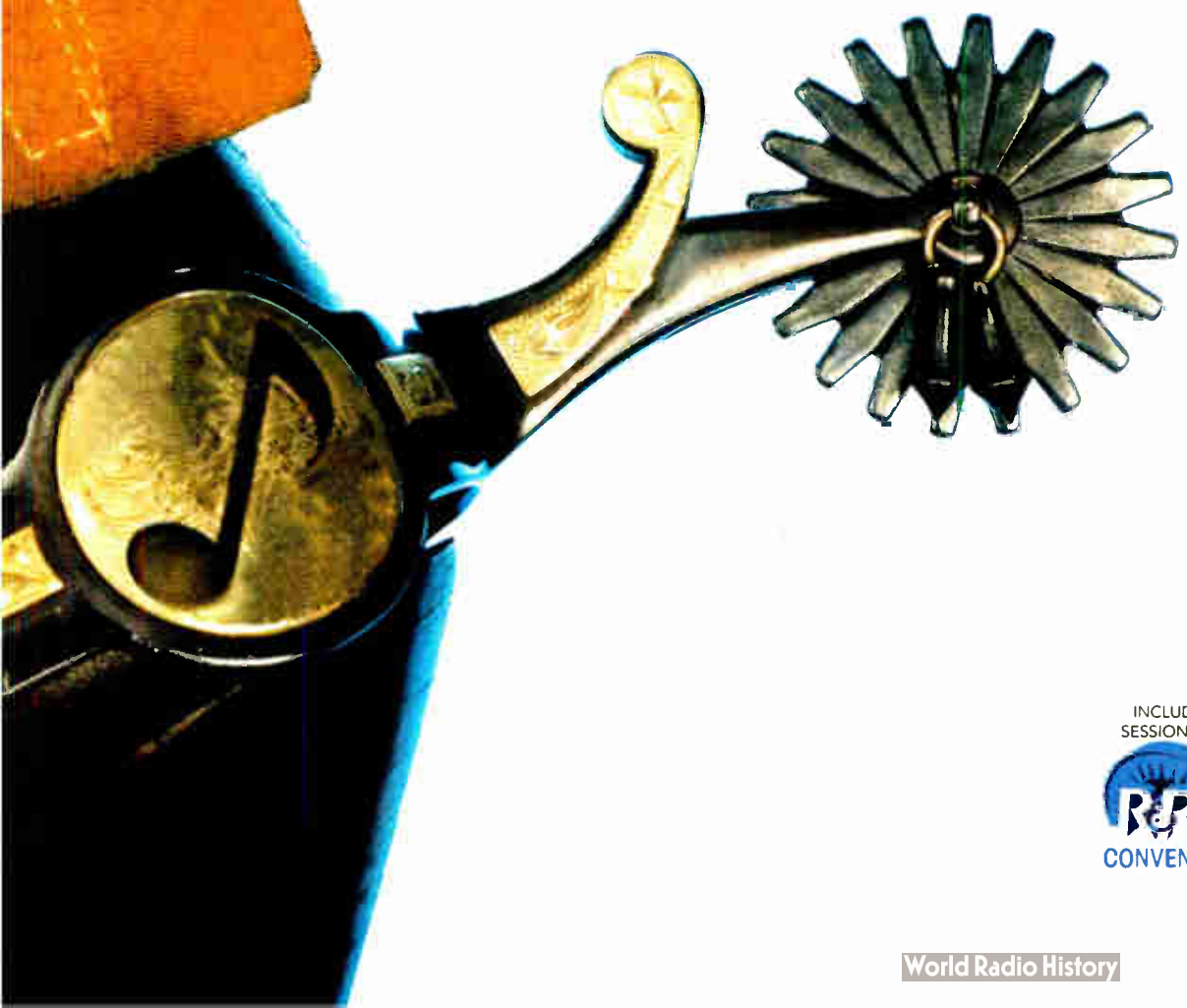

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USER REPORT

SIA Acoustics Designs Air America Studios

by Carl Ginsburg
Executive Producer of Programming
Expanded Radio and Television Co.

NEW YORK In 2004, when acting as COO of Air America Radio, I had no idea that I would be one of the "outside" clients that were part of the operational plan for the facility I was developing. But when studio design and operations are at hand, fate has a funny way of surprising almost everyone.

When Air America started, we rented space from The Durst Organization and, after six months, we set out to design and build both offices and a production facility of our own.

We worked with an architect to help us develop a master plan for housing both our administrative and production staffs, and we turned to Sam Berkow and **SIA Acoustics** to help us program, design and construct a suite of studios.

The Air America Studios, located in New York's Chelsea neighborhood, would house on-air production studios, edit suites and support spaces within the new offices that would allow us to generate our in-house programs, as well as support outside rental clients. I now serve as executive producer of programming for the Expanded Radio and Television Co., which uses the studios.

"Trying to define how the studios will be used is almost always the most important step in the design process; [coming] up with a design and infrastructure that will support the program is the fundamental challenge in planning a studio," said Berkow.

"For Air America's in-house studio, we focused on the concept of a studio suite, a dedicated group of production rooms adjacent to the news and support staff, but also separate enough to allow on-air talent and activities to happen independent of the Air America team.

"By providing both close proximity and separation from the Air America staff, the facility would be able to support both in-house and outside productions," he said. "The facility features two 'on-air studios' that share a large control room. There also are two edits suites, a green-room lounge, a machine room, battery back-up facility and a large dedicated storage closet. The layout was developed with this idea of being able to support both in-house and 'outside rental' productions."

Former Air America flagship station WLIB(AM), now owned by Inner City Broadcasting Corp.

Audio, visual support

Like many start-ups, Air America had large ambitions and a finite amount of resources, so SIA also made a conscious effort to include enough conduit, cabling and power to allow flexibility in the way the studio suite was used initially and how it would expand those uses. One large issue was the desire to support video broadcast of radio productions.

The need to provide an infrastructure for video broadcast was a young but growing trend at the time. The number of productions — both at Air America and across the radio spectrum — that we provided video, either on TV or the Internet, was growing. But adding production, lighting systems and a full video edit suite were beyond our initial means. So we decided to provide the infrastructure to support video, without making the immediate equipment purchase.

Each of the two on-air studios was outfitted with a simple schedule 40 pipe-grid, capable of holding up to 24 lighting instruments. The grid was complemented by a pre-cabled set of dimmer runs, which terminated in the electrical closet where power also was only a cam-lock away from being used by "future or outside" dimmer racks.

"Adding infrastructure to support future uses is almost always a good investment, as adding conduit during construction is almost always much less expensive that opening walls and disrupting a facility once its up and running," said Berkow. "In the case of the Air America Suite, the addition of the grids, some cabling for future dimmers, extra power and conduit provided several reasons for producers to select the studio suite as a rental facility at nominal additional costs to the construction."

Another factor in the design was the use of high, acoustically isolated ceilings. Acoustically isolated walls, floors and ceilings were required in order to provide acoustical isolation of the spaces from the Air America open-plan offices and the buildings of other tenants above and below.

Being in a pre-war building with high ceilings we were able to support the ceilings from the sidewalls and build isolated ceilings, which are both angled with respect to the floor, and that provide almost full height clearance. The angled ceilings help improve the acoustics of the spaces, and the clear height allows the grids to be used for video lighting without "cooking" the talent.

For more information, including pricing, contact SIA Acoustics at (212) 387-9105 or visit www.siaacoustics.com.

TECH UPDATE

Custom Consoles Expands Module-R Line

Custom Consoles, a U.K.-based manufacturer of broadcast and process-control furniture, says it expanded its Module-R product line, a pick-and-mix control room system the company says combines style with durability. Additions to the range include new 19 inch rear-desk equipment pods, front-access panels with increased ventilation and optional hardwood worktop buffers.

Module-R enables control-room desks to be produced from a selection of pods, base sections, 19 inch rack housings, worktops, end-panel modules and legs. The desk pods are available as single-bay sections with up to 10 U chassis capacity. Cabinet construction is in veneered MDF. Typical environments include broadcast control rooms, security control rooms, network operation control and industrial process control.

Other features include continuous brush-strip cable access to front worktops.

For more information, visit www.customconsoles.co.uk/.

World Radio History

Stantron

▶ Continued from page 36

options, among them the availability of optional doors and fan options. We ordered each rack with four cooling fans on the top and a perforated back door. As a result there are no "hot spots" in the new racks. We also ordered a new four-fan cooling top for one of our older racks, which were easily retrofitted on-site.

We are continually adding audio content to our system, and no doubt will be adding more. We also have additional outside clients who want to add audio services. As the need arises we will certainly add more Stantron racks into our system. We are currently working on a new receiver system, due on-air by Jan. 1.

For more information, including pricing, contact Stantron Racks (800) 558-7297 or visit www.stantronracks.com.

TECH UPDATE

Absorbent MiniGobos Isolate, Trap Bass

RealTraps says its MiniGobos are lightweight, affordable alternatives to its GoboTrap system, and are available in various sizes and configurations to accommodate isolation, bass trapping or broadband absorption.

MiniGobos are based on RealTraps' line of MiniTraps, MicroTraps and MondoTraps. They use hinges to join two or more panels as a single unit that the company says is stable, easy to handle and self-supporting. The panels can be used when recording, and again in the control room when mixing.

As gobos in a recording studio, MiniGobos can be placed around instruments and guitar amps to prevent sound from getting into microphones meant for other instruments and vice versa. For most gobo apps the company recommends HF-style MiniGobos, which are absorbent on both sides and have a barrier in the middle for increased isolation.

RealTraps also can build MiniGobos with the reflective barrier on either side, or no barrier at all. Even with no barrier the company says they still provide isolation and are more effective as bass traps or refection panels in the control room when mixing.

Most panels in the MiniGobo series use lift-off hinges, which can be joined and separated for portability, and panels can be connected in series.

RealTraps says MiniGobos are a portable room treatment solution that avoids the need for stands or wall mounting. For this use it does not add a sound-blocking barrier inside. Place the hinged panels at right angles in each corner for bass trapping, or in a shallow "V" at reflection points. For corner bass traps, the company recommends standard-style MiniTraps or MondoTraps.

MiniGobos are built to order and retail for $249. Available colors are white, wheat, grey and black.

For more information, contact RealTraps at (866) 732-5872 or visit www.realtraps.com.

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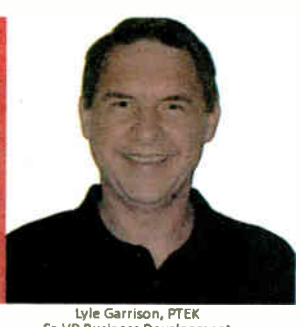

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USER REPORT

Studio Acoustics 101: 'It's the Room'

Acoustics First Helps Tarsia Design a Quality Room in an Existing Space in a Row Home

by Michael Tarsia
Recording Engineer/Producer

PHILADELPHIA Recently, Sigma Sound, our family-owned and -operated recording studio (home to the "Sound Of Philadelphia"), had issues. The client base for large, multi-room facilities in Philadelphia had been in decline for years. Essential equipment was becoming outmoded, overhead was exponentially higher and a glut of studios vied for the same business.

Add a dash of technological advances that make relatively high-quality/low-cost recording equipment available to the masses and the answer for Sigma was painful but simple: sell.

The answer for me was less easy. Stay in the business I knew intimately for more than 30 years or change careers. My love of music made me choose staying in the music business. But I was spoiled by the A+ quality of the recording experience that was Sigma Sound. Part of what made Sigma extraordinary was that the studio space was built to demanding specifications.

We had a trolley line running right outside of the recording studios that operated in the heart of this bustling city. In spite of this, we could open a microphone up on a whispering vocalist and not have rumble from heavy vehicles, jet airplane noise, air conditioning hum, forced air whoosh or bleed from control room monitors leaking into the recording area.

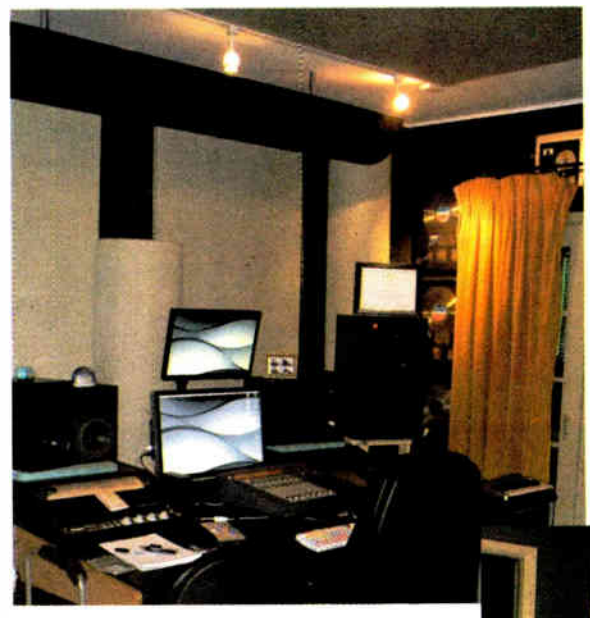
I had taken this too lightly when I started my independent career working in local studios, and the ramifications were immediately apparent. I found myself saying, "I'd like to do that again, I can hear a truck in the background";

"I didn't hear the hum because the air conditioner in the control room masked the noise"; or "I had the monitor low to make sure they didn't bleed into your mic ..."

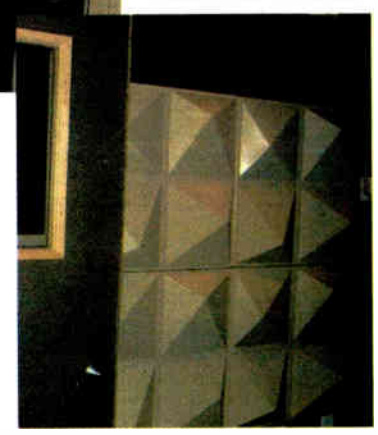
Then there was the issue of dealing with rooms that had you constantly guessing if your ears were messed up. Move my head here it sounds like this, turn a little or move an inch and it sounds totally different. Maybe if I put my head in a vise ...

I wasn't used to making excuses for poor room design. So I decided to build a facility in my home. I knew that before a computer went in or a speaker was placed in my small project studio, I had to have a listening and recording structure that rivaled the high-quality facility I took so much for granted during my 30-year tenure at Sigma.

Our family has known Nick Colleran of **Acoustics First** for many years. The fact that he had owned a successful studio operation that by its nature demanded the highest level of acoustic design, and was now owner of a company that dealt with acoustic solutions, made me feel certain I could build a room that acoustically surpassed the rooms left in my city.



Tarsia's home studio features Geometrix broadband absorbers (in front of console), and Sonora panels.



QuadraPryamid Diffusers

Isolation challenge

There were a lot of challenges I faced building a room in an existing space in a row home. First was sound isolation. I didn't need neighbors banging on my door at 3 a.m. Nick suggested I use green rock, a high-density acoustic vinyl called Block Aid and sheet rock as a three-layer barrier to control sounds.

The Block Aid is heavy. Expect to get some help in carrying it into your space unless you are less than 40 years old and hit the gym often. It adheres very well when using the recommended adhesive, and is easy to work with once cut into the proper lengths. A few flat-head nails set at the top holds it in place until the adhesive sets.

Next up was the issue of controlling high-frequency slap off the drywall surface. In the old days people put shag carpet up on their walls. Today a product called Sound Channels acoustic fabric is available. It is Class A fire-rated, easily installed and looks great. I ordered some up, installed it and then did an "acoustic snapshot" of my room using balloon pops that were recorded and e-mailed out to Nick for further refinement of the room's acoustics.

I'd like to note that the best way to hang this product is not the normal paperhanger overlap and cut. Instead, use a straight bar to cut down the flat "valley" in the channels.

My control room is relatively small so we knew right off that low-frequency response was going to be an issue. Right next to the control room was another space so we put up French doors that could be swung open, and put heavy theatre-type curtains in front of them. With the doors ajar the neighboring room acts like a giant bass trap, effectively doubling the size of the real control room's bass handling volume.

Then we hung four 1/2 round Geometrix broadband absorbers in front of the console, three on the wall and one on hooks across the ceiling. Between the three absorbers were placed two Sonora panels. A 1/4 round Geometrix trap also was hung on the rear wall up at the ceiling corner. The absorbers are well made and have good reinforcement, and the mounting mechanism lets them seamlessly integrate with the wall they hang on.

Over the control desk a Sonora ceiling panel was hung on hook and chain. The mounting hardware that Acoustics First supplied for the applications was easy too use and did the job well while maintaining a professional look. Both the Sonora and the Geometrix absorbers are available in a range of neutral colors that would work well in any environment.

Finally, we used QuadraPryamid diffusers along the back wall to spread out the reflections and make the room have a natural sound quality. These were actually designed to be drop-ceiling mounted but work surprisingly well on vertical surfaces. I thought painting them might be difficult due to their "waxy" feel, but paint application was no problem and the paint job has stood up well over the past 18 months with people and equipment rubbing up against it. Standard water-based paint was used to color them.

The isolation booth was much more of an issue than the control room, as it had a very small footprint. We made a room inside a room using Vib-X pads to decouple the inner walls footers and headers. Nick suggested that one of the five walls be slightly convex. He told me to buy some masonite, make a slight bend from the real wall and then stuff fiberglass in the cavity so the masonite didn't resonate.

It was hard to get any sort of pop test out of this room as it was so small, but Acoustic First's staff has "heard it all." Two 1/4 round Geometrix broadband absorbers were put in two corners with a CuttingWedge foam panel in between, and a 2 x 2 Sonora panel accents another wall.

People are amazed at the sound of my speakers in the control room, especially the low-end clarity. When they ask, "I have the same speakers; why don't mine sound like that?," I smile and say "It's the room!" The iso booth has seen duty it was never meant for. Not only do I cut vocals and the occasional saxophone overdub, but people have done acoustic guitar parts in its modest 4 x 5 area. The room has a neutral sound, with a microphone a foot away from a soft acoustic part. Not dead and unnatural, but also not boxy and constricted like anything recorded in what amounts to a closet.

The room is the thing that separates studios today. Electronic technology is available at the store down the street. But great room designs and proper acoustic materials are something much harder to come by.

For more information, contact Acoustics First at (888) 765-2900 or visit www.acousticsfirst.com.

World Radio History

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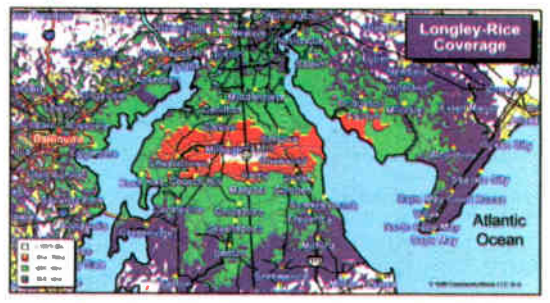

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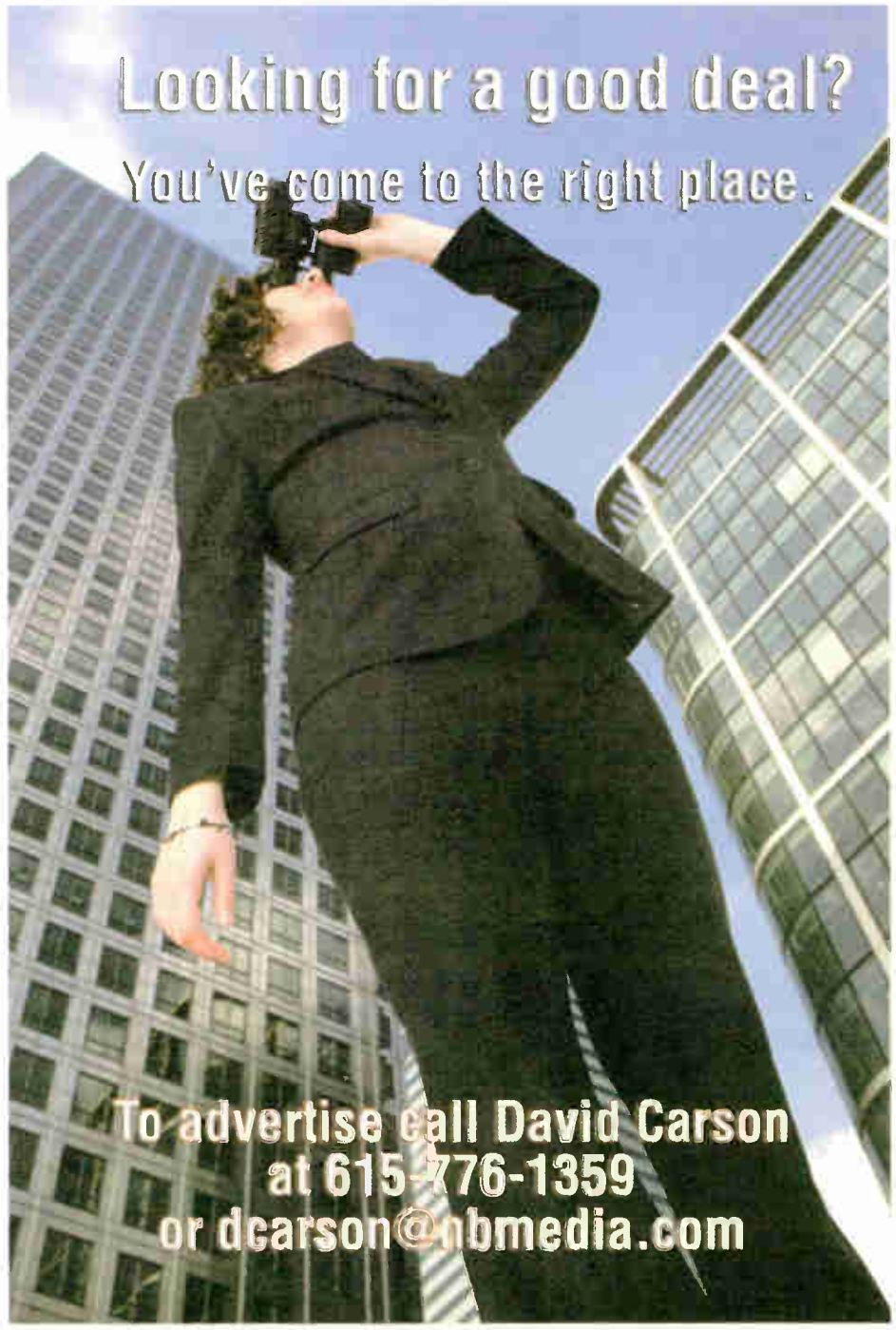

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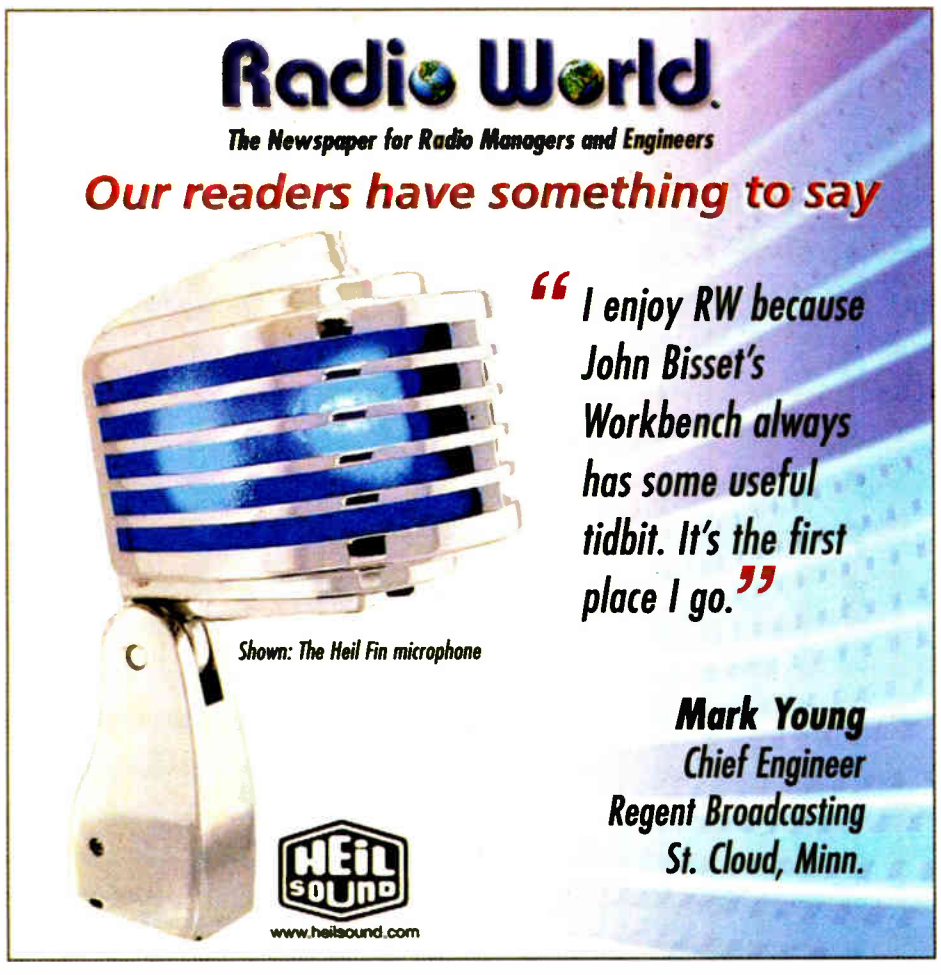

GUEST COMMENTARY

A New Paradigm for Small-Market Success

Learn From Successful Companies; Focus on Localism, Centralized Sales Strategy

by Steven Ludwig

The author is CEO of Debut Broadcasting Corp. in Nashville.

Since consolidation began in the late '90s, radio has been evolving into two completely different businesses: large markets dominated by large corporate players, and smaller markets that remain largely a "mom and pop" industry.

For radio entrepreneurs seeking to become growth companies amidst the new realities of our industry, re-defining the small-market paradigm is the billion-dollar idea waiting to propel a company to the next level. The challenge: Small markets don't work like large markets, so the roll-up strategy has to be different.

Companies are now on the hunt for a "category-killer" model for small-market radio, and breaking new ground in that effort. Mine is one of them. Here's a snapshot of what we're doing at Debut Broadcasting so far and why I think we're really on to something.

Share the wealth

For just more than a decade, we've been a syndication company providing everything from content to suites of revenue, production and Web site tools to more than 1,400 radio stations in the United States and Canada. Our sweet spot has been medium and small markets, where we've focused on the need to increase revenue in a low-staff environment.

A major learning we bring to the search for this new paradigm in small markets is our experience with Wal-Mart. Many of our advertisers and sponsors want to sell more of their products at Wal-Mart. To effectively help them do that, we had to understand Wal-Mart and how it works.

And until recently, where was Wal-Mart? Not the big markets. Wal-Mart's "bread and butter" is small markets. So we watched how Wal-Mart works and took the best of its strategies and applied them to radio.

When we saw corporate radio divesting of smaller markets, we knew they were effectively raising the white flag and saying, "Our system doesn't work in these markets." They sold, rather than take the time to figure out how to make these markets work — a simple cost-benefit analysis for them.

But our management team started our careers in small markets and no matter where we've gone from there we've always had a passion for them. We knew there had to be a way to build a radio company that can be successful owning and operating large numbers of radio stations in small markets.

It is time for more learning from outside the radio industry. Starbucks ... Google ... FedEx ... Southwest Airlines ... Marriott ... We looked at these and other companies to determine what we could learn from their efforts to get sophisticated logistics right every time, innovate effectively and deliver a consistent product or service over and over again all over the world.

In short, look at what "best in class" companies are doing and apply their formulas for success to radio.

Super-Regional Clusters

We now believe the new small-market paradigm requires building Super-Regional Clusters.

Everyone understands the idea of a market cluster. A Super-Regional Cluster takes that a step further, chaining together multiple clusters within a tight geography with a regional management structure (one general manager, one engineer, etc.) for three to five clusters.

We also believe in centralization of administration and programming strategy, another synergy from our syndication experience. We've become accustomed to moving things back and forth with a large number of radio stations simultaneously. So we've been able to centralize functions like traffic and billing, human resources and more.

We now believe the new small-market paradigm requires building Super-Regional Clusters.

Programming also is centralized. Roughly 80 percent of all music-based radio stations fall into eight primary formats, with some regional variations. Again, achieving a synergy with our syndication experience, we've created those eight formats and we ultimately will deliver music, imaging and online strategy from our Music Row headquarters in Nashville. (*But* there's a big extra piece — stay tuned.)

Structured sales strategy

The new paradigm has to concentrate on centralized sales strategy. Small markets typically lack high-powered sales talent. What have we learned so far?

Identify great people (charismatic closers) who have a sequential mindset, meaning they'll follow the system rather than buck it. Give them a structure for success; for us so far that means laptops loaded with high-tech sales and training tools that are easy to use and look professional. But don't forget we're in small towns.

Don't get me wrong, you'll still kiss many frogs to find a prince or princess. But when you find that person, he or she will out-perform the level of natural skill and education typically found in small markets.

Rethinking 'local'

Here is where the new paradigm for

See DEBUT, page 45 ▶

World Radio History

GUEST COMMENTARY

Time for Radio to Get Back to Basics

Ditch the Playlists; Radio Must Revive Fresh, Compelling Content to Compete

by Omar Essack

I am quaking in my boots as I read about how new media platforms built on cutting-edge technology will mean the end of traditional media as we know it.

The zenith of this achievement appears to be the Google "pay-per-click" model. The moment that this took hold was when the doomsayers began to sound the death knell for traditional media.

I contend that when you have the kind of scale that Google has built, the click thing makes cents (pun intended).

However, advertising will translate into sales only when a customer is in the market for the product being advertised.

New platforms

I will listen to but not hear the advertisement for the plumber on the radio, just as I will see but not engage with his advertisement online until I actually have a plumbing problem. Only then will I use the plumber whose details I remember because he chose to let me know he exists.

So, while traditional media practitioners may appear to be struggling, at least we will never have to shrug our shoulders and say "Search me."

To get serious for a moment, though, as a way of hedging our bets in an era of hype about Web 2.0 and social networking, our businesses are embracing the advantages derivable from new platforms that allow us to deliver tangible results to advertisers.

Radio was once the ultimate connecting device. ... The radio station was the Facebook and MySpace of its time.

On-demand media is revolutionizing media consumption, changing the way consumers ration their time.

This is thanks to the incredible array of content platforms, which allow consumers to control their media experiences by searching for, reshaping and creating what they want at any given moment.

Much is changing but so much of what is new is a return to another time. Radio has always been interactive. Request shows are a precursor of the much-hyped "user-generated" activity.

Radio was once the ultimate connecting device. The intimate relationship between presenter and listener meant that emotional fulfillment came from a box. The radio station was the Facebook and MySpace of its time.

The author says the 'formaticians' reinvented radio as a jukebox, crushing the personality out of it and destroying its local character.

Then the "formaticians" reinvented radio as a jukebox, crushing the personality out of it and destroying its local character by networking, clustering and syndicating it.

The time has come for a push of the button to bring instant connection again — to plug you into your local neighborhood and not into an automated world of schedules and manufactured playlists and prepackaged, syndicated content. We need to return to a world of discovering new information, new music, new artists and breaking local news, mixing the familiar with the strange to create compelling content again.

Omar Essack

For the survival of any media on any platform, it is time to get back to basics.

Audience passion

The key element is the demand for engaging and entertaining content. Radio must confront the reality that formatted music and playlists are not going to retain or attract listeners.

Media consumers will need an invitation to enticing content. Appointment listening will be a key driver of conversion. Targeted content will have an increasing effect on listening patterns. And desirable content must be optimized for online search.

On the sales side, audience passion must determine prices.

Hence, for a show that evokes huge

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Debut

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small markets takes a gigantic twist from the norm: We spend a lot of time *localizing* the stations.

Our goal in centralizing programming strategy is to deliver the best-possible-sounding product. Back to learning from Starbucks; when you manage a Starbucks you don't have to worry about what the menu is going to be, who's going to supply the coffee or even how much to order. That's all done for you. A Starbucks manager concentrates on two things: hiring and training the best possible people for that particular Starbucks location, and making sure customers have the best possible Starbucks experience at that Starbucks location.

It's simple and it teaches us a lot about how to run a radio station.

We don't have traditional programming directors. We have a localization manager, whose job it is to take the format (music, imaging, etc.) and localize it, make it super-serve the audience of *this* radio station (i.e. weather, news and information, lifestyle tie-ins and more). We do it with a proprietary strategic planning process that has yielded fantastic results so far.

We put the overall sound of our stations up against any large markets, and yet they perfectly mirror the local surroundings, becoming vital to the listeners they serve, who listen more and in greater numbers, who subsequently generate more tangible results for our local advertisers, who in turn buy more advertising. We just had to re-think what "local" really means.

Advancements like HD Radio and radio's leadership in new media go completely unnoticed, and it's our own fault.

Staying faithful to the foundations of what drives local advertiser support — namely, results — we are adding the piece to the puzzle that perhaps our large-market corporate radio brethren lost sight of. In small markets we're playing the "results game," not the ratings game. Ratings never walked into an advertiser and bought something.

Get personal

So, aren't satellite radio, the iPod and the Internet *killing* your business? Been asked that a few times? I'm tired of it, frankly, and it reflects how terrible we are as an industry with our own marketing.

Advancements like HD Radio and radio's leadership in new media go completely unnoticed, and it's our own fault. We always took for granted that we were sexy; now we're middle-aged and realizing we have to work out and get our teeth bleached.

But that's okay. We're just quietly positioning to become the local new media sales force. After all, do you expect to see Google opening a field office near you anytime soon?

Google believes it can sell anyone anything anywhere anytime. Okay, but transactions are more personal in small markets. I make a point of visiting key clients whenever I'm in our markets because they like to know I know they're doing business with us — and I learn a lot from them. Our system evolves based on what I learn out on the frontlines with our people dealing with customers and listeners.

XM, Sirius, Google and the rest aren't going to have a local sales force in small markets anytime soon. So part of the new paradigm is embracing new technology and integrating new media into everything we do. It goes far beyond streaming our on-air signals too. It's going to have to go much further, and soon.

We've begun thinking about radio in two dimensions: on-air and online.

Why embrace new media? Because General Motors can buy Internet advertising from Google and cover the entire United States — but there is no real practical way for your local Chevrolet dealer to do the same. So by embracing new media *we* become the local new media sales force. And we're *not* giving it away as added value, either. We're selling it in combo, much like the early days of clusters with duopolies (yes, I'm that old).

Our business model is seeing good success but remains a work in progress. We learn more every day, and I suspect it will continue to evolve, including the new challenges it will face as we continue to grow.

We're not yet claiming victory in the race for a new small-market paradigm, but if it's a mountain we're climbing we can see the summit and we've got a flag in our back pocket.

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NewBay Media

Found in Translation

Likely AM Translator Rule Change Deserves Action

Back in the day, the notion that an AM station's signal might be rebroadcast on an FM translator would have been viewed as an idyllic fantasy that could occur only in some post-apocalyptic universe.

Of course, that was yesterday, and yesterday's gone.

As we have discussed in this space, the Federal Communications Commission has formally proposed a change in its rules that would permit such cross-service rebroadcasts.

In fact the Notice of Proposed Rule Making was released a year ago, following an NAB request in 2006, and the formal commenting opportunities closed in February. So the change has been ripe for action since then.

Depending on whom you talk to, we might see the new rules adopted in days, weeks or months — such scheduling predictions are difficult with any commission, and notoriously so with the current one. We hope this won't languish.

The smart money expects that the new rules (a) will be adopted eventually and (b) when adopted, will permit AMs to rebroadcast on FM translators as long as the translator's signal is encompassed within the lesser of the primary AM station's 2 mV/m daytime contour or within a circle of 25 mile (40 km) radius centered on the AM station's transmitter site.

This is not exactly a difficult bet to make, since the commission already is routinely granting such rebroadcast authority on an STA basis. (Need one? Just file an STA request on CDBS — making the necessary showing — and wait 8 to 10 weeks.)

The STAs are subject to the final outcome of the rule making proceeding, but it seems unlikely that the commission would bother to let dozens (if not hundreds) of AM licensees get settled in if it really thought there was a strong possibility that, in the end, those STAs would be yanked.

RW supports this development, and encourages the commission to formalize the change as soon as possible. This proposal has substantial upside, particularly for AM licensees with limited (or no) nighttime coverage — those licensees, and their audiences, can obviously benefit from the nighttime opportunities that will become available. And we can see no significant downside. The notion that programming which happens to originate on an AM transmitter should somehow be quarantined from FM translators may (and we use that term charitably) have had some regulatory basis decades ago, but in this age of media convergence, it makes little sense.

But when the FCC does formally codify FM translation of AM signals, the commission would do well to consider a number of conceptual conundrums that implicitly lurk in the proposal.

For example, an AM station with no nighttime operation will, we understand, be able to operate an FM translator full-time (so long as the AM station has been on the air within the last 24 hours). If that's the case, the translator will, in effect, be originating programming at night.

What, then, will be the translator's status? It will be licensed as a translator, obviously, but it will apparently not be subject to the program origination rules of translators. And while it might therefore more closely resemble a low-power FM station, it will also presumably not be subject to the non-commercial limitations of LPFMs.

It is not clear that the broadcast industry really needs yet another service classification, even though the AM-on-FM translator proposal could be said to create one.

The proposal also could create additional tension between translator and LPFM proponents. Several years ago it appeared that the commission had decided that LPFM interests should outweigh translator interests. While the resulting freeze on translator applications has in recent months been lifted, it is not clear whether that reflects any change in the seeming pecking order. But the AM-on-FM translator provision arguably would give at least some translators the ability to claim quasi-primary status, or at least some preference over "mere LPFM" folks. Is the commission prepared to address any secondary service turf wars that may likely erupt?

Another aspect of the proposal is that it would be limited to AM licensees who happen to own the FM translator on which their signal would be rebroadcast. The rationale for that limitation is not entirely clear. After all, if an AM licensee can better serve its audience by allowing retransmission on somebody else's translator, why should that be prohibited?

But while interesting, these are side issues. It's possible that the FCC will choose not to address any of these questions, instead opening the floodgates (well, opening them wider than the STA process has already opened them) for translator-owners-only and waiting to see what happens. That's probably fine, too — as long as the proposal is adopted and implemented sooner rather than later.

— Radio World

Basics

▶ Continued from page 45

listener reaction, the advertiser queues up to outbid others, fully aware that this content has a lifespan beyond its first airing.

It will be made available to download and share with consumers beyond the footprint of the station. It will live forever on the World Wide Web where, a dozen years after its first broadcast, search engines discover it anew.

Unlike the current scenario, premium rates are scattered throughout the day based on high-value content, exceptional listener response and the increased lifespan and reach achievable.

In a world of infinite choice, there is a view that consumers will control the media that they allow into their personal space.

The new consumers

My view is that too many choices result in too many superficial relationships. When I was younger, all I had was the state broadcaster in South Africa, SABC 1, and that was all I watched. Today, with 100 channels, I barely stay long enough with anything for an advertising impression to get through.

The majority of new media users aged less than 20 years old view advertising as an intrusion. They exploit technology to get what they want, and they are unwilling to pay for it. Content owners rely on advertising to allow content to remain free.

Suddenly it makes sense why we choose to eat out and why we get help at home. Sure, the room is never as clean as if we had done it ourselves but I am happy to compromise if I can do less and relax more.

The key element is the demand for engaging and entertaining content. Radio must confront the reality that formatted music and playlists are not going to retain or attract listeners.

But the new consumers do not want to watch sponsors make the content free by virtue of their sponsorship of the content unless it is "cool" and un-advertising like. And when the commercial is "cool," it is easy to forget what it is for.

A whole generation of platform hoppers and on-demand junkies will find when they grow up that the way they behaved in their youth was merely a result of a diet high in sugar. This is when they will discover the pleasures of reclining on a sofa with a drink, a newspaper and music from the wireless.

At some stage, all this self-programming of music and downloading and searching and endless activity is going to take its toll. Never underestimate the joy of having someone else do something for you. It is not always exactly as I would have done it for myself, but it makes life simpler and I can focus on the things I really want to do.

Omar Essack is head of broadcasting for Kagiso Media Limited in Johannesburg, South Africa, and chairman of PrimeTime Kagiso in Mumbai, India.

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E² Ethernet Audio Done Right

MEET THE SQUARE

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SQUAREs are totally scalable: use one as a standalone 8x8 studio or transmitter site router, with browser access from anywhere. Plug two together and have a standalone digital snake. Add a fanfree mix engine and build yourself a studio using analog and digital I/O SQUAREs.

All the power is *in* the SQUARE. Distributed intelligence replicates all configuration data to every unit. Profanity delay and silence detection are done *in* the SQUARE. Even virtual mixing (w/automation protocol) —it's *in* there; all with real front panel meters, 32 character status indicators and SNMP capability.

88D I/O: 8 digital inputs and outputs. You can headphone monitor and meter any of the SQUARE's inputs or outputs in real time. The 32 character display gives you all the information you need about your audio and system configuration. And because you can operate in either 8-channel stereo or 16-channel mono mode, 16 channels of metering are provided.

88E DIGITAL ENGINE: Just plug an E-SERIES control surface or GLASS E computer interface into this engine and get all the mixes, mic and signal processing you need. Fanfree, so it can stay in the studio where it belongs.

88A I/O: 8 analog inputs and outputs. You can bring a new SQUARE up in seconds and of course use the front panel encoder for your X-Y control. Front panel status LEDs give you continuous link, status, and bit rate information as well as confirmation of any GPIO activation.

Because the E² system doesn't rely on a third party GUI, tech support is straightforward (and 24/7). Likewise, system operation doesn't require external PCs for continued full functionality. Best of all, 1 Gigabit protocol eliminates the latency and channel capacity restrictions associated with older technology.

88AD I/O: 4 analog plus 4 digital inputs and outputs—perfect for small studios or standalone routing.

88 I/O CONNECTIONS: E² has both DB-25s for punchblock interface and RJ-45s for point-to-point interface. All SQUAREs have 12 individually configurable opto-isolated logic ports that can be either inputs or outputs.

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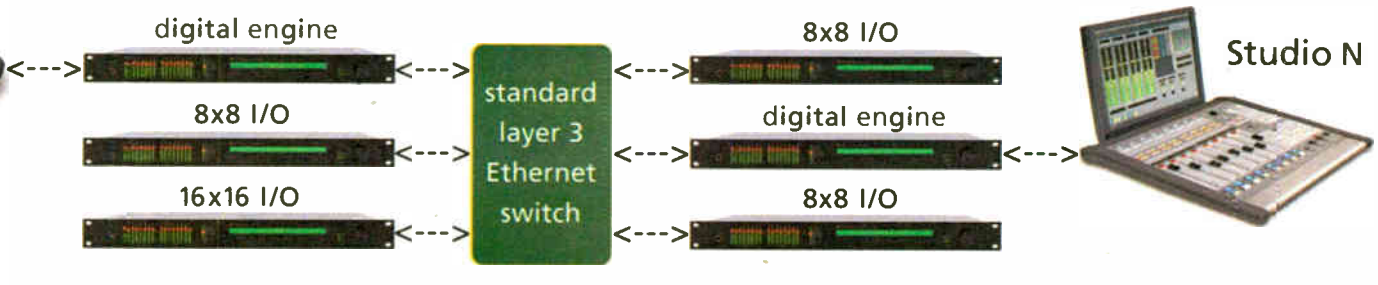

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