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World Radio History

Radio, In-Vehicle CE Guidelines

As dashboard becomes more complex, NHTSA sees AM/FM as familiar interface

BY LESLIE STIMSON

WASHINGTON — The National Highway Traffic Safety Administration has released visual-manual driver distraction guidelines for electronic devices in vehicles. The NHTSA, part of the Department of Transportation, issued these nonbinding, voluntary guidelines to promote safety by discouraging the introduction of “excessively distracting devices in vehicles.”

They apply to original, in-vehicle electronic devices used by the driver to perform secondary tasks — the driver looks at a device, manipulates a device-related control with his or her

Where should the 30 character limit be applied to this display?

Source: NHTSA

This slide from Toyota discussed a potential 30-character limit based on Japan Automobile Manufacturers Association guidelines. NHTSA ultimately replaced a proposed character limit for displayed text with a recommendation against displaying any text from books, periodical publications, Web page content, social media content, text-based advertising and marketing or text-based messages.



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hand and/or watches for visual feedback. Communications, entertainment, information gathering and navigation fall under this umbrella.

Although the guidelines apply to new technology, they also are applicable to common electronic devices referred to as “conventional information or communications systems,” such as AM/FM radios, satellite radios, CD players, cassette players and MP3 players.

The NHTSA believes some secondary tasks interfere with a driver’s ability to control the car safely. Two examples would be displaying video or scrolling text. The guidelines recommend these

devices be designed to “lock out” the driver at a certain point if the vehicle is moving.

The guidelines include a test for manufacturers to measure eye glance behavior during those tasks, and determine whether it’s safe to perform such actions while driving and whether equipment necessary to complete the tasks should be modified. You can find the 281-page guidelines on the NHTSA website www.nhtsa.gov and on DOT’s distracted driving website distraction.gov. Radio is first mentioned on page 52.

The NHTSA guidelines are based on certain fundamental principles. NHTSA believes the driver’s eyes should be looking ahead at the road and be able to keep “at least” one hand on the steering wheel while performing a secondary task. The distraction induced by any secondary task performed while driving should not exceed that associated with a baseline reference task, like manual radio tuning.

Any task performed by a driver should be interruptible at any time, and the driver, not the system/device, should control the pace of task interactions, according to NHTSA.

Activities the NHTSA considers distracting include displaying video not related to driving, automatically scrolling text, large amounts of static text for reading and manual text entry. It does not mean to block simple map displays and related text, so long as the material is “displayed in a safe manner.”

COMPLEX INTERFACES

Congress is looking at the future of the car in general, and at the dashboard specifically.

“The first thing someone in a car should do is drive,” said David Strickland, administrator of the National Highway Traffic Safety Administration, during a recent Senate Commerce Committee hearing on future car technologies.

(continued on page 5)

MORE DASHBOARD

This is one in a series of articles about radio’s role and future in the evolving automobile dashboard. To read other articles visit <http://radioworld.com/dashboard>.

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Communicators, Not Communicating

Another voice heard from within the wilderness of emergency alerting

Several recent articles in Radio World have made reference to the challenges of EAS, CAP and alerting in general.

One reader, a former state emergency communications official who agreed to let me publish these comments provided I withheld his name, wrote to explain some of his frustrations. I thought I'd share them. He started with the topic of cellular alerts:

"My iPhone went off again this morning with an EAS message warning about flash flooding. Try as I may, I still can't discover who is sending these alerts," he began.

"Don't get me wrong; I'm glad someone is making progress in the cellular EAS department. I just think it's odd that no one at our state's office of emergency management or the state broadcast association has a clue who is actually making the NWS-AT&T interface and 'pushing the button,'" he wrote.

"I was not surprised when I read a question in one of the tech columns in the newspaper about how to disable the smartphone alerts, specifically, the Amber Alerts. I'm embarrassed to admit that I didn't even know that

my iPhone 4S had that option in the Settings menu! It must have been quietly added in an upgrade.

"Having borne the brunt of more than a few irate phone calls from state residents who 'don't want to be warned,' I think it's ironic that some members of the public don't want to be disturbed by Amber Alerts or flood warnings, yet if you *don't* warn them, they're the ones who are the first to get 'lawyered up' and go after the state for not informing them!"

He then moved on to a related topic that is perhaps more directly relevant to our readers. (Remember, this is a former state emergency communications official, someone familiar with the interaction of broadcasting and government.)

"Paul you asked me about state-level integration of CAP servers. I can't tell you very much about CAP servers because FEMA/DHS never gave me or the state SECC any information to begin with!

"Shortly after an EAS equipment vendor installed special EAS receivers that were supposed to work through the PBS satellite, FEMA held a national test. The equipment was certified,

and then almost immediately forgotten. Periodically, some Beltway Bandits came around to survey and inventory the equipment, but it was never used again. The local broadcasters and I kept hearing about these so-called 'CAP servers' that each state OEM was obliged to install, but absolutely no information came to either of us as to what it was or how it was supposed to be implemented," he continued.

"More often than not, communications people are the worst communicators. FEMA is such a massive, burdensome organization that they can't respond to even the smallest of issues. Putting out something as simple as an informational packet about CAP, or hosting a mandatory videoconference for us to watch proved to be too difficult for them.

"While I am now officially out of the loop, I have to say that, speaking solely for myself, I still have no clue what it is, how it's supposed to work, what each state's responsibility is, or how much cost outlay is involved. How was I expected to go to my chain of command with so nebulous a plan?"

Sobering comments from someone you'd expect to be well informed about a state's alerting infrastructure. If nothing else, he reinforces for me the sense that in certain jurisdictions, not all "hands" are aware of what other hands are doing. Are his comments fair? Share your own thoughts about state-level integration of new alerting tools. Write to me at

FROM THE EDITOR



Paul McLane

radioworld@nbmedia.com.

Congrats to Clear Channel Media and Entertainment for implementing a couple of great ideas to help develop engineering talent, a common topic on this page.

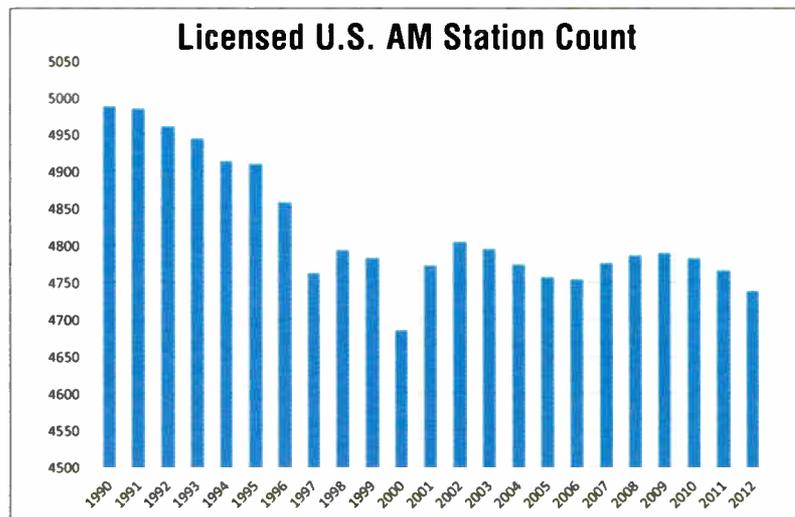
The Electrical Engineering Co-op Program, which completed its third year, gives a dozen engineering college students a chance to learn in and work at Clear Channel stations, alternating semesters in the program and then returning to school. Two will earn \$5,000 scholarships.

The separate, new Market Engineering Manager Development Program is described as an "elite internal engineering development program." It is a two-year gig that includes a personalized curriculum, one-on-one coaching, education and testing. First-year graduates include David Grice, Chris Abbott, Andy Mika and Jake Wyatt. The newest class will, among other things, work to help build a studio at Cincinnati Children's Hospital in partnership with the Ryan Seacrest Foundation.

In a company announcement, Jeff Littlejohn, executive vice president of engineering and systems integration, said the company "is making a strategic investment in the future of broadcasting engineering," and hopes these programs will help attract new engineers while nourishing current ones.

AM HEAD COUNT

In our page 1 story this issue, Randy Stine explores discussions about options to help AM. I was curious about trends in overall station count, so we created this chart showing the number of licensed AMs in the United States over recent years. Long term, the FCC data show a gradual decrease from levels of the early 1990s. (Note that the vertical axis starts at 4,500.)



Based on FCC data at end of each year or nearest date available.

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SEPTEMBER 1, 2013

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DISTRACTION

(continued from page 3)

The NHTSA wants drivers to be able to accomplish tasks quickly, to avoid distraction — “the equivalent of handling a radio in a car,” Strickland said.

However, even these conventional systems can potentially distract drivers and present a safety risk, and, as in-vehicle systems continue to offer more functionality, the interfaces for these conventional systems could become more complex and potentially more distracting in the future, according to NHTSA.

New guidelines are needed to incorporate the latest driver distraction research since the recommendations were last updated seven years ago, says NHTSA. Some of the recent research suggests improvements can be made. For example, the eye glance test protocol uses radio tuning as a reference task to establish the maximum recommended threshold for what it calls “Total Eyes-Off-Road Time” or TEORT, to complete an action. New research results suggest that the best TEORT associated with radio tuning should be 12 seconds; that’s more stringent from the previously accepted 20 seconds.

Recent NHTSA research found “substantial” differences in Total Eyes-Off-Road times for drivers tuning a radio depending on what vehicle model was used. During tuning testing using five vehicles, some with knob and others with button tuning, Total Eyes-Off-Road times ranged from 8 to 15.8 seconds.

NHTSA is concerned that the driver interfaces of conventional electronic devices can, with modern electronics, be made far more distracting than they

NEWS

have been in the past. NHTSA does not believe that, for example, a future in-vehicle radio that shows video clips as it plays music should still be considered in conformance with the NHTSA Guidelines simply because a radio is a conventional electronic device.

During the hearing, Committee Chairman Jay Rockefeller, D-W.Va., expressed concern about the distractions inherent in turning cars into virtual “rolling offices.” Strickland said NHTSA does not accept that concept; rather, NHTSA wants to lock out such activities as having the driver read large amounts of text on a screen. It’s okay to have that text transcribed and read

to you, Strickland explained, because that’s “like a radio.”

Asked for comment, Valerie Shuman, vice president of industry programs for the Connected Vehicle Trade Association, said in NHTSA’s ideal world, people would just drive. However, realizing there are distractions, NHTSA tries to measure what looks to be the best possible set of metrics.

“I think radio gets used as an example because the interface is something people are extremely used to ... It doesn’t take much time to hit the knob on a radio,” said Shuman. “You aren’t looking at this big, fancy screen” or “clicking through 17 layers of functionality.”

NEWSROUNDUP

CELLPHONE: Sprint will begin installing the NextRadio application in several smartphone models over the coming years. The first two models to include the FM app, the HTC One and HTC EVO 4G LTE, launched Aug. 16 at www.sprint.com. The NextRadio app delivers an interactive artist and ad experience to FM-enabled smartphones.

AM TOWERS: The FCC clarified that that any construction near AM towers that distorts the antenna pattern by more than 2 dB must be corrected by the offending party. The agency also designated “moment method” computer modeling as the primary way to determine whether a nearby tower affects an AM radiation pattern. The industry told the agency such modeling is more efficient, less time-consuming and costly than directional AM field strength proofs.

TIS: Strictly travel-related information is allowed on Travelers’ Information Stations, the FCC specified. The 10-watt TIS systems operate on 530 kHz on a primary basis and on a secondary basis in the 535–1705 kHz band. TIS operators and sponsors had asked the commission to broaden the allowable content and eliminate the restriction that confines transmission sites to transportation-related areas. The agency also left site restrictions in place to protect full-service AMs from interference; but TIS will be allowed to simulcast, which licensees wanted to reduce operating costs. The changes are effective Sept. 18.

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AM REVITALIZATION

(continued from page 1)

all, while among persons aged 12–24, AM accounted for only 4 percent of listening, compared to FM's 96 percent.

Data from BIA/Kelsey show that revenue at U.S. AM stations has been mostly flat in the last few years, but down over a longer period.

Annual revenue for commercial AMs was around \$2.9 billion in 2006 prior to the recession, but stood at \$2.1 billion in 2012. (AM was not alone in this; FM U.S. commercial radio, which brings in far more money, saw revenue fall more sharply in that period, from \$11 billion to approximately \$8.7 billion; however FM's recent trend line is up; see accompanying chart.)

Yet while flagship AM stations like WCBS or WINS in New York, KFI in Los Angeles and WBBM in Chicago remain multimillion-dollar billers, according to BIA/Kelsey, stories abound of the struggles of other AMs, especially — though not strictly — in smaller markets.

Another possible measure of the health of the band is station count. There are fewer AMs on the air in the United States compared to 2008, according to FCC data, though not by much — 4,786 five years ago compared to 4,734 in the latest data. Longer term, FCC figures show a gradual decrease from levels of the early 1990s; see chart, page 4.

Observers also talk about stations that have gone silent. A Radio World review of the FCC database, which lists stations that have been dark for at least two months, indicates the number of AM stations off the air has remained steady since at least 2009. There were 83 AMs silent at the end of July, according to the commission. Radio World reporting about this topic revealed some licensees turn off stations as a means to conserve cash.

Data about silent stations must be used with caution, experts say, because for any reporting period, some may fall off the list because licenses were cancelled, others may return to air and still others may be added to the list for the first time. (By law, a broadcaster's license is cancelled if a station remains off the air for more than 12 months, according to the agency.)

Another anecdotal indicator of AM's

health: The value of some licenses is such that, in a few cases, corporate owners felt it made more sense to donate stations than continue to operate them. A number of AMs have been donated to the Minority Media & Telecom Council as part of its Media Brokerage program. MMTC officials said the organization has sold or is in the process of selling seven AM stations donated by Clear Channel Communications in 2010.

MANY IDEAS

AM broadcasters have been seeking cures for the perceived downturn.

More than 500 AM stations now rebroadcast on FM translators, according to the latest quarterly data; and the FCC is considering allowing more AMs to do so.

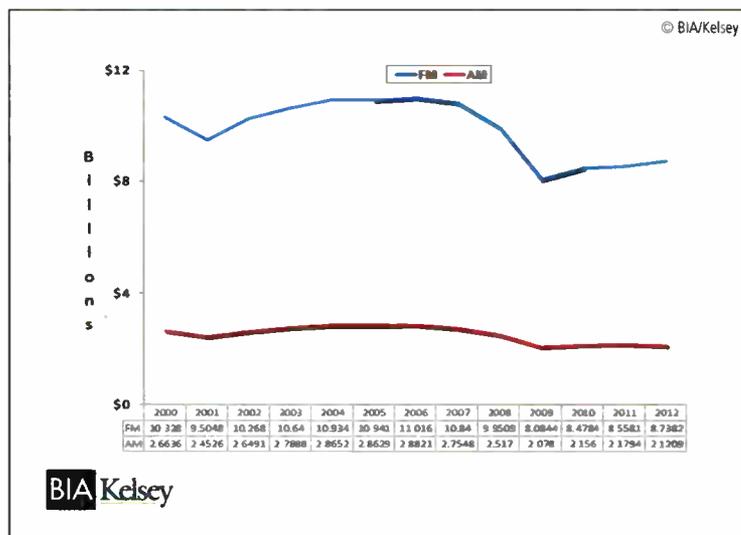
Passage of a pending rulemaking to eliminate the so-called "ratchet clause" also would help, believe AM experts.

The FCC introduced the ratchet clause in 1991 with hopes of reducing nighttime interference from modified AM facilities. The clause requires AMs that want to modify their signals to demonstrate an overall reduction in the amount of skywave interference they cause to certain other AMs. Existing signals are now expected to provide additional protection to the newer ones, even when there's a chance for the existing signal to move to a better site or improve its directional pattern.

Many broadcast engineers say this clause hurts AMs that wish to improve their nighttime signals.

Further, in mid-August, the commission clarified rules concerning construction near AM towers to make it clear if such construction distorts the antenna pattern of an AM in excess of 2 dB, the offending party must correct the distortion. The agency also approved moment method computer modeling to demonstrate that certain AM directional antennas perform as authorized, a move that will save broadcasters time and money compared to traditional AM field strength proofs. A coalition of broadcasters, consulting engineers and equipment manufacturers sought the changes to "harmonize the disparate treatment" between broadcast and wireless entities, according to the agency.

And AM is getting some attention at the top of the agency. FCC Commissioner Ajit Pai, who has become something of a champion for AM, has taken a visible role over the past year; and he told broadcasters at a



AM and FM Radio Station Revenues: 2000–2012

meeting at KDKA(AM) in Pittsburgh in July that he's had "very productive discussions" with Acting Chairwoman Mignon Clyburn about AM revitalization and is "hopeful we'll see progress in the coming months."

yet," he said.

NAB Labs has tested the various modes and coverage area of an all-digital AM band, according to Downs, referring to testing on expanded-band station WBCN(AM), Charlotte, N.C. Initial



Commissioner Ajit Pai visited CBS Radio Pittsburgh to conduct a radio roundtable with CBS and other owners in western Pennsylvania. From left: Jim Graci, program director KDKA(AM); Michael Young, CBS Radio Pittsburgh senior vice president and market manager; Pai; Ryan Maguire, program director KDKA(FM); and Mark Anderson, CBS Radio Pittsburgh operations manager and program director for WBZZ(FM) and WDSY(FM).

An FCC spokesman said Clyburn has asked the Media Bureau to look at possible rule changes to help AM broadcasters. AM "is on the list of issues we are considering but we have not yet made any recommendations to her or the full commission," according to the spokesman.

Talks between AM advocates and the FCC are "ongoing through the usual channels" like NAB and the Minority Media & Telecom Council, according to one source familiar with the discussions but not at liberty to discuss them publicly.

"We have reached the end of what we can do to fix AM," said NAB AM Radio Task Chair Ben Downs. "The

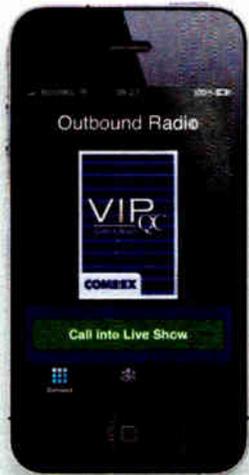
results were described as promising, and NAB seeks more AM test stations.

However, not only will more testing be needed, but so would a commitment from manufacturers to increase the availability of digital receivers for the home, according to Downs. "As it stands today, there are millions of HD-equipped radios in cars that are compatible with an all-digital AM band, but few home receivers."

Any proposed *mandate* for industry conversion to all-digital AM would likely be contentious, due to the capital cost to owners as well as the resulting

(continued on page 8)





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AM REVITALIZATION

(continued from page 6)

obsolescence of millions of AM analog receivers in U.S. cars, bedrooms and kitchens.

The biggest worry for Downs is “a schedule at the FCC based on the usual regulatory speed.”

Regardless of how swiftly the commission acts, observers who spoke to Radio World for this story agree that the band needs help.

AM rescue plans have been discussed since at least 2009 when the MMTC released a plan that included relaxation of community coverage and AM signal contour rules and other technical measures. Its petition for rulemaking gained the support of CBS Radio and Clear Channel at the time.

MMTC “is still waiting for the commission to act” on the petition, according to MMTC co-founder David Honig. “Commissioner Pai has it and, I understand, is encouraging the agency to take up some of our proposals. He has been a great champion of AM radio and of small and minority broadcasters,” said Honig.

An across-the-board power increase, proposed to the FCC by broadcast engineer Richard Arsenaault in 2010 but dismissed by the commission without public comment, would have been a good place to start, several AM proponents said. His proposal didn’t specify an analog or digital rise. Arsenaault believes a power increase is the only way to “offset coverage losses resulting from the ever-increasing amount of interference from digital and other electronic devices.” But other experts believe the drastic measure is likely a “non-starter” because of the potential for increased interference to other stations.

“Realize that an across-the-board power increase requires international negotiations with Canada, Mexico and other treaty nations. Many of the AM stations in Canada have migrated to the FM band, which I suspect could simplify negotiations,” according to Arsenaault.

Arsenaault said he would entertain re-petitioning the commission with the request but “only if the FCC is ready to entertain the concept and open it up for public comment.”

POWER INCREASE

Opinions vary among other technical observers contacted by Radio World for this article. Regardless of which measures the commission eventually may adopt, though, the transition to an improved service through technical changes approved by the FCC likely will take time, something some licensees can ill afford, several said.

Glen Clark, president of Glen Clark & Associates, believes an analog overall power increase would go a long way in overcoming electronic fluorescent light noise and high ambient noise caused by buildings full of Cisco network infrastructure, which emits RF.

“And we have proof that it works from the past experience,” he wrote in an email, when Class D stations “got a 4X increase in nighttime power.”

The bad news about a power increase “is that 50 kW is written into” the North American Radio Broadcasting Agreement, “so stations like KDKA, WFAN, WJR and those guys won’t get anything from this approach,” according to Clark. He also doesn’t believe a power increase would help all AM owners.

Meanwhile, a 2009 proposal from the Broadcast Maximization Committee to create a new broadcast band using TV Channels 5 and 6 spectrum could be a big boost for AM broadcasters, supporters said.

For the BMC proposal to work, new receivers would

need to be introduced to account for AMs that want to move to the FM band, experts said. Clark believes the BMC proposal “fails the logic test” because of the lack of such an installed receiver base.

Some broadcast engineers estimate it could take 15 to 20 years for new receivers to penetrate the market.

The use of FM translators by AM stations has certainly helped some small-market AM stations nationwide, but the lack of available translators means demand will never be met in even the rosier of scenarios, said Jack Mullaney, president of Mullaney Engineering Inc. “In addition, in most major markets the FM band is a mess and so congested that there will never be a new FM translator created.”

Mullaney, a member of the Broadcast Maximization Committee, sees re-purposing of TV Channels 5 and 6 as the only real solution to help AM stations survive in the long run.

“We put forth a plan in which most, if not all, of the current AM band could migrate and operate as a digital radio facility. Certainly, some AM owners will elect to remain in the AM band,” Mullaney said. “Unfortunately, the re-purpose of TV 5 and 6 is frozen in time, waiting for the FCC to decide how they plan to kill over-the-air television with the reverse auction” and spectrum re-packing, he said.

PROGRAM CONTENT

The expected flood of low-power FM applicants from the new filing window expected this fall will seriously limit FM translator filing opportunities for AM stations in the foreseeable future, according to Clarence Beverage, president of broadcast engineering consulting firm Communications Technologies.

Beverage, who also is a BMC member, said an across-the-board power increase for AM isn’t a viable solution for multiple reasons, including increased interference from first adjacent channels.

Night skywave interference is “the biggest issue affecting AM operation,” Beverage said. “Moving stations to TV Channels 5–6 spectrum solves that problem. However, that would have been much simpler to do before the FCC began [discussing] the DTV repacking process.”

The exclusion of AM from discussions about adding broadcast radio reception to cellular phones has been noted by some supporters of the band.

“AM just doesn’t work well in the miniaturized cell phone world. The wavelength is just too long,” said Bert Goldman, president of Goldman Engineering Management and a BMC member. “Decent reception would be very hard to achieve. Substandard reception is already hurting the industry.”

In addition, other broadcast engineers note that cell-phones emit radio frequency that causes interference, which would render AM reception essentially useless.

Nonetheless, AM has some options, Goldman believes. In addition to the possible migration to Channels 5 and 6, one option being reviewed is full-digital operation of AM stations, as referenced by Downs above. However, nighttime skywave interference often prevents AM stations from having uniform, 24-hour coverage that stations in the VHF band enjoy, experts said. While the discussion about full-digital is a good thing, Goldman said, such operation wouldn’t overcome that skywave interference issue — and would leave the station with no way to serve existing listeners while waiting for receivers capable of decoding the all-digital AM signal to penetrate the market. And while some experts support allowing more AMs to operate on FM translators, Goldman sees that as a “small” short-term fix.

Most industry discussion has focused on possible



Glen Clark is one of the consultants commenting in this article. Asked for photos of AM projects, he shared this. Clark created an upgraded antenna design for Disney-owned WMVP(AM), Chicago in 2006. New antennas replaced a legacy three-tower array dating to the 1940s.

technical or regulatory changes. Comments by those outside of radio, and some within, tend to focus on programming considerations.

“Listener indifference comes not from technological changes but from programming ones,” wrote Daniel Flynn in a recent *American Spectator* article that ruffled some industry feathers. “Calcified formats, sonic limitations and automated programs, more so than any geriatric host, has aged AM out of the demographic targeted by advertisers,” wrote Flynn.

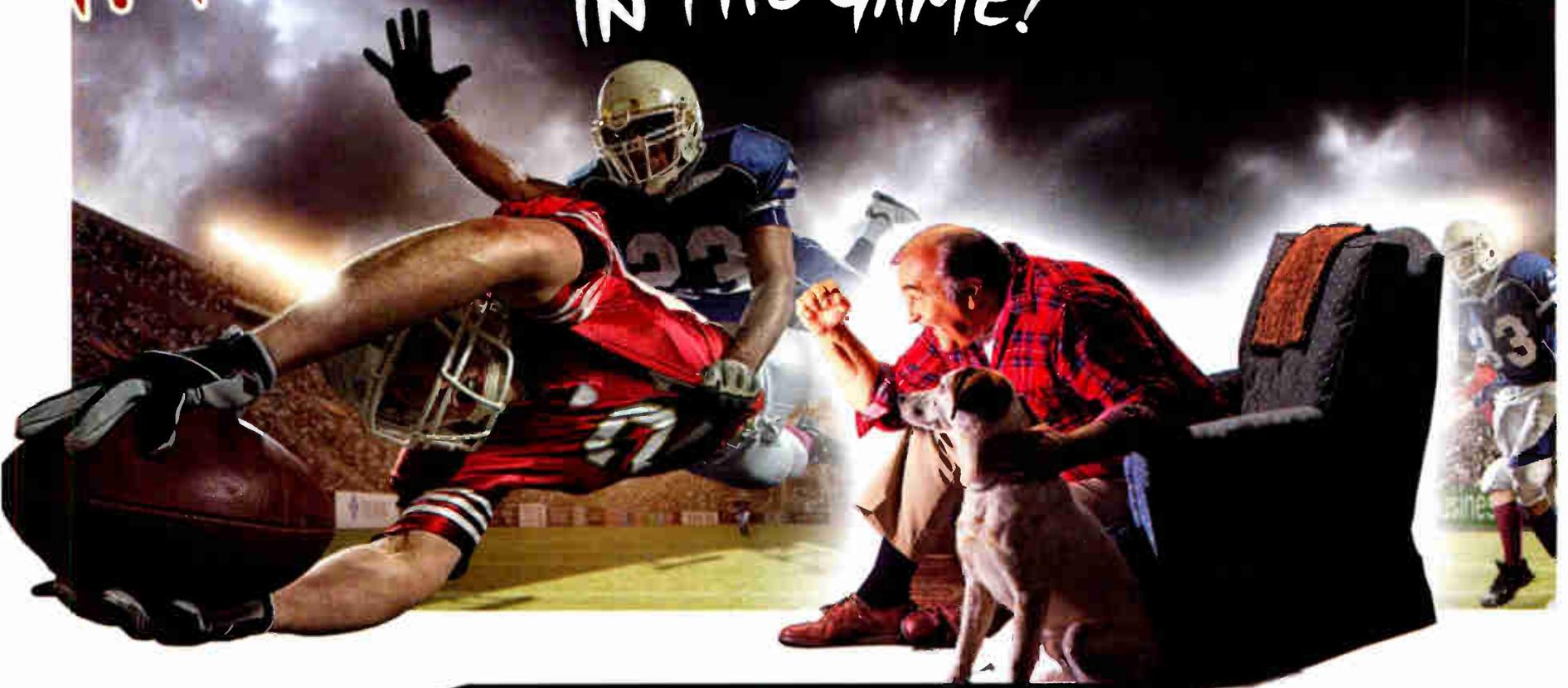
Demonstrating that even AM broadcasters don’t agree whether there’s a crisis, Southern California Broadcasters Association President Thom Callahan responded to that article in an opinion piece for *LARadio*, “AM Radio Will Grow and Change, Just Like America.” He sought to counter the perception that the senior band is in decline, writing: “AM radio is NOT dead.”

Listenership for 22 AMs in the Southern California market has shown only a slight drop over the last five years, at “3,319,400, a loss of only 466,900 listeners” through second quarter 2013, he wrote. And he emphasized the evolving nature of AM programming. In Southern California, “there are eight Asian AM radio stations programming in five different dialects to over 2.5 million Asian Americans, all on the AM dial,” according to Callahan.

“Had Mr. Flynn consulted with us prior to publishing his blog, we would have urged him to focus his attention on the sweeping ethnic and demographic changes happening now in America and how AM radio will directly benefit from those changes, as it has for the past 100 years.”

Radio World News Editor/Washington Bureau Chief Leslie Stimson contributed to this report. For a list of recent articles about AM revitalization, visit radioworld.com/am.

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Believe It or Not, Cold Weather's on Deck

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WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

The year is flying by, and even though you may still be in end-of-summer mode, many areas of the country will be experiencing snow sooner than you realize (or want to think about). Snow and ice are a pain for anyone, but especially if you maintain satellite dishes. So take advantage of the crisper fall weather and wax the surface of your satellite dish to make snow removal easier.

My preferred choice is marine wax. If your dish has a cover, however, application of a waterproofing compound is a good call, too. A popular waterproofing spray for camping is Kiwi Heavy Duty Water Repellent. You'll find this product at most sporting goods stores, or find a link to information at radioworld.com/links.

The waterproofing compound helps guard the cover from freezing. After applying this or wax, it's time for some instruction. Your on-air staff needs to know how to remove the snow properly, sweeping it out and not deforming the dish in the process. In the case of the dish cover, making sure no one tears the fabric.

Explain that the satellite signal will be lost if they bang under the dish to get the snow out. Rough treatment is not needed, especially when you have waxed the dish so the snow comes off easily. A long-handled squeegee works well, and the rubber edge will help minimize any damage to the dish as it is swept through the parabola. Periodic sweeping of the snow eliminates a large amount of snow from forming, in which case the weight can deform the dish.

Aaron Read handles technical matters for Rhode Island Public Radio, an NPR affiliate. They have the standard 3.8m C-band downlink, used for reception of public radio programming. However, due to limitations at his studios, they had to locate the dish at their North Providence transmitter site, about 3 miles away.

That has been problematic during the frequent snowstorms in Providence, as it doesn't take much ice or wet snow to block the signal, even with a dish cover. Typically stations have a staff member on-call to physically sweep the snow off the dish cover, but that's not practical for Aaron's station, since the dish is located at a remote site.

Your on-air staff needs to know how to remove the snow properly, sweeping it out and not deforming the dish in the process.

Fortunately, the dish is only 10 feet from a two-story transmitter building, with a large, forced-air furnace to heat the building. Aaron cooked up a system to route the heated air from the furnace out to the dish, circulate it in the space between the dish cover and the dish itself, and return the air back to the building in a "closed loop" to increase efficiency and decrease dirt from being sucked into the building.



Fig. 1: Here is Aaron Read's homebrew dish heater.

The idea is that the heat inside the space will melt any snow or ice attached to the cover, and wax on the cover lets it slide right off.

It took a lot of experimentation and more heat than Aaron had anticipated. Originally he had hoped that ambient air, drawn from near a ceiling heat vent, would be sufficient to melt the snow, but it wasn't even close.

Eventually Aaron ran a six-inch-diameter, heavily insulated dryer vent hose; and connected it directly to the main hot air vent output of the furnace, raising the air vents to 130 degrees Fahrenheit and providing a much higher CFM — roughly 800 — out to the dish. (CFM stands for cubic feet per minute, a term used to measure airflow.)

The run is 50 feet to the dish (with an in-vent 300 CFM vent fan halfway through at the building wall), and through a reinforced hole in the dish cover. On the opposite side of the cover is another reinforced hole with a 25-foot insulated vent tube, six inches in diameter, and another 300 CFM vent fan sucking air back into the interior of the building.

This project was a major tradeoff in cost vs. expectations. Aaron could have spent \$10,000 to \$16,000 for a proper dish heater system, which would have a set level of expectations from the get-go. Instead, he spent less than \$2,000 (and \$500 of that was for a contractor to bore two holes into the building's exterior wall, which was made of concrete blocks). The only downside to this operation was that it took several weeks of trying new configurations — and waiting for snowstorms — to test each configuration.

His only major change would be to center the inflow vent on the dish cover at the bottom, and place the return at the top. The dish is mounted on the side of a hill, and it was logistically impossible to do that.

In the end, though, it was sufficient to maintain service even during "Snowmageddon" in February this year, when whiteout conditions and snowfall rates exceeded two inches per hour. In other words, the project was a success.

Aaron's finished product can be seen in Fig. 1. Reach him at friedbagels@gmail.com.

(continued on page 12)

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'Transforming the Art of Community Radio'

Highlights from the
38th Annual NFCB Conference

BY JENNIFER WAITS

When you travel to enough radio conferences, it's a treat when one happens to take place in your own city, so I was happy to hop on BART this past May to attend the 38th annual National Federation of Community Broadcasters conference in San Francisco.

A range of community, public and college radio staff and practitioners travelled from all over the United States for the event. On the first day alone, I met people from as far away as Maine, Alaska and Guam, and ran into friends from all over California. Some were from tiny community-oriented stations, others were from major public radio affiliates, and some hailed from online-only stations with big FM dreams.

During her opening remarks, NFCB Vice President Ginny Berson surprised many of us when she announced her pending retirement from the organization. "Community radio faces some huge challenges,"



Photos by Jennifer Waits

Peeking through the KALW 'Hear Here' exhibit.

Community radio faces some huge challenges ... In spite of the difficulties, so many of you find a way out of 'no way.'

— Ginny Berson

she said, following with praise for the passionate people who are keeping community radio alive. "In spite of the difficulties, so many of you find a way out of 'no way.'"

This theme of perseverance against all odds was present throughout the conference. Despite the paucity of economic resources and the ever-changing politics inherent in non-profit organizations that rely mostly on volunteer labor, non-commercial radio can also be a locus for creative and, some might even say, revolutionary programming.

This year's conference used "transformation" as its overarching theme, and numerous presentations touched on that topic. During the lunchtime panel titled "What is the Future of Community Media and How Do We Get There?," Sue Schardt from the Association of Independents in Radio said, "Transformation is not linear ... Change comes from the outside."

A few blocks from the conference site, at the San Francisco Museum of Modern Art (SFMOMA), the Kitchen Sisters, who produce the "Hidden Kitchens" radio series for NPR, spearheaded a live art event in conjunction with their new series "The Making Of..." Produced with KQED(FM) and AIR, the series is a community story project that features local artisans talking about their work (including such pieces as a submerged turntable, a karaoke ice cream truck and mushroom furniture).

During NFCB's opening reception hosted by San Francisco community/public radio station KALW(FM), the intersections between radio, community storytelling and public art were on display. As attendees approached the room that housed the reception, they were invited to walk through KALW's "Hear Here" exhibit, which showcased recorded stories from people in different neighborhoods in San Francisco and Oakland. The large, tunnel-like pieces (HEAR and HERE) had been crafted with cardboard.

(continued on page 14)



The theme of this session: 'It's Not Brain Surgery.'

WORKBENCH

(continued from page 10)

Now's a good time to inspect the outside of your site before winter arrives. Even if you aren't using a dish, you never know when programming will want it pressed into service. So, things like the open feed in Fig. 2 should be corrected. Terminate the coax so that the connector can be re-used, and waterproof the connector, even if it's with electrical tape. At the very least, affix a heavy plastic bag over the feed horn assembly to keep it dry.

Contribute to Workbench. You'll help your fellow engineers, and qualify for SBE recertification credit. Send Workbench tips to johnpbisset@gmail.com. Fax to (603) 472-4944.

Author John Bisset has spent 44 years in the broadcasting industry and is still learning. He

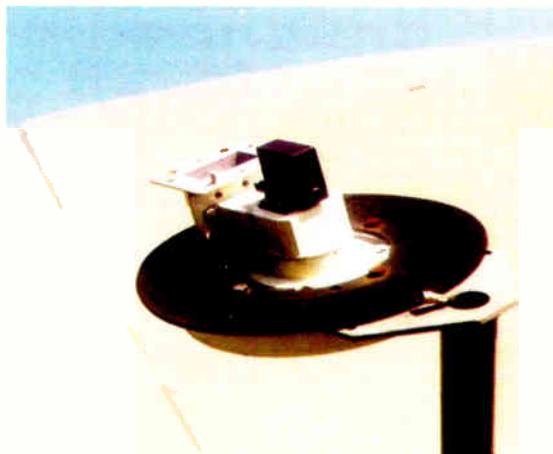


Fig. 2: Keep your eyes open for potential trouble spots.

handles West Coast sales for the Telos Alliance. He is SBE Certified and is a past recipient of the SBE's Educator of the Year Award.

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...in this format
...indistinguishable
...of the original CD.
—Zack Stern

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Let's carry on!

Cue the Scream

Pretend an alligator just bit off your arm. Now scream. That's what a voice actor did to overdub a shriek for the 1951 film *Distant Drums*. Little did he realize he was making cinematic history. Over the years, audio engineers have reused the so-called Wilhelm Scream in dozens of films, making the girlish screech a punch line in the industry. "It's an inside geek joke among sound designers," says Matthew Wood of Skywalker Sound—one that's shown up in everything from *Star Wars* to this year's *Transformers*. Find out below where to hear the shrill AHHAHHHH!—then go experience Wilhelm online at wired.com/extras. —JAMES LEE

Where to find the famous shriek



1951
Distant Drums
TIME 00:45:05
The movie that started it all. A cowboy wanders too close to a swamp. An alligator chomps his arm. A scream is born.



Star Wars TIME 01:28:35 Just before Luke and Leia swing across the bottomless shaft in the Death Star, Luke blasts a Stormtrooper, who tumbles to his Wilhelm-enhanced death.



Reservoir Dogs
TIME 00:20:29
Mr. Pink knocks over a pedestrian while being chased by the cops.

Raiders of the Lost Ark
TIME 01:23:57
Commandeering the ark-carrying truck, Indy sends a yelping Nazi to his doom.

Willow TIME 00:53:18
Madmartigan in drag uses his mace to thump a carriage driver. The guy riding shotgun goes flying.



Toy Story TIME 00:27:14 In Woody's jealous rampage, Buzz Lightyear is bumped out the bedroom window.



Lethal Weapon 4 TIME 00:05:06
A bulletproof bad guy uses a flamethrower to torch everything in sight. Riggs shoots his fuel tank, rocketing him into the air.



Transformers
TIME 00:53:31
Frenzy, the Decepticon boom box, gets punted like a football by hero Sam.



The Lord of the Rings: The Two Towers TIME 02:15:11
An elvish warrior falls off a castle wall during the stand at Rohan.

Lifted TIME 00:04:55
In this animated short screened before *Ratatouille*, the farmer screams during the closing credits.

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WILLOW & MR. PINK: EVERETT COLLECTION; BUZZ & LIFTED: DISNEY/PIXAR; TRANSFORMERS: ILM/LETTERMAN DIGITAL ARTS CENTER

NFCB*(continued from page 12)*

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Using the technology and resources from KALW, conference-goers were asked to use their mobile phones to record bits and pieces of the conference in 30-second chunks. After uploading these clips to SoundCloud, a resulting "collaborative soundscape" was produced and played at the end of the conference. The final piece, edited by KALW producers Julie Caine and Chris Hoff, captured the flavor of the conference, including presentation snippets, interviews and call-sign shout-outs. These included some interesting sound bites, including a recording of a toilet flushing, applause, laughter and a guy doing a duck call.

The multifaceted role of sound was also the focus for the "Recipe for Good Listening" workshop. Featuring a number of radio producers, the in-depth, four-hour session was an interactive

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We also discussed the use of natural, ambient sounds vs. sound effects (KALW producer Martina Castro said that she will use one or the other, but never both within the same piece) and whether it was appropriate to use manufactured sound effects for a news story or a documentary feature (many journalists frown on this practice).

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Above all, one of my favorite panels was "Leveraging Social Media for News Engagement." Applicable not only to radio stations, the tips provided by

Ken Freedman talks about WFMU(FM)'s innovative programming.



Kelly Chen and Meghann Farnsworth from the Center for Investigative Reporting were useful for anyone who uses Twitter, Facebook and other social media — for any reason. According to Chen and Farnsworth, Twitter can be used not only for breaking news (even collecting overheard public conversations on a particular topic of interest), but also to share snippets of stories that one is working on.

Finished pieces can be promoted in bite-sized chunks, highlighting weird

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Jennifer Waits wrote in June about the "What Is Radio" conference.



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Here's How

Rip a Music CD to Your PC With Pristine Fidelity

RIPPING YOUR CDs to a digital format is easy, but if you blindly accept the default settings in your media player software, you may be losing audio fidelity in the conversion process. Because the MP3 format and other compressed music file formats sacrifice some digital information in exchange for saving disk space, you may want to try a lossless codec—so named because it converts the file type without losing a single bit of audio data—to save a perfect copy of the original recording. If the thought of losing any music quality makes you squirm, follow these instructions to choose a lossless format when you copy CDs to your PC and music player.

The trade-off in going for the highest fidelity is that lossless files require considerably more storage space on your hard drive. A lossless codec produces a file about half the size of the original CD version, whereas an MP3



CHOOSE 'WINDOWS Media Audio Lossless' format in Windows Media Player's Options menu to save tunes from your CDs at highest quality.

file is usually about a tenth the size of the original CD. That means that a single 3-minute lossless audio track can take up about 30MB of space on your hard drive, and

an entire 15-track CD can occupy as much as 0.5GB. Still, if you insist on retaining the highest-quality audio in your ripped tunes—and you have hundreds of gigabytes of disk

space to spare—it's a good idea to pick a lossless codec.

In iTunes, you'll want to use the Apple Lossless codec: Select *Edit*•*Preferences*, click the *Advanced* tab, and then click the *Importing* tab. Next choose *Apple Lossless Encoder* from the pop-up menu, and click *OK*. Henceforth, all of your CD imports will be copied in Apple Lossless format, and they'll sound just as crisp as they did the moment they were mastered.

In Windows Media Player, the appropriate codec to use is Windows Media Audio Lossless. To specify this format, right-click the *Rip* tab and choose *More Options* from the drop-down menu. Then change the selected entry in the *Format* pop-up menu to *Windows Media Audio Lossless* (see the screen shot at left). The playback quality of any audio file that you copy in this format should be indistinguishable from that of the original CD.

—Zack Stern

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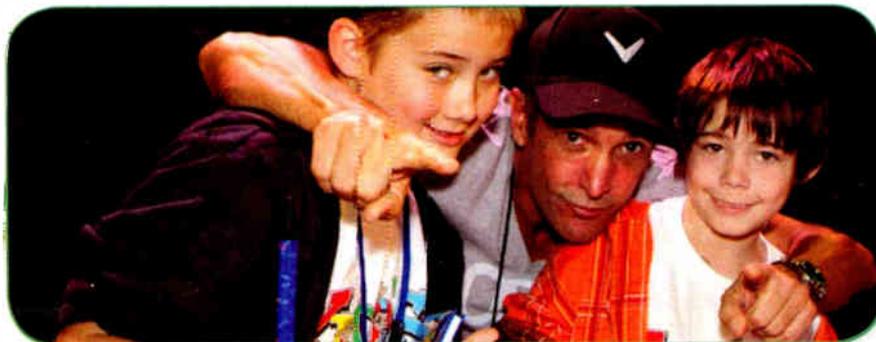
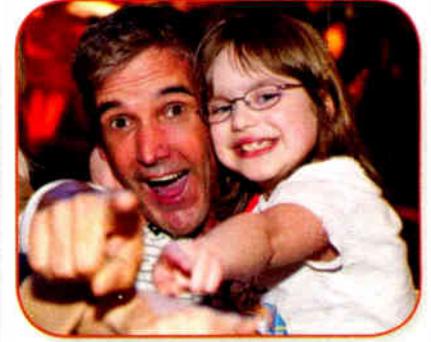


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NFCB*(continued from page 12)*

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World Radio History

Radio Production Wiz Q&A

Tools and thoughts for getting through the production day from people who do production every day

Radio World polled several of our contributors who have production duties on their résumés, asking about some of their favorite tools and practices. Participating were Al Peterson, assistant chief engineer for Radio America; Dave Plotkin, director of production and creative services, 1010 WINS(AM) in New York; Christopher Springmann, founder, producer, engineer of "Life Love & Health"; Tom Vernon, long-time radio veteran; and Curt Yengst, CSRE, assistant engineer at WAWZ(FM), Star 99.1, in Zarephath, N.J.

What's your favorite mic?

Al Peterson: The Earthworks SR line has been a favorite of mine for awhile now. I've never been a fan of mics with an exaggerated bottom end. They sound great in headphones and give the male voice that rumbling power we all like to believe we have, but in the end I like the flat response with clarity at the top. I bought an SR mic right off the floor at an AES show some years back and I'm still using it. Ruler-flat out to about 30 kHz, and if I want to dial in extra thump or more shimmer, I can do that in software.

Dave Plotkin: My all-time favorite mic is the RCA 77B. The combination of the warm sound of the ribbon and the Art Deco look puts it at the top of my list. Needless to say it's fantastic for recording live music. The Shure SM5B would fall second in line followed by a more practical and affordable preference, the Shure SM7B.

Christopher Springmann: Neumann BCM104 and the CAD E100S for broadcast; Sennheiser MKH60 for "urgent," in-your-face L.A.-sound V/O. Sennheiser MD46 mics for location work.

Curt Yengst: For radio, I like the EV RE series. They're built like tanks and sound good. For studio work, I sometimes miss my AKG C414. It's a Swiss Army knife of a microphone. My current favorite is the Rode NT-2. I also love my Gyraf G7 tube mic that I built



Curt Yengst displays his favorite mics: Gyraf G7, Rode NT-2 and Electro-Voice RE320.

from a set of plans. Beast of a thing, but sounds great for vocals.

Do you have a favorite mixer?

Springmann: I like the Allen & Heath XB-14, for the built-in telco channels and mix-minus among other cool features. I have two Edirol R-44 four-track recorders with mixer functions, which we always use for backup recordings and occasional location work.

Yengst: I'm sort of partial to the old Taseam DM-24 digital mixer, probably because I own one and know my way around it. At Star 99.1 we use Yamaha O1V96s for production, and we've been very happy with them. Our main consoles are Wheatstone Audioarts D-75s. I love them because they can handle both digital and analog sources, and are easy to set up.

Plotkin: Well, if I had to pick a favorite console I would choose a former industry standard PR&E BMX-III. I have two myself. Although, there really is very little need to have a mixing console anymore when doing production. Everything can be mixed in the software. It's amazing how far we've come.

How about favorite software platform? Plug-in(s)?

Yengst: While we use Adobe Audition at Star 99.1, my favorite audio platform is SAWStudio. I like it because it's got the feel of a good old-fashioned analog console and multitrack. Plus it's got the

an easy program to learn for the entry-level producer and sophisticated enough for the seasoned pro to be satisfied. I prefer the Waves Gold Bundle with Renaissance plug-ins to add to Audition

Peterson: I don't have a favorite per se. I work primarily under Windows but have dabbled in Linux audio software for several years. I was a beta tester for Cool Edit back when it was a Syntrillium product and still enjoy using it. I teach college-level classes in Adobe Audition. At home I'm using Mixbus by Harrison (with the Ardour-based audio engine) and I have Audacity loaded on everything.

In between, I've used them all: SAWStudio, Vegas, the DSE-7000 and Audicy, the Roland DM-80 ... It's a long list.

I really should be better friends with Pro Tools. The product is everywhere you can think of, but I've just never been able to cozy up to it. It's a great suite, but it's expensive and not compatible with VST or LADSPA plug-ins, which I use a lot.

What's your favorite tool or widget?

Springmann: Radio Systems CT-2002 studio timers. We have three, and live and die by them. I'm also quite partial to the Telos Hx2 hybrid, a brilliant, feature-rich, sophisticated instrument



Christopher Springmann speaks into a CAD E100S with Pro Tools in the background.

best-sounding summing buss I've ever heard. I use it primarily for recording and mixing music projects. For radio work I sometimes use the audio features in Sony Vegas. As far as plug-ins go, I actually tend not to use many. SAWStudio and Vegas already come with the basics, and I augment them with a few of the freebies I've featured in my recent "Free Software" articles for Radio World.

Plotkin: I am a fan of Adobe Audition. It's designed for the radio production and creative director. It can be as powerful or simplistic as you make it. It's

and moneymaker, especially now that we no longer use ISDN.

Plotkin: A classic — the Symetrix 528E mic processor. I love the challenge of getting it to sound just right.

Tom Vernon: My favorite tool with my MacBook Air laptop is the Digigram 442 Cancun USB Interface. With it, I can mix four microphones, and I get a robust headphone output. With a full charge on the laptop and the Cancun plugged into USB, running Audacity, you're good for about one-and-a-half hours.



Yengst: My Swiss Army knife with the LED flashlight and 8 GB memory stick built in. I never leave home without it.

Peterson: My soldering gun. Nothing gets done until the cables work.

Are you all-digital?

Plotkin: That's an interesting question. I am the guy people come to when they need a cart, record or reel transferred. However, all editing and producing is done in software. We do operate on a Harris VistaMax Digital network. Digital and analog both have their advantages. There is nothing like that "analog sound."

Yengst: At Star, most of the inputs to the console are digital, including the mic processor outputs, AudioVault outputs and CD players. I think just the phones and traffic ISDN come in analog. From there it's a completely digital signal path to the transmitter. We don't use an IP network for audio. It's all AES/EBU.

Peterson: At work, yes. At home, no — I'm analog right up to the Mixbus computer.

You are old enough to have survived the transition from analog to digital; what do you miss most about analog? How has digital made your life easier? Harder?

Peterson: There was a definite tactile satisfaction to doing a mix by ear with real faders under your fingertips. Certainly if you botched a move on a non-automated mixer, you would have to go back and do it again. And the next day, with fresh ears, you would hate the mix you did the day before. But all in all, I think that's what I miss most.

I don't miss recording to tape. Alignments, calibrations, head relapping, tensioning, degaussing, oxide shedding ... you can keep all that. I'm pleased to find out, during a tape demonstration to my class, that I can still edit out a popped "p" at 15 ips with a razor blade. But sorry to say these days, that's like boasting that you can still change the wick on a whale oil lantern.

Life is easier in that editing and timing extended segments can be fast and precise (I do long-form talk programming), and time-stretching means everything ends right on the tick.

On the other hand, life gets harder in that product obsolescence is not determined by you anymore. Operating systems reach end of life and you are obligated to shift everything upwards (ever try to run Cool Edit under Windows 8?). New versions of software may not be backwards-compatible with older versions, much less that \$2,500 sound card you bought only four years ago. And with

products like the Adobe suite moving up to "the cloud," you don't really even own your own editing equipment anymore.

Back in analog days, you could still find a rubber pinch roller for an Ampex reel machine built more than two decades prior. Even today, The Cart Guys out in Tucson sell kits to keep Fidelipac and Dynamax cart machines running. But if you called Studer tomorrow to say your Dyaxis digital editor needed parts, I don't know what they would say at the other end.

Plotkin: When I started in radio, most

everything was analog. I miss the "hands-on feel." Splicing tape, cueing records and carting up spots. It may sound silly, but when dubbing a commercial onto cart, I miss the challenge of starting the cart machine a millisecond before pressing play on the reel. While splicing tape was an art unto itself, you can do so much more digitally. I would be at work until 2 a.m. every night if we still had to produce everything on tape. Digital editing has made it much easier to create more intricate audio pieces. However, I wouldn't trade my analog education for anything. It's what gave

me the basis for being an excellent editor and trained me how to use my ears ... not just look at a waveform.

Vernon: I remember the transition to digital very well. What I miss the most about analog is the unique "sound" that the equipment had, particularly vacuum tubes. There was an art and science to tuning up analog tape recorders, and when you got it right, not only were the specs on the money, but that unique sound was there as well.

Digital makes things easier, however,
(continued on page 18)

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PRODUCTION

(continued from page 17)

because it is ready to go the moment you turn the power on. No warming up equipment, no last-minute tweaks or adjustments. It either works or it doesn't.

Yengst: As far as the transition from analog to digital goes, I think we've handled it well. What I like about it is that it takes less cable to move the same amount of channels, some of the gain-staging headaches are gone, and when handled properly, it does sound

Dave Plotkin's golden oldies home setup, featuring a Shure SM5B microphone and a Pacific Research & Engineering BMX-III mixer.



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cleaner. What I miss about analog is that it was more forgiving. If something got overdriven, it just clipped and got a little crunchy sounding. You also didn't have to worry about clocking signals, sample rates, and jitter. You just ran some cable and made it happen.

Springmann: A little background and context. I sort of came late to pro audio. I started "Life, Love & Health" in 2003, after spending 25 years in the advertising, annual report and magazine photography business, just as digital was overwhelming and replacing film. Fortunately, the same thing was happening in audio capture, editing, production and distribution. My first recorder was an HHB MDP 500 MiniDisc recorder, quickly replaced by two Marantz PMD660s, which were replaced by the Roland R-44. Thus, I missed tape entirely.

I don't miss anything about analog. Nothing. I am not sentimental about old inefficient technologies like typewriters, film and photo labs, plus endless driving; or tape recorders. All of these technologies had their day, era or centuries, some much longer than others, like film.

Digital has made life so much easier, efficient and fun. The "Lifesaver Factor": the ability to instantly review, then make a duplicate of a WAV file and archive it, and/or move it to an FTP site or remote server, way beyond the original recorder, the world's cheapest career insurance.

Nonlinear, nondestructive editing, never physically "touching" (literally) the original, is a joy.

Do you do more or less in-house production than you did in the past?

Plotkin: We do an enormous amount of in-house production and imaging. We have fun creating agency-quality spots for our clients and constantly challenge ourselves with new station imaging and creative ideas.

Yengst: We're doing way more in-house production at Star 99.1 than we've ever done. When I started there as a board operator back in the late '80s/early '90s, we had one production room. Now we have four production suites, which are always busy, and a couple people have limited production capabilities at their desks. I even have SAWStudio installed on my laptop in my office, in case I want to get into the act.

Springmann: Virtually everything is done in-house except for projects that require a collaborative team approach and a higher level of outside skills, especially video productions.

What topics would you like to see us cover more in Radio World? Write to radioworld@nbmedia.com.

Studio Technology Works for WTMD

Consultant appreciates the attitude of the supplier: 'Let me come down there'

USERREPORT

BY EDWIN BUKONT
E2 Technical Services

TOWSON, Md. — Knock on wood. Or laminate. When you are buying broadcast furniture, where function is as important as form, the beauty may be only skin deep.

Knowing what to expect is why my company and others advised WTMD(FM) in Towson, Md., part of Towson University, to use Studio Technology of Kennett Square, Pa., for their recent project for six studios.

CUSTOMIZED

Founded in 1991 by company President Vince Fiola, Studio Technology brings 10,000 square feet of manufacturing facilities and eight staff to the job of building custom technical furniture and accessories (such as LCD mounts) for all areas of broadcast facilities, not just the studios.

After 30+ years of systems integration, I have learned a few things about quality studio furnishings. When I get called into a project, among the first questions I ask is, "Who is building the furniture?"

Choosing furniture properly will make a difference in the terms of a project's scope, cost and schedule. As an example, does any point *inside* the furniture exceed arm's reach? If so, you may not be getting your wiring in there efficiently.

I first worked with Studio Technology right after it formed, and have worked with them many times since. WTMD presented some challenges because the wiring between studios was done by a cabling vendor to Towson University IT specifications and we had a short schedule. S-T worked with us to prep for

pre-terminated cables without requiring major surgery on-site.

We encountered the "architect's surprise" wherein furniture was expected to be supported against fabric-covered walls. Studio Technology provided detailed drawings to show the general contractor where blocking was needed. Studio Technology was responsive and resourceful throughout the project, even driving down some added legs the same day they were requested.

Not every project requires custom furniture, but almost every piece requires some customization. Studio Technology can provide cookie cutter product; however, Vince much prefers to say, "Let me come down there," taking his own photos and measurements, and working directly with the project team (yes, even the architect!) — exchanging as much as information as possible. In the words of Fiola, "We try to listen to what the customer is trying to accomplish ... then do everything we can to provide it."

An example: The typical access door panels used on Studio Technology furniture are free of protruding hardware. A simple bar supports the door and four roller catches secure the door. To open, you grasp the top edge and pull. This reduces unplanned opening, prevents clothing and headphone cords from being caught and leaves a smooth surface should the door come in contact with fabric-covered surfaces. Hinged doors in tabletop racks are outfitted similarly, using an alternate-action catch.

Another aspect typical of the product is the "punchblock base," which provides ample mounting space and access from the outside whenever possible. Openings, big enough to fit in, are provided throughout or as requested.

Because forced air brings problems of cost, noise, electrical usage and maintenance, simple convection cooling using vented access panels is the standard ventilation method. This is handy when you want to provide temporary access without leaving it all open.

Studio Technology uses medium-density fiberboard (MDF) to manufacture countertops, which provides a

strong and stable surface. Base cabinetry is manufactured using 3/4-inch-thick melamine-clad panels (MCP) so that screws attach securely without going

ness from many of the largest broadcast firms. (You see their products frequently around the Washington/Baltimore area.) Studio Technology provides design, construction and installation nationwide. From my experience, they can build and ship to you for assembly. They can provide crews to handle assembly and they will help a customer reuse furniture



through the other side. Tops are sectionalized and seams finished on-site when necessary, such as for Corian.

It would not be a stretch to say that Vince's firm is one of the biggest mom-and-pop operations in the studio furnishings business, with repeat busi-

ness in instances such as a move or changing from a cut-out drop-in analog console to a top-mounted digital console.

For information, contact Vince Fiola at Studio Technology in Pennsylvania at (610) 925-2785 or visit www.studiotechnology.com.

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ABOUT BUYER'S GUIDE

Radio World publishes User Reports on products in various equipment classes throughout the year to help potential buyers understand why colleagues chose the equipment they did. A User Report is an unpaid testimonial by a user who has already purchased the gear. A Radio World Product Evaluation, by contrast, is a freelance article by a paid reviewer who typically receives a demo loaner. Do you have a story to tell? Write to bmoss@nbmedia.com.

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Every year about this time we hear from the engineer or GM or PD or some other poor soul who happened to be the last one out of the station when the big storm/flood/earthquake hit. Maybe it was even you, the guy left alone with his thoughts and the WheatNet-IP (WNIP) system blinking up at you as if to ask, what's next? If you've done some emergency planning, there's probably not much to worry about. Even if you haven't, the WheatNet-IP audio over IP system is going to help you out, starting with silence detection and auto routing the main feed over to another BLADE that isn't connected to the switcher/power source/whatever that's taken the hit.

Get the whole story here: september13INN.wheatstone.com



Wheatstone and Tieline. More Magic.

It was bound to happen. Every time we get together with the guys from Tieline, we get carried away...

...last time it was the Genie, Tieline's distribution codec that we joined up with our WNIP for carrying long distance control of sources, devices and surfaces between remote studios. This time, it is Merlin PLUS, Tieline's new IP audio codec that now talks directly to the WheatNet-IP network through a WNIP card for managing up to six simultaneous remotes. The benefit: direct communication from the board op at the studio to remote reporters anywhere in the field.

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Tiny Tools For The Other Side of the Glass

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The talent stations you've been waiting for. These networked control panels put talent mic controls, headphone volume and source selection, and much more at the talent's fingertips. No more having to wire together a talent station with mic, amp, headphone and speaker controls. It's all right here.

TS-22 This single panel controller plugs into the WheatNet-IP Intelligent Network to provide controls for mic, headphone, amplifier and speaker levels all in one turret. No outboard equipment required and no wiring it all together. It's all right here in one IP-accessed turret.

TS-4 The smaller TS-4 talent station provides lighted on/off/cough and talkback switches for a single talent microphone. A rotary headphone source selector is provided along with an OLED display for identifying the selected source. The source selector doubles as a volume control. The

Get the whole story here: september13INN.wheatstone.com

WHO'S BUYING WHAT

RBDG SILENCES THE TRAINS

The client thought it had the perfect site for its new broadcast studios — three floors above street level, a water view with a lovely park in the foreground — all except for that train roaring by regularly, of course. One line brought a locomotive within 10 feet of the building (see photo).

For a radio broadcaster dependent upon a clean sound, compromising on a noise-free environment can be a poor and potentially expensive choice.

In this case, client The Ackerley Group called in Russ Berger Design Group (RBDG) early in the process. RBDG says it studied the situation and applied its studio design experience to create cost-effective methods to isolate the studios from train-generated sound and vibration.

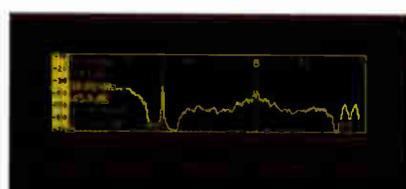
Berger said, "Dealing with these conditions from the beginning resulted in a quiet, vibration-free broadcast environment, where trains slide silently past. Making corrections halfway through the design process would have been disruptive and expensive — impossible if addressed post-construction."

RBDG offers studio design services featuring sound isolation, noise and vibration control, room acoustics, layout and technical infrastructure plans.

Info: www.rbdg.com



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BUYER'S GUIDE

TECHUPDATES

ARRAKIS PUTS THE ACCENT ON FURNITURE

With the introduction of its Accent line of advanced component studio furniture for radio, Arrakis says it is going a step further. According to the company, the metal structure is integrated artfully into the visible design décor of the cabinetry.

With its origins in the console market, Arrakis says, it was a pioneer the metal post and wood panel construction found in most high-end radio studio furniture in use today. An internal metal structure



dramatically improved manufacturing tolerances and made high-quality modularity possible.

Arrakis says its wood products manufacturing facility is top-of-the-line, including a large-capacity CNC

(computerized numerical control) router for complex geometries and surfaces.

Accent is available in standard as well as custom configurations. The hybrid metal frame and structural panel design, combined with the CNC manufacturing system, tailor the product to fit a studio's size and shape. Numerous colors and textures to match decor are available.

The Accent furniture collection is stylistic and functional, with brushed aluminum frame and customizable tabletops.

For information, contact Arrakis Systems in Colorado (970) 461-0730, ext. 309 or visit www.arrakis-systems.com.

PORTABLE SOUND DAMPENING FROM REALTRAPS

The RealTraps Quiet Zone is a portable recording booth large enough to create a quiet and acoustically dead recording environment for many recording applications, the company says. It's suitable for singers and voiceover artists, as well as brass players.



It is designed around three RealTraps MicroTrap panels — each 2 x 4 feet — mounted on legs. The RealTraps Quiet Zone weighs 32 pounds and assembles with a screwdriver. At 6 feet 7 inches high, it can accommodate even very tall people. The QuietZone needs about 40 inches (wide) by 26 inches (deep) of floor space.

The Quiet Zone features a much larger, freestanding setup that offers three times the absorbing surface area of the RealTraps Portable Vocal Booth, and double the surface area of the RealTraps Carrel, the company says.

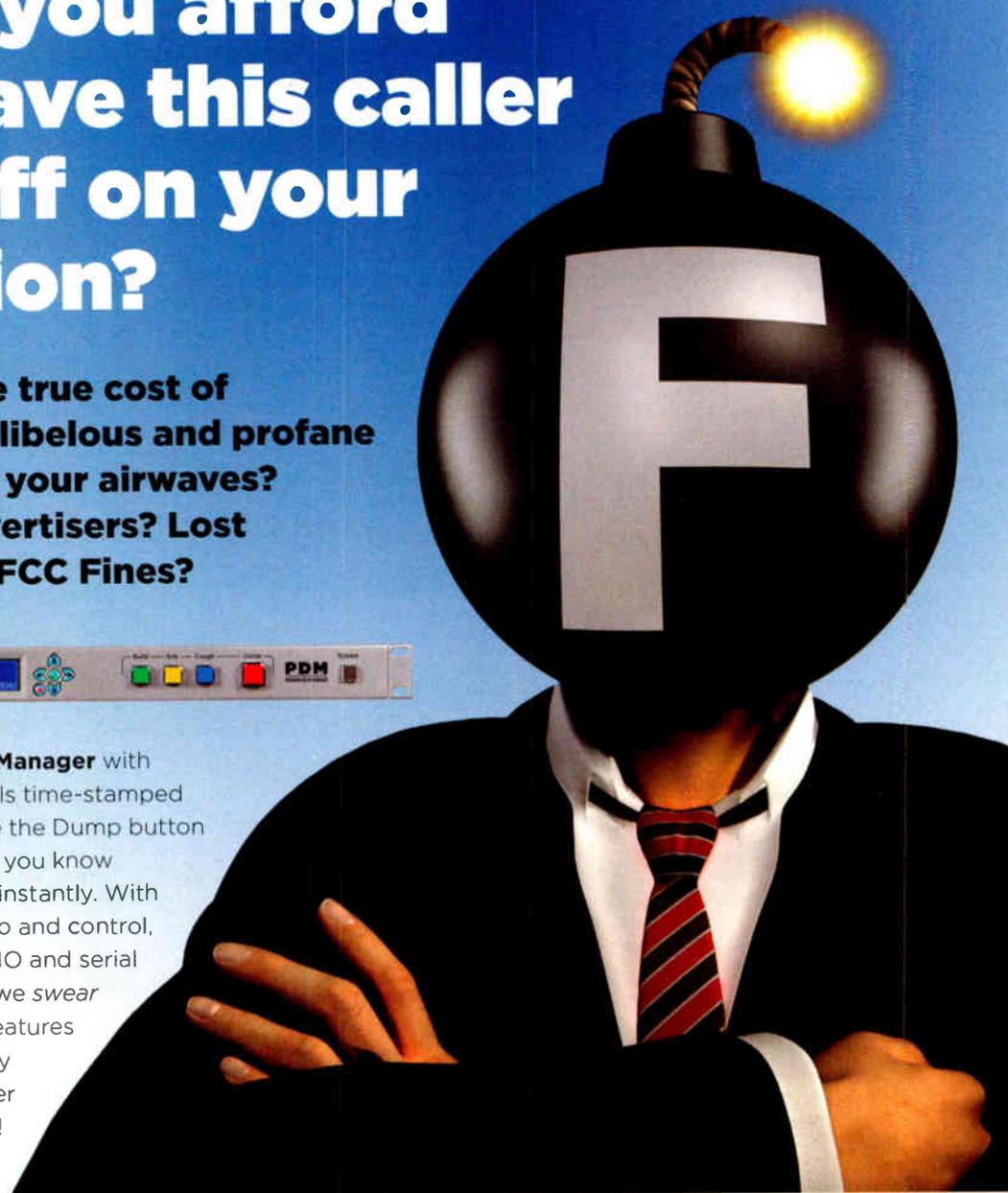
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Seeing São Paulo With WSDG

Brazilian broadcaster retains cityscape views in new studios

USERREPORT

BY **MARCOS VICCA**
VP, Group Mix/Artistic Director,
Mix106.3 FM
AND **SERGIO TADEAU**
MixFM Technical Director

SÃO PAULO — For almost 20 years, Mix106.3 FM Radio has built a strong following among Brazil's prized 15–29-year-old listener demographic. The station's high-powered top 40 signal is heard throughout the country. As our listening audience and advertising client base expand, so, too, do our staff and studio requirements.

In 2006, the station moved to the 22nd floor of a state-of-the-art skyscraper in São Paulo. The building's antenna soars 1,033 meters (almost 4,000 feet) above sea level, providing a strong signal that reaches more than 2 million listeners a month, making that signal the leader in 74 markets, according to the Brazilian Institute of Public Opinion and Statistics (IBOPE).

VIEWPOINTS

Our search for an architect/acoustician led us to the Belo Horizonte, Brazil, office of the Walters-Storyk Design Group. A 40-year-old, multinational studio design firm, WSDG has created thousands of broadcast, TV production and recording studios around the world.

WSDG Brazil-based partner Renato Cipriano made numerous site visits and participated in meetings with our on-air, engineering and management teams to help develop a studio design program to optimize the space. One of our major concerns was that our new studios be



The sound-baffling windows can be seen here fully exposed, before installation.

able to take advantage of the extraordinary 360-degree cityscape views avail-

able from many of our windows.

The studio comprises 15 individual components. A spacious 2,000-square-foot reception room/lobby leads to a 5-foot wide, 40-foot-long corridor, which provides access to six studios, three production suites and related support spaces, all of which border the corridor.

First studio on the left is On-Air SP 1, our 200-square-foot primary on-air broadcast suite. Directly adjacent is our 150-square-foot On-Air Satellite Broadcast Studio. A 130-square-foot reserve studio for future expansion resides between the Satellite studio and Production 3, which features a spacious isolation booth designed to accommodate both voiceover artists and live performances. The right side of the corridor is headed by Production Suites 1 and 2, a 350-square-foot complex with two individual studios and two ISO booths, accessible by a four-door sound

lock. There are also a 100-square-foot production lab and a 150-square-foot CMR on the premises.

Virtually every one of our studios and production suites is distinguished by breathtaking window views. The idea of masking those views with sound-muffling curtains was unacceptable, so we asked WSDG to devise an acoustically and aesthetically pleasing solution.

WSDG recommended outfitting the five oversized windows in our two primary on-air studios with Quadratic

Residue Diffusers (QRDs). Custom-made of clear glass, and fabricated in Brazil, these units were designed to cover each window completely. QRDs consist of a linked series of narrow, translucent "wells," precisely calculated to diffuse the frequency range of each studio and joined together as a single "window sill-to-window-top" installation. While similar units have been used in high-end recording studios such as New York's Jungle City, they had never before been applied to a radio station.

These units have proven themselves extremely effective in keeping extraneous noise from leaking into our studios from outside (including plane and helicopter engines), while permitting a virtually unobstructed view of the city.

For information, contact Sergio Molho with Walters-Storyk Design Group in New York at (845) 691-9300 or visit www.wsdg.com.

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World Radio History

WABE Revamps With Harris Broadcast

New studios provide space and boost morale

USERREPORT

BY ROGER PARKER
Maintenance Engineer
WABE(AM)

ATLANTA — Studio redesigns represent more than a technology change in the radio broadcast facility. Essentially, they can create a seismic shift in the personality of the entire operation.

Harris Broadcast and its PR&E studio solutions helped us achieve that complete change in look and feel at WABE(AM) in Atlanta — along with technical upgrades that have introduced new operational efficiencies across the facility.

RENEWAL

WABE has served the Atlanta region since the 1950s as a public broadcaster. The station broadcasts classical music and NPR news programs to listeners online and over the air. The new design has injected new life and energy into that mission.

The design initiative focused on the upper floor, with new furniture, production and on-air equipment to support the existing Studio 1 and Studio 2 spaces. A large conference room was stripped and converted into Studio 4. (Studio 3 remains downstairs and was not part of the project.)

The seeds were planted through drawings to map out electrical require-

ment, and ensure the desired furniture layouts would fit in each room. A local electrician established new runs to a generator-connected UPS to bolster on-air protection. The Harris Broadcast



team recommended using Cat-5 trunk cables for the best performance. The redesign also included new soundproofing for each studio prior to delivery of the furniture.

We chose Harris Broadcast PR&E Smoothline furniture for each studio. The desks are very clean and low-profile and blend in well with the complementary cabinets. The surfaces are spacious

to the point where clutter is not an issue. A sturdy overall build supports all critical on-air and production equipment.

We chose the sit-down designs, which replace stand-up desks in Studios 1 and 2. This ensures our hosts are seated and well within reach of on-air con-

soles without uncomfortable stretching. Furthermore, the Smoothline designs build boom mics, headphone jacks and associate amps and audio settings directly into the surfaces — giving each host and guest complete control from their positions.

The ability to handle weight is extremely important to the overall operation. Each surface accommodates PR&E

NetWave consoles and three monitors connected to a central computer. Smoothline cabinets atop the surface house CD players, mic processors and other source equipment. Studio 4, now the largest of the group, adds an underneath Smoothline cabinet for power amplifiers and audio processing equipment.

We like that Harris Broadcast punches intelligently placed holes for cable runs and equipment connections in advance of delivery. This makes most of the process plug and play. All holes were in the right position for mic booms, harnesses and cable trays to expedite installation.

The custom furniture designs include a grayish top with black trim that looks very sharp, and blends well with the surrounding environments. Studio 1 is our main on-air studio, with one host and one guest position. Studio 2 serves mostly production needs, with one host and two guest positions.

Studio 4 opens up new possibilities for WABE with its much larger size (23 feet x 15 feet), accommodating one host and four guest positions at the larger desk. We expect to use this space for talk shows and live entertainment down the road. We will also move annual pledge drives to this studio as the quarters are far more spacious than the previous location in Studio 2.

Technically, the studio redesign also opened up the opportunity to improve audio distribution and source sharing across the facility. SCMS, the sales arm for this project, recommended a PR&E VistaMax to tie everything together. This feeds audio to every studio and console, with extra redundancy through hard-wiring to network and satellite systems. This ensures that we can still feed audio and reprogram destinations easily if the facility network goes down for any reason.

Meanwhile, the NetWave consoles bring new simplicity to the on-air and production operation, with plug-and-play modules for operational flexibility, along with clean, easy-to-read VU meters to check audio levels. Overall, they look very nice and add to the clean, modern feel of the studios.

Above all, the entire project has boosted morale across the facility. This was a very old building that was built in the 1950s. Bringing in new equipment, furniture and cabinets has created new energy, and provided a cutting-edge feel that expands what we can do as a radio station. In this way, the project truly represents a seismic shift in personality at WABE. The Harris Broadcast PR&E team and solution, with contributions from SCMS, played a significant role in making it happen.

For information, contact Brian Clifford at Harris Broadcast in Ohio at (513) 459-3714 or visit www.harrisbroadcast.com.



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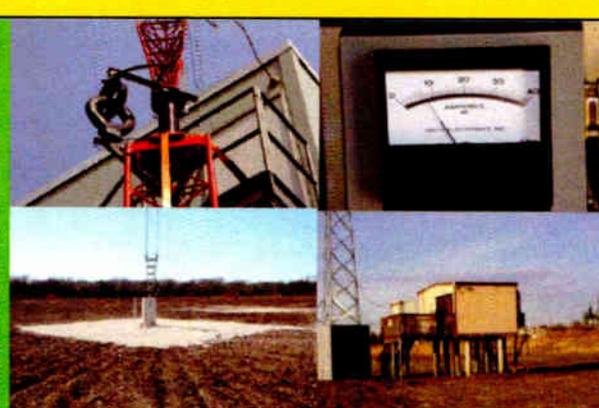
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TECHUPDATES

RAM SAYS IT'S A ONE-STOP SHOP

RAM Broadcast Systems says that whether you're a major market broadcast group or a "mom and pop" operation, RAM can be your engineering, equipment, system integration and furniture source for complete facilities or individual studios.

It adds that RAM Broadcast Systems can provide custom designs for studio furniture



that meet a customer's needs, flows well and will hold up and continue to look as good in five years as it did the day installed.

RAM can also manufacture acoustic paneling, tiles and baffles for radio stations or for custom installation projects in a variety of colors, cloth treatments, materials, sizes and edges.

In addition, it carries full lines of many major broadcast equipment manufacturers.

For information, contact RAM Broadcast Systems in Illinois at (847) 487-7575 or visit www.ramsystemsonline.com.



FROM TITUS, DOUBLE-SIDED HANGING PLEXIGLAS FIXTURES

For several years Titus Technological Laboratories has been manufacturing and selling single-sided hanging Plexiglas light fixtures as a part of its HPL On Air Light series. This light fixture is one-sided and usually mounted on a wall either over or next to a studio door.

Titus Labs says it has now designed a double-sided "blade"-style hanging Plexiglas light fixture suitable for mounting in a hallway, perpendicular with the wall and visible with the correct orientation of the lettering from either side. This is the BPL series.

The light fixture uses high-power LEDs, red being standard (white, green, yellow or blue upon request). The standard text is "ON AIR" or "RECORDING." Custom lettering as well as station logos can be engraved into the Plexiglas as well. Dual color LEDs are an option.

Mounting to the wall is via an aluminum bracket. The light fixture draws about 300 mA at 12 VDC.

For information, contact Titus Technological Laboratories in Connecticut at (800) 806-8851 or visit www.tituslabs.com.

Broadcast Studios



KCLU ~ Thousand Oaks, CA

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TECHUPDATES**ACOUSTIC GEOMETRY ROUNDLY
DIFFUSES SOUND**

Acoustic Geometry says that its Curve Diffusor, using an innovative and improved version of the classic polycylindrical designs used in recording, broadcast and film studios since the 1930s, simplifies the creation of natural-sounding, professionally accurate acoustic spaces.

The Curve's phase-coherent, constant-radius design has proved to minimize flat surface reflection problems by broadly and evenly scattering sound energy that would otherwise cause large, destructive interference effects, it claims.

According to the company, the diffusor also acts as a diaphragmatic mid-bass absorber, and each Curve model includes a built-in mass-loaded vinyl membrane low-bass absorber. The Curve Diffusor solves two acoustical issues: diffusing mid-to-high frequencies and controlling low frequencies. In addition, Acoustic Geometry says it adds a great high-design look to any space.

The company adds that the interior of the Curve is lined with eco-friendly recycled bonded acoustical cotton absorber material. The units are stackable and can be mounted vertically or horizontally. Stock fabric colors are onyx, dove gray, birch (textured light tan), mocha (textured medium tan) and red.

The Curve Diffusor Small measures 14 x 42 x 5 inches and absorbs 40–300 Hz while diffusing 500 Hz–10 kHz.

The Curve Diffusor Medium measures 21 x 42 x 7 inches and absorbs 40–300 Hz while diffusing 300 Hz–10 kHz.

For information, contact Acoustic Geometry at (888) 227-6645 or visit www.acousticgeometry.com.

**ACOUSTICS FIRST
DAMPENS THE
CEILING**

When it comes to acoustic treatment, the first thoughts are always of the walls.

Rarely does a ceiling get much thought — after all, it might already have those white all-purpose commercial drop ceiling “acoustic” tiles in place. Aren't they good enough?

Acoustics First thinks not. It is giving a facelift to its Sonora line of ceiling tiles by adding acoustic-damping fabric in many colors to the face of the tiles. Tiles are available in square or regular edges.

Sizes available are 23.75 inches x 23.75 inches (square) or 23.75 inches x 47.75 inches (rectangular)

in one- or two-inch thicknesses.

For information, contact Acoustics First in Virginia at (804) 342-2900 or visit www.acousticsfirst.com.

**MIDDLE ATLANTIC ADDS
SIT/STAND FUNCTIONALITY
TO VIEWPOINT**

Middle Atlantic Products is introducing new height-adjustable sit/stand functionality for its family of ViewPoint consoles and technical furniture.

The company says that the sit/stand lift system's functionality promotes proper ergonomics for healthy work environments, and is now available pre-installed in welded ViewPoint console bays or as a standalone workstation model.

These new models have three preset height settings for fatigue elimination and increased user comfort, especially in multi-shift broadcast environments. The sit/stand lift legs do not intrude in equipment mounting bays, leaving the full console bay width available for equipment. Quick shipment is possible with a three-week standard lead-time, the same offered for all standard ViewPoint orders, the company explains.

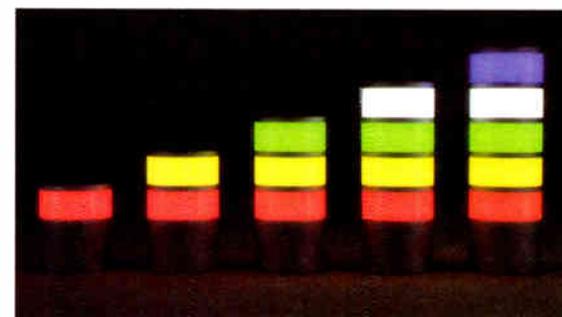
Available in the same variety of finishes as the complete ViewPoint system, the availability of new sit/stand models makes the line more flexible for a number of situations and uses, Middle Atlantic says.

It adds that all Viewpoint technical furniture ships fully welded for drastically reduced assembly times.

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

**YELLOWTEC LITT IS A PROGRAMMABLE
ON-AIR LED LIGHT**

Litt from Yellowtec is an LED signal for broadcasters who require an on-air indicator compatible with the company's m!ka microphone arm system. The manufacturer emphasizes its programmable light and flash patterns, bright LED technology and sleek design.



Each Litt has its own microcontroller with flash RAM to store settings. Connect a computer to the USB port and use the Lighthouse software to configure lighting patterns, flash modes and brightness.

The unit uses LEDs at 50 percent of their rated power, for a promised 100-year lifetime at three hours of daily use. Each segment is equipped with two Philips Luxeon high-power LEDs. Its lens produces consistent radiance with 360-degree viewing angle.

With a voltage range of 12–24 VDC and inverse polarity protection circuitry, Litt is described as easy to install. Segments connect on a Phoenix low-insertion force connector and the bus controller unit comes with a choice of mounting adaptors.

Its anodized, durable aluminum matches brings a high-tech look to a studio.

For information, contact Yellowtec in California at (760) 294-7314 or visit www.yellowtec.com.



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《ACCESS》
2USB

COMPLETE REMOTE STUDIO ON TWO WHEELS



We are pretty sure this is a first – an open-air moving studio broadcast on two wheels (well, six, technically).



All audio was fed to a Comrex ACCESS Portable, complete with optional mixer, which Dan used to mix the live



on-air feed as the trio traversed the winding roads of

Dan Jackson, engineer for 92.9 FM in Perth, Australia was faced with a unique challenge. Breakfast hosts Paul Hogan and Lisa Fernandez would be cycling for hours in strong winds and pouring rain as part of the 92.9 Kids Appeal for Telethon.

The unique solution was to equip Dan's bike as a mobile production facility. The talent wore wireless mics AND in-the-ear monitors which communicated with receivers and transmitters in a rack bag on Dan's bike.



Perth. How did it all work out? Absolutely flawlessly – the show went on without as much as a speed bump!

ACCESS Portable lets you send studio-quality live audio, real time over IP using 3G, 4G, Wi Fi, BGAN/VSAT, PSTN or DSL to make any remote broadcast really stand out. Connect with your audience from anywhere, live, with the easy to use, handheld ACCESS Portable!

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remotes.comrex.com

World Radio History

BUYER'S GUIDE

Balsys Builds for CCME Orlando

DOE appreciates ergonomic workspace with maximum ventilation and airflow

USERREPORT

BY MIKE SPRYSENSKI
Director of Engineering
Clear Channel Orlando

ORLANDO, Fla. — Beginning in 1996 and through 1997, I had the opportunity to rebuild the studios and offices for our six stations located in Orlando. Fast forward 15 years and once again it was time to rebuild the studios for the same stations, plus a few additional ones that had been acquired along the way.

The first time around, we used prefab furniture from the same company that provided the consoles and rewiring. No longer needing to accommodate turntables, reel-to-reel tape machines, cart decks and cassette loggers, I now had a chance to design and build out new studios to fit the stations' needs instead of forcing them to adapt their occupancy and work practices to fit the space they had been rationed.

WORKSPACE

A big part of the success behind building studios is in designing the furniture to provide an ergonomic workspace, yet fulfill the technical requirements needed.

Studios in the 21st century now require anywhere from five to seven flat-screen monitors, four or more computers, and computer-based IP engines and phone systems, all of which gen-



erate heat; so thinking about air flow through the furniture is very important. Less important to the engineer, but very important to the jocks, is the workspace to bring in guests.

So there are a lot of things to consider when designing the studio furniture but none are more important than who will be building it. My choice for the task is Balsys.

It begins with the design phase. First, we put some basic ideas into Visio and pass them off to Balsys. Then

we exchange emails and phone calls back and forth until a design is created and finalized. Once the final drawings are signed off, it is handed off to the shop and their master cabinetmaker and assistants.

Having the furniture designed and built from scratch, especially with each station's differing needs, is great. This approach allows me to indicate where I need headphone and microphone control panels routed into the furniture or under the tabletops. I can have Balsys

drill the large holes needed for routing electric and audio cables that run inside and around the furniture as well as to the outside world.

With consoles these days often being control surfaces that barely drop below the tabletop, you can design the studio with plenty of leg room and keep the studio look very clean. Just add the mic booms and multi-monitor mounts and a bunch of network cables to connect up all the pieces and you are done.

I am particular about maximum ventilation and airflow to keep the equipment cool. I had Balsys include the maximum number of access doors and customize each of the access panels with large metal screens above and below center. We also included enough rack space to permit keeping at least IRU space in-between each piece of equipment and use vented rack panels for these spaces.

Overall, I am very pleased with the way things have turned out; and the programming staff loves the new studios, too. I am fortunate to work with a lot of great folks here at Clear Channel Media & Entertainment in Orlando, and everyone appreciates the end result of that hard work. Balsys and their attention to detail has been a big part of that success.

For information, contact Balsys Wood Arts in Florida at (407) 654-7611 or visit www.balsys.com.

TECHUPDATE

ESE PRODUCES NEW TIMECODE DISPLAY

Equipment maker ESE has a new model timecode display, the ES-976.

The 976 uses large 7-inch red LED digits for SMPTE/EBU time of the day, RS-232C ASCII Time Code or ESE's own Time Code. The unit automatically determines the format that it is being fed to it.

Time can be displayed as a 12-hour clock or 24-hour military-style clock. Time zone and NTP options are available. Amber, blue and green LED digits are also available by request.

The wall-mountable box is made of aluminum with a black textured coating.

For information, contact ESE in California at (310) 322-2136 or visit www.ese-web.com.

acoustical design russ
berger consultants public radio studios



www.rbdg.com
972-661-5222

RBDG
Russ Berger Design Group

Bright idea.

All of our consoles have LED button lamps. They'll stay lit for — well, practically forever. Let's just say, your kids won't have to change bulbs, either.

Big Shot.

Your station super-sizes everything? No problem; iQ can scale from 8 to 24 faders. Handles even the most zany morning crew, talk show - or anything else you think up.

Control at your fingertips.

See these buttons? You can program them (or the button modules available for Element consoles) to perform routing salvos, system-wide scene changes and more. Because great power requires control.

Smarter phones.

Not only are hybrid controls built into iQ for direct-from-the-board control, the iQ6 phone system connects with just one Ethernet cable.

Network everywhere.

No need for cheesy A/V mixers - RAQ lets you put a networked, professional console anywhere, at a price that'll make the even stingiest GM smile.

Double your pleasure.

Did you know that one QOR.16 console engine will power 2 RAQ or DESQ mixing consoles? Makes your money go further on news bullpens, production pods, ingest stations, etc.

Step to the side.

Dirt and liquids: a console's most hated enemy. Element foils 'em with premium, side-loading conductive-plastic faders: dirt drops past, not in.

Who's da boss?

Clients rave about them, talent loves them: over 5,000 on the air makes Axia radio's favorite IP console.

Built to last... and last, and last.

Element modules are machined aluminum with wear-resistant Lexan inserts for long life. We've even designed custom-molded guides to prevent tears around the fader slot. No "ouchies" here.

Unlimited vision.

Some console makers give you "switched meters" to save costs. iQ does away with that annoyance: high-rez OLED displays meter all 4 buses at once.

A low price shouldn't mean "cheap".

Other companies cut corners on their low-cost consoles. Axia packs in as much as possible. Real conductive-plastic faders, machined-aluminum work surfaces, anodized rub-proof markings, aircraft-grade switches. At a price less than some analog "bargain" consoles.

Rack 'em up.

Turn your Radius 8-fader console into a rack-mount powerhouse. Great for OB vans, performance studios, concert remotes and more.

Good timing.

Unlike those other guys' small consoles, DESQ has an event timer and an NTP-capable clock — built-in, not extra-cost. Because time is money (pardon our pun!).

Small but mighty.

DESQ packs big console power into just 18" square. 6 faders, 2 buses, automatic mix-minus, Show Profiles and more. Perfect for standalone or networked studios.

Axia makes the switch.

No "plug-n-pray" unmanaged switches here; Axia builds our own custom zero-config, built-for-broadcast network switch right into our PowerStation and QOR console engines.

Show-off.

Element lets you store up to 99 Show Profiles - "snapshots" that recall channel sources, bus assignments, EQ settings, even fader positions. So every jock can have their own customized console.

Speak your mind.

Element consoles have comprehensive talkback features. You can talk directly to remote codecs, phone callers, adjacent studios... even individual talent's headphone feeds. Even our most cost-effective boards let you talkback to callers and codecs.

Handsome devil.

Our meters aren't just good-looking; they're designed specifically to convey the most information possible at just a glance. And Axia consoles support VU and PPM metering styles - something you might not find on consoles that cost a lot more.

Big power, small price.

Radius loads you up with 8 faders, 4 mix buses, automatic mix-minus, onboard EQ and voice dynamics and more — for just \$5990 USD. Shh... don't tell the accountants.

Available in small, large, and OMG.

Whatever size console you need, Element can handle it, from 4 to 40 faders in single or split frames. Huge selection of standard and motorized modules, too.

CHOOSING AXIA FOR YOUR NEXT CONSOLE IS EASY. SELECTING ONE MIGHT TAKE AWHILE.

When we introduced AoIP to radio in 2003, some folks thought we were off our nut. Today though, broadcasters agree: picking Axia is the right choice. With over 5,000 on air daily, broadcasters have voted Axia the world's most popular networked console.

Who can blame them? Axia fans say that Livewire™ networking is the most intelligent, flexible IP-Audio system in the industry. And that our huge number of partners, with over 75 broadcast products from phones to transmitters that connect to Axia networks,

makes life much simpler. They also appreciate our 5-year warranty and 24/7 technical support (not that they need it).

In fact, we calculate that thanks to our huge selection of frame, module and mixing engines, there are at least 32,209,982 different ways to order an Axia console. With that many options, you'd better get started now! Mmm... don't you just love that new-console smell?

AxiaAudio.com



Available in the U.S. from BGS: (352) 622-7700

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World Radio History

Omnirax Has Cumulus on Cloud 9

Easy-to-assemble customized furniture packages fit bill for national group owner

USERREPORT

BY YANCY T. MCNAIR
Regional Engineering Director
Cumulus Media Inc., Gulf Coast

PENSACOLA, FLA. — One of my colleagues put it best when he said, "Life at Cumulus is never dull."

As a member of a group of Cumulus Media engineers that travels the country working on special projects, I agree. Also, I was asked to write this article because, according to Omnirax, I have probably assembled more Omnirax furniture than anyone in the country.

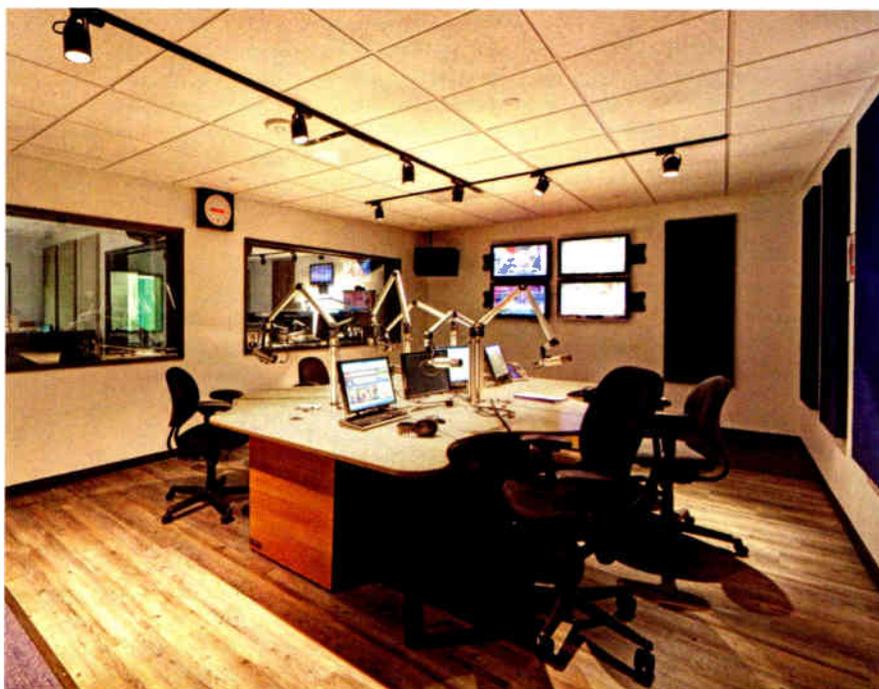
I was introduced to Omnirax furniture in March 2009 during a studio buildout in Cincinnati. Around noon on delivery day, an 18-wheeler full of Omnirax furniture arrived. When I say full, I mean full: Front-to-back, floor-to-ceiling. It was overwhelming at first. It took a couple hours for six of us to unload the truck by hand and stage everything in an empty floor of the building. After unwrapping and unboxing each piece, we began distributing the pieces into each room.

EASY TO ASSEMBLE

Then began the process of assembling the furniture.

I liked that each piece was clearly

labeled. The detailed instructions not only showed how each unit went together but displayed pictures of the furniture already assembled at the Omnirax



facility in California. Omnirax even provided every tool we would need to put each piece together. The furniture was so simple, it took our team of six engineers only eight hours to unload, unpack and assemble eight studios.

Since the Cincinnati project, Cumulus has relied on Omnirax for several major projects, including Atlanta, Turner Field in Atlanta, Bridgeport, Conn., Modesto, Calif., Pensacola, Fla., and most recently for Cumulus Media Networks in Nashville, Tenn., Dallas and New York.

Until recently, I was only a part of the assembly process. At the end of last year, Cumulus acquired two additional stations in Pensacola and I was finally able to design my own Omnirax furniture.

The process was so simple. I provid-

ed David Holland at Omnirax with the dimensions of my studios and he began to design my furniture. I was able to share David's desktop and watch as he brought my studios to life. David could place consoles, monitors, keyboards, phone systems and just about anything else I could imagine to help maximize workspace.

The beauty of it is that we could experiment with different layouts and designs until I was happy with the final product. David was able to provide a PDF of the design for me to share with local and corporate managers. The entire process took less than an hour.

The great thing about Omnirax furniture is the custom design process. It allows you to design your furniture around the room instead of ordering prefab stuff that hopefully fits in your space. All you have to do is provide Omnirax your dimensions and budget. You'll never pay for something you don't need (like with prefab stuff). If you don't need a countertop rack, you don't order it. Maybe you need more under-counter rack space. Omnirax can provide that. If you can dream it up, Omnirax can probably do it. You receive excellent quality furniture that can stand up to years of abuse and great customer service.

Omnirax has spoiled me with its easy design and assembly. It actually takes longer now to unbox and unwrap everything than it does to assemble it. If it were up to me, I would never buy anything else.

For information, contact Philip Zittel at Omnirax in California at (800) 332-3393 or visit www.omnirax.com.

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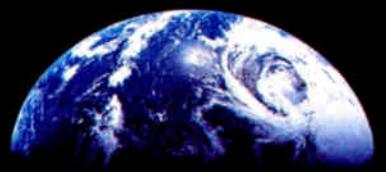
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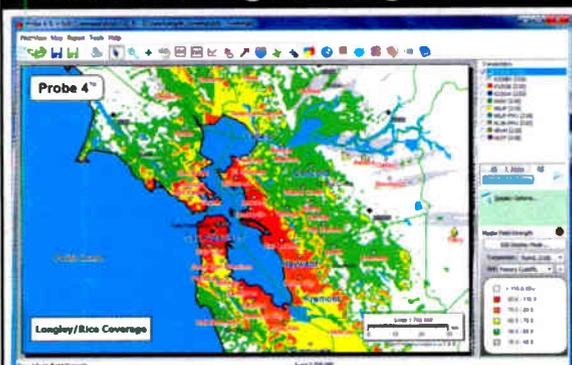
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other program for replay later as well as a basic logging system. Beside these additions the system schedules music, does voice tracking (ALWAYS hit the vocal), create a shell, live assist, exact time events, join satellite feeds, automated temperature announce, do unattended remote events and more. Call (406) 679-0527 or email krws@digitaldevelopment.net for a copy today.

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Radio broadcasts of Major League Baseball, NFL, and some college football games that are on cassette tapes, approx 100 to 125 games, time period of entire collection os from the 1950's - 1970's, BO. Must purchase entire collection. Contact Ron, 925-284-5428 or ronwtamm@yahoo.com

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WANT TO BUY

Collector wants to buy: old vintage pro gears, compressor/limiter, microphone, mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035 or ilg821@aol.com.

2" plastic "spot" reels 6.5 or 8" diameter, as used for quad video. Wayne, Audio Village, 760-320-0728 or audiovlg@gte.net.

Equipment Wanted: obsolete, or out of service broadcast and recording gear, amplifiers, processing, radio or mixing consoles, microphones, etc. Large lots preferred. Pickup or shipping can be discussed. 443-854-0725 or ajkivi@gmail.com.

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk

shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSFX, KOBY, KCBS, KQW, KRE, KTIM, KYA, etc. I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@yahoo.com.

Looking for a broadcast excerpt of a San Francisco Giant's taped off of KSFO radio from 1959, interviews with Willie Mays, Dusty Rhodes & some play by play excerpts, also features a homerun by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

Looking for KFRC signoff radio broadcast from 1930 Andy Potter, running time is 0:22 & also the KLX kitchen the program guest is Susanne Caygill, a discussion of women's affairs with a long promotion for Caygill's appearance at a local store. Anne Truax, Susanne Caygill, running time is 13:44. Ron, 925-284-5428 or email ronwtamm@yahoo.com.

Looking for KTIM FM radio shows from 1981-1984 if possible unscoped. R Tamm, 925-284-5428 or ronwtamm@yahoo.com.

RECEIVERS/ TRANSCIVERS

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American Made SCA Decoders, 417-881-1846.

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Large or small collections of 16" transcriptions or 12" transcriptions, not commercial LPs. Bill Cook, 719-684-6010.

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You've Lost That Lovin' Feelin'

A mental health professional counsels radio on its social insecurities

COMMENTARY

BY KELLY ORCHARD

I discovered "social networking" in the mid-'90s, when AOL first became popular and we were all using dial-up connections and getting into "chat rooms." My initial impression of radio back then was pure joy, because I could put out my message and get an immediate response — like those chat rooms. It was fun!

What surprises me now is that radio hasn't engaged in advancing forms of social media more than it has, and that broadcasters often treat this evolving playing field as a nuisance or something they'd "better adapt to or get left behind."

Radio was the first "social media" — a pioneering way of communication. Radio introduced the idea of transmitting a message to the masses first, taking live calls and engaging with the audience. Look at Ham radio.

Over frequencies, we had the very first "social medium." So how did radio become so insecure about its position in the community?



Kelly Orchard

I'm a second-generation broadcaster. My dad was an engineer in Los Angeles during radio's reinvention period in the

1960s. While critics claimed that television programming was going to be the death of radio, my father and his colleagues didn't care. They were inventing, engaging, creating and having a ball.

There is a group on Facebook, nearly 2,000 members strong, called "Old Radio DJs," which comes together and shares pictures and stories of the glory years on the air — and it has not only

become very nostalgic, but has caused me to observe a population of collective individuals who loved the industry and what they were able to do, which was inform and entertain.

When I hear people say, "Yeah, but radio isn't like that anymore: the bean counters have taken over," or, "Social media and digital has killed radio." I cringe. Why? Because it sounds so familiar.

Has radio given up? Is radio dead?

THE DOCTOR IS IN

I've been working as an FCC Compliance Consultant since 2000. Orchard Media Services specializes in FCC compliance plans, public files, "mock" inspections, etc. It's a business partnership with my dad, and I've had the honor of visiting hundreds of radio and television stations all over the country for more than 13 years.

Prior to that, I sold time for radio in Sacramento. Before that, my family built, owned and operated several stations in Southern California, including my namesake, KLLY(FM) — "Kelly 95" — in Bakersfield, Calif. I'm no rookie; I've seen it all.

A few years ago, I decided to pursue a master's degree in psychology, and have been working as a therapist since, maintaining Orchard Media Services from the sidelines, hoping that the economy would turn around, or that radio would figure out what it's going to do. I followed the trades, maintained relationships within the industry, and even graduated from

the NABEF's Broadcast Leadership Training program.

As I continue to consult with stations about their FCC Compliance plans, I can't help but notice an atmosphere of stress, anxiety and general frustration and discouragement at the state of the industry. So now I am on a mission to provide peace of mind, mental wellbeing and help to my friends in the industry. I'm a media and mental health advocate.

MENTAL HEALTH, WELLNESS AND RADIO

Admitting that one has symptoms of depression, anxiety and stress doesn't come easy, especially in the work environment. If it's not a matter of life-and-death, nobody wants to talk about it. Yet given the statistics, one in four people suffers from depression, stress and anxiety, and believe me: it's affecting the bottom line. But if one in four workers is struggling, that also means that your radio audience is suffering, too.

I have a few theories that I've borrowed from psychology, and if you as a reader will indulge me, we can explore the dysfunctional relationship between radio and the audience— while also understanding the dysfunction within the station and how it affects the overall operations.

I had this idea that
(continued on page 38)



The author, then 21, poses in front of a sign for Kelly 95, the day it went on the air in 1985.

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Four Stations, One Site, Lots of Photos

Now you can see ...
the rest of the story

In our Aug. 1 issue, Mark Persons and Mark Mueller gave you the technical details of the story "Four AM Stations Sharing One Site" (*radioworld.com*, keyword Mueller). The one thing it was missing? Visuals.

Now here is the accompanying artwork, previously left off, to help you get a better understanding of the project. Thanks to all who wrote in asking where the pictures were.

PERSONS RECAPS

Mark Persons writes:

A new transmitter building was designed and constructed with the goal to expand from two stations to four stations. Transmitters and phasors from the two existing stations were moved from the original building to the new building and then the old structure was torn down.

More equipment was installed over the next few years for the additional two stations. The new building has a station in each of its four quadrants. This was done to better organize what was going on and to avoid confusion. A wise move because mixing it up in a building intended for less would have been a kluge.

RF and control wiring between the phasors and the antenna coupling networks were run through ports in the transmitter building's concrete floor. This kept the installation very neat. No RF straps or other cables run across the floor. The rest of the cables are routed overhead. What a relief to be "trip hazard free" in the transmitter building.

A local handyman was employed full time to keep chipping away at the work under the direction station owners and myself. This saved a lot of money. In the end, I am extremely pleased that the facility turned out as well as it did. Mark Mueller is justifiably proud of his design and tuning on this amazing project.

One of the photos shows Mark using a high-voltage glove to adjust one of the many pass/reject filters. I first met Mark when he came to Minnesota to tune a five-tower directional antenna on 650 kHz, which I built from the ground up back in 1983. That one required constructing the phasor and antenna coupling networks with open-panel design from a schematic diagram and parts.

Yes, a phasor does not need to be purchased ... it can be built locally, as were some sections of this four-station system.

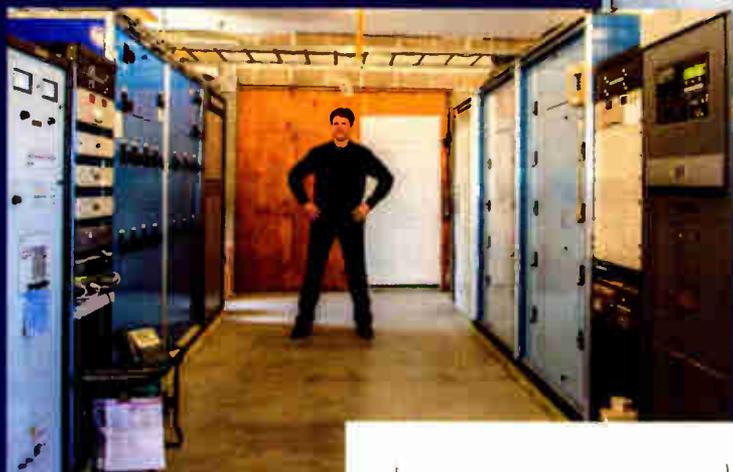
Mark Persons, WØMH, is certified by the Society of Broadcast Engineers and has more than 30 years of experience as an engineer. He has written numerous articles for industry publications over the years. His website is www.mwpersons.com.



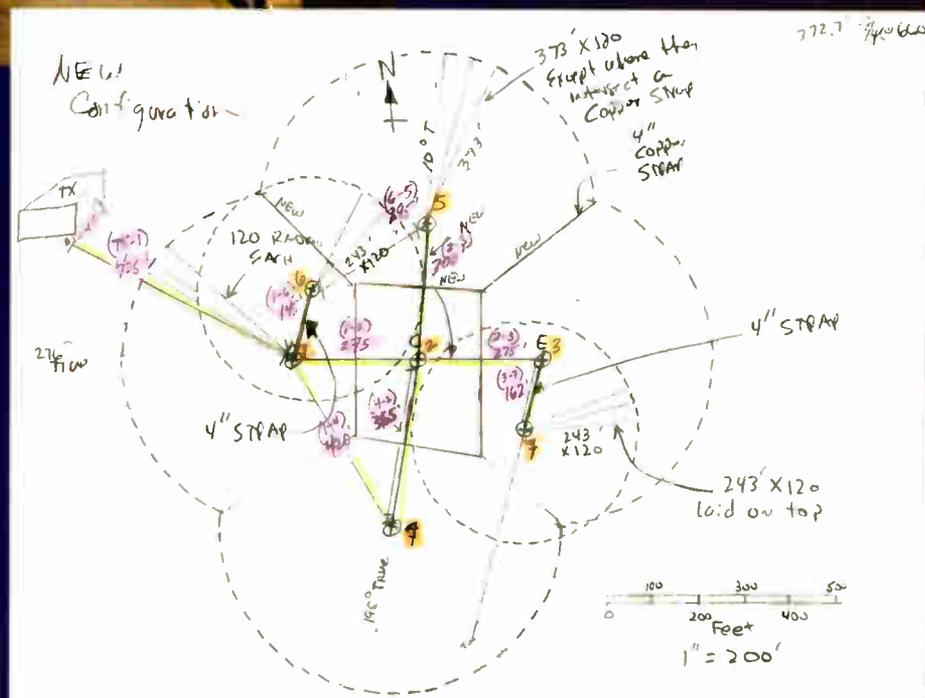
WVAL transmitters and phasor are shown.



Transmitters and phasor for WHMH(AM).



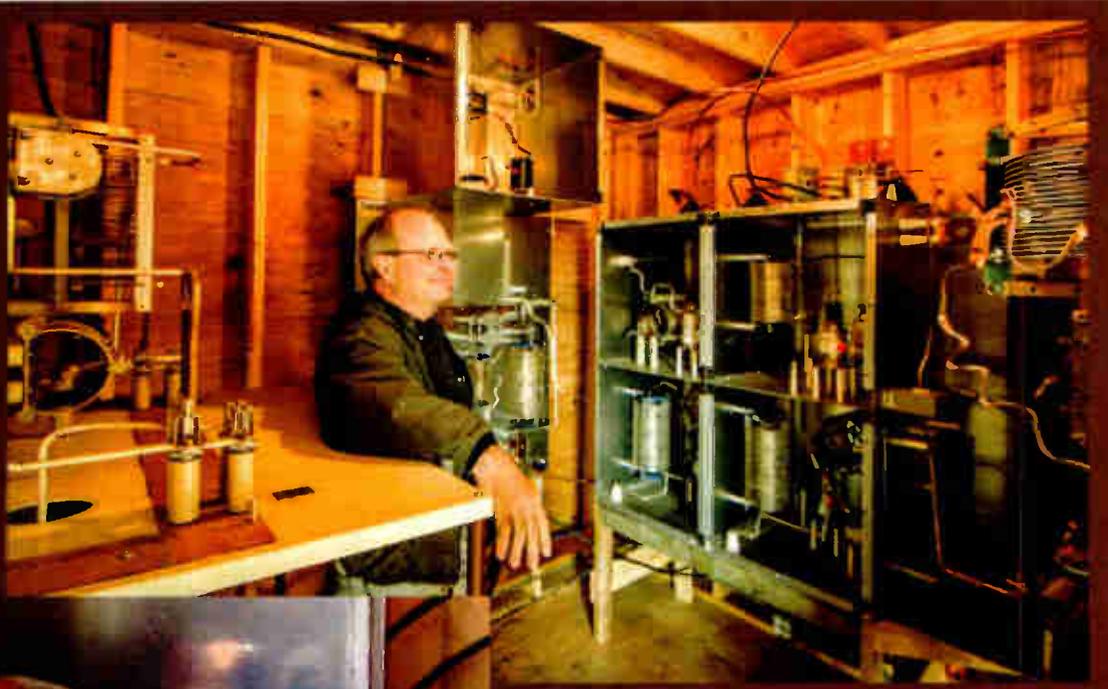
Gary Hoppe is on top of the world at WXYG(AM) and WMIN(AM).



Courtesy Mark Persons



The Hoppes: Herb, Val and Gary.



Mark Mueller admires a tuning building.

Mueller tunes WXYG.



A high-voltage glove on a hot capacitor.



Mark Persons stands by an entrance to transmitter building.



Seven towers, one site.

DYSFUNCTION

(continued from page 35)

if we looked at “Radio” as if it was an individual and not an industry, and similarly considered “Audience” as if it was an individual and not just a collection of ears — and if we considered the relationship of “Radio” and “Audience” as if they needed marriage counseling to heal their “dysfunctional relationship” — we might gain a new perspective on what has happened to this union.

If Radio and Audience participated in a kind of marriage counseling, here are a few things that the therapist would take into consideration:

- Radio’s Personality Traits
- Audience’s Personality Traits

Now, it might seem to Radio as if Audience has already disengaged in the relationship. Is it a possibility that Radio is trying too hard, and therefore comes off as insecure and needy? Or has Radio not tried hard enough to maintain Audience’s love? If this was an actual couple that was looking at their relationship, the answer is quite possibly ... both.

Audience seems to suffer from Attention Deficit Disorder. It can’t seem to stay focused on one subject. Listeners are scattered and jumpy, and any shiny new object distracts them.

Now Radio, on the other hand, might be suffering with a little bit of Narcissistic Personality Disorder, with its grandiose sense of self, need for admiration and lack of empathy; all underlying symptoms of deep-seated insecurity.

Of course, who wouldn’t be insecure in this economic climate? Consider the economy and its impact on the Audience. That is an entirely different (although complementary) topic from what’s going on within a station’s walls.

The media landscape is constantly changing, and very unpredictable.

Radio keeps chasing Audience with shallow attempts to get its attention — cosmetic changes akin to getting exercise, losing weight, dressing nicer (redesigning a website, more musical programming) — but Audience doesn’t care about the surface stuff. Radio needs a shift in perspective. Stop chasing Audience with pretty clothes and new perfume.

WHAT DOES THE AUDIENCE WANT?

That is the big question. Has Radio actually asked Audience what they want out of the relationship? Review the above statistics — one in four people is suffering from depression, stress and anxiety. Audience might be looking at other relationships to relieve these symptoms.

Radio seems to be telling Audience, “Well, this is how it is, and by the way,

here are some free tickets.”

How will Radio know what Audience wants? Ask. Surveys about customer satisfaction and inquiries on how companies can improve their product offerings are readily available, but since deregulation of specific licensing requirements, stations don’t perform community ascertainment the way they used to. Ascertaining the comments and concerns from the community has always been a great tool to uncover what the community actually needed.

Free stuff, contests, concerts and events are all fine; it’s like dating. But when it comes down to one single concept,

Free stuff, contests, concerts and events are all fine; it’s like dating. But when it comes down to one single concept, Audience wants an intimate relationship.

Audience wants an intimate relationship. Companionship. Somebody they feel comfortable with that won’t abandon them.

Music and talk are, well, just music and talk. Radio needs to develop an actual relationship with audience. The format is the vehicle, but where is the emotional connection?

Over the past few months, I’ve spoken with plenty of leaders in the industry about this concept. I’ve spoken with leaders from the NAB, state associations, lawyers, consultants, brokers, operators and staff, all of whom have responded with, “You’re onto something here.”

BAND OF GOLD

So, I offer some questions that a therapist would tell Radio to think about when considering counseling with Audience. They are shown in the box below.

What can radio do next? Maybe the

MARRIAGE COUNSELING 101

Questions that a therapist would tell Radio to think about when considering its relationship with Audience:

1. How much does Radio know about Audience on a personal level? Aside from the “research,” what do they really want?
2. How much does Radio identify with Audience? Are you, as a relationship, compatible?
3. What worked in the past? How did Audience first fall in love with Radio and what has changed?
4. How much does Radio really care about Audience (besides some numbers and time spent listening)?
5. To what degree does Radio and Audience feel like a family?
6. Is it really more music, less commercials? In a marriage counseling context — is it really about the quantity of the “dates” and what you can “do” for your partner? Be realistic. Audience can get that anywhere — so what Radio can do is create a community unlike any other medium.

answer is to stop chasing Audience. Do whatever it takes to get Audience to fall in love with Radio again. One way or the other, something needs to change. And this is where the work begins: Within the walls of each and every Radio station. Start there.

There are evidenced based practices in mental health and therapy that have proven to heal relationships. Positive thinking is an approach that works. Consider the laws of physics. Broadcast engineers will definitely love this, and so will sales managers: Whatever you put out will come back to you; for every action, there is an equal but opposite reaction.

Consider your mindset as you go to work. If you are thinking negatively, hate your job, hate the business — the audience will pick up on that. So take the time to consider what your thoughts might be doing, and then experiment with changing them.

I know it’s easier for me to say this than it is to actually do it, but as a therapist, I’ve helped many people consider the alternative if they do nothing, and have watched them succeed when they begin by simply allowing themselves to shift the way they think into a positive frame of mind.

Kelly Orchard is managing partner of Orchard Media Services and founder/CEO of Red Slipper Integrative Coaching, a personal and professional development consulting firm. She speaks to radio groups about mental health and how it affects the organizational environment. Email: kelly@orchardmediaservices.com.

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