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JANUARY 18, 2017

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Inaugural will take place on west side of the U.S. Capitol, here from across the Reflecting Pool.

Radio Preps for 2017 Presidential Inauguration

AoIP is the order of the day as ISDN dwindles in the rear-view mirror

► REMOTE BROADCAST

BY RANDY J. STINE

WASHINGTON — If you can't get a ticket to the presidential inauguration on Jan. 20, don't worry; there will be plenty of coverage of the day's events by radio organizations, including live feeds, website video and posts on a variety of social media platforms.

Westwood One News, Fox News Radio, CBS Radio News, NBC News Radio, ABC Radio News, Voice of America and National Public Radio are among those planning to devote lots of manpower and technology, well aware of the historical nature of the event.

The radio nets plan to trot out all kinds of coverage utilizing streaming audio and social media platforms, like

Facebook and Twitter, along with traditional methods to reach radio audiences.

As of late December, the Presidential Inauguration Committee was still finalizing details of where broadcasters will be positioned as President-elect Donald J. Trump raises his hand and is sworn in from the platform on the west-front steps

of the U.S. Capitol building. The Senate Radio-TV Gallery also helps coordinate broadcast media for the event.

Jeff Fitzgerald, executive director of operations for ABC News Radio, said plans for a "talk show row" somewhere at the Capitol were in the works.

"Historically, the networks have created and supported these events for our affiliates," Fitzgerald said. "The radio networks have formed a consortium of sorts this year to accomplish that."

There are nine official events scheduled for the day and a lot of ground to cover, from the morning worship service and procession to the Capitol for the swearing-in and the inaugural

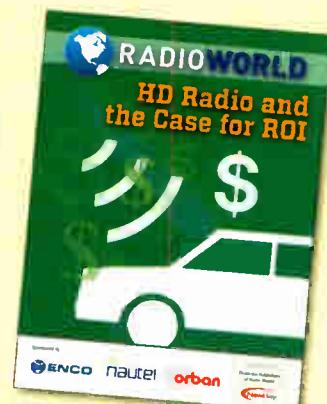
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HD Radio and the Case for ROI

Here's what I learned in researching this frequent question for our latest eBook

► FROM THE EDITOR

BY PAUL MCCLANE



For a new Radio World eBook published in December, we asked a dozen or so broadcasters and other industry participants about this. You can read it online at <http://tinyurl.com/rw-hdroi>.

Is the "translator play" as effective as widely believed? What revenue can stations expect if they participate in the Broadcaster Traffic Consortium? Are stations discovering revenue

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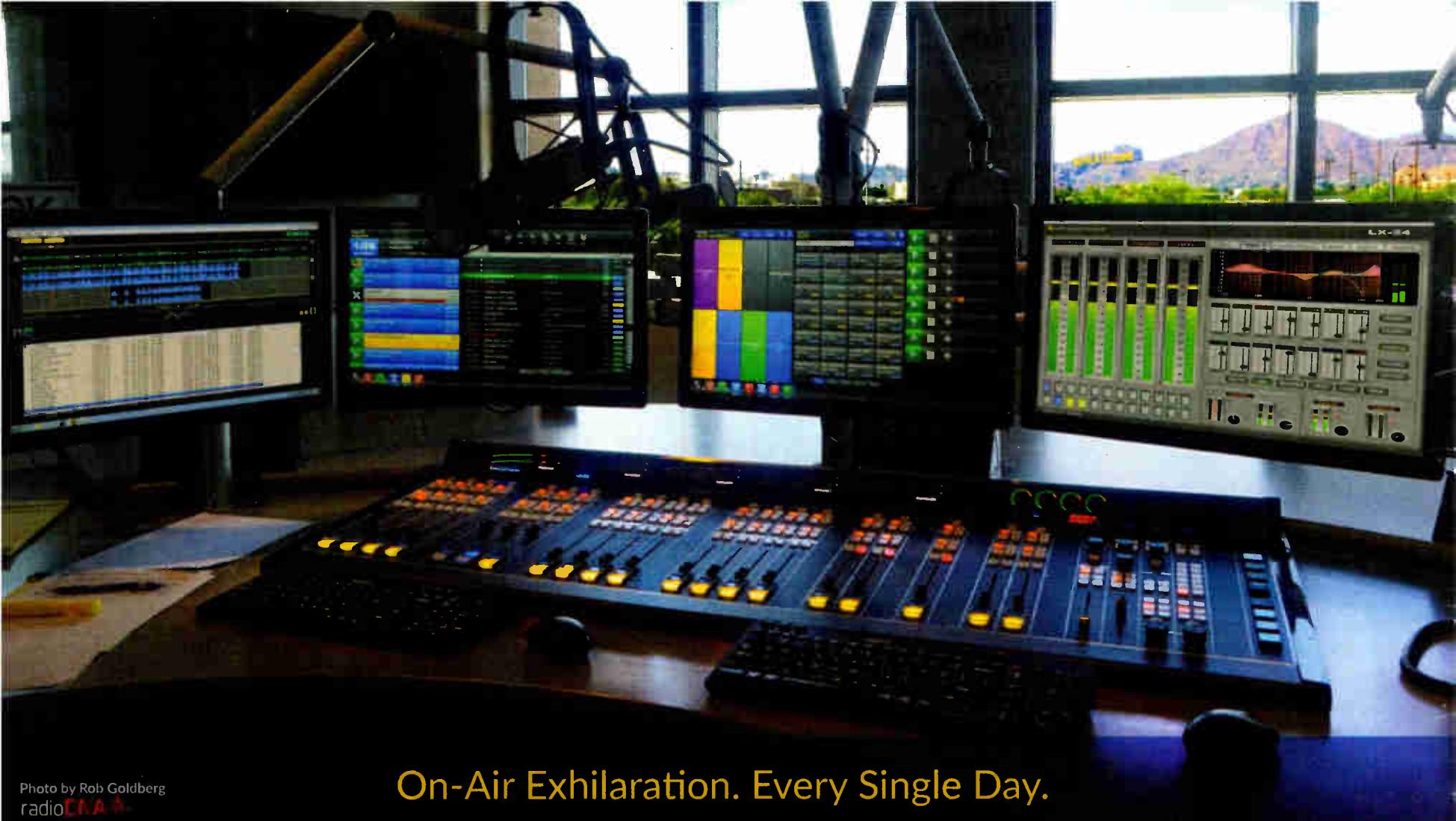


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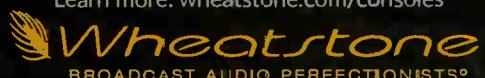


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Pandora Promotes Sales Network

Streamer plans to use its sales team to help other streamers sell ad inventory

STREAMING AUDIO

BY JAMES CARELESS

Streaming media giant Pandora has about 400 salespeople, more than it needs to sell advertising space in Pandora's audio streams. Smaller streaming media sites have lots of audio ad inventory to sell but don't have Pandora-sized sales departments and tools to do the job.

Surely it makes sense to bring the two sides together, with Pandora selling ads on behalf of these smaller sites in exchange for a cut of their ad revenues. Such a shared sales arrangement would benefit both participants, while giving advertisers more targeted buys over a range of internet radio stations.

"per hour limit on our own streams," said Kritzman. "At the same time TuneIn, AccuRadio and other Harmonic partners benefit by having our well-informed sales staff selling on their behalf, while advertisers are offered better-researched, tightly-targeted spots for their commercials. Everybody wins."

advertisers, so that they can "see" where and when their spots were played for, and for whom.

This said, Pandora is not putting the full range of its audience analysis tools at Harmonic's disposal. Advertisers buying ads through the Harmonic Audio Network will be able to specify placement in terms of listener age and listening habits, audio genre and the kind of listening devices being used (i.e., web or mobile). But this will be it

Any company looking at Pandora will see that the streaming space is a low fruit, low-CPM business with minimal market demand.

— Thom Callahan, Southern California Broadcasters Association



Screenshot from the Pandora for Brands website.

That's the thinking behind Pandora's Harmonic Audio Network; but some broadcast observers are skeptical.

Launched in November with third-party streaming platforms TuneIn and AccuRadio.com, Harmonic is now the exclusive sales agent for a portion of TuneIn's and AccuRadio's in-stream "audio inventory" or available commercial slots. It will also sell a portion of Pandora's own inventory, said Steven Kritzman, Pandora's senior vice president of sales.

Harmonic's goal is to woo other third-party streaming sites to sell their audio inventory through the Pandora sales force.

This would give the company increased ad revenues without increasing its "less than four minutes of ads

"We have a relatively small sales force for direct selling," said Bill Hartman, TuneIn's VP of strategic partnerships and business development. "Pandora has built a massive, proven, audio sales team. Partnering gains access to their resources and allows us to focus on bigger content-led sales opportunities."

WHAT HARMONIC DOES AND DOES NOT OFFER

By joining the Harmonic network, streaming sites get access to a number of Pandora's sales tools. These include Pandora's direct sales force, commitment to "capped ad frequency" (meaning that the same audio ad will not be played repetitively in TuneIn's audio streams) and playout data compiled for

for now: Providing access to the streaming giant's most sophisticated audience measurement tools will have to wait. "We are thinking about down the road layering on additional segments," Pandora VP of Local and National Broadcast Andy Lipset told advertising industry website adexchanger.com.

WHY TUNEIN SIGNED ON

Founded as Radio Time in 2002, today TuneIn offers some 100,000 radio stations via its website and mobile app, plus a massive library of podcasts and other on-demand content. Its audio advertising opportunities occur within audio streams (mid-roll), as well as on certain stations when the user selects the stream, or podcast.

Under its current system of selling such ads directly, "we have an abundance of audio inventory," said Hartman. "Joining Harmonic is an efficient and effective method of monetizing this ad format, as opposed to building a large team to monetize it ourselves. For TuneIn, partnering with an experienced sales force of Pandora's magnitude is a plus."

NOT SUSTAINABLE?

Ideally, the Harmonic model is a win-win-win approach to online audio ad sales.

Pandora earns more money from its existing sales force without having to increase its own ad playouts per hour. Third-party sites like TuneIn get much more of their ad inventory sold, offsetting lower per-ad revenues (due to Harmonic getting a cut) by generating a much higher sales volume overall and thus higher revenues overall. Advertising

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HD ROI

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opportunities from leasing digital sub-channels? Could such revenue help cover the cost to upgrade to digital? Who is willing to purchase such capacity? Can we quantify how HD Radio might help an AM owner justify the investment?

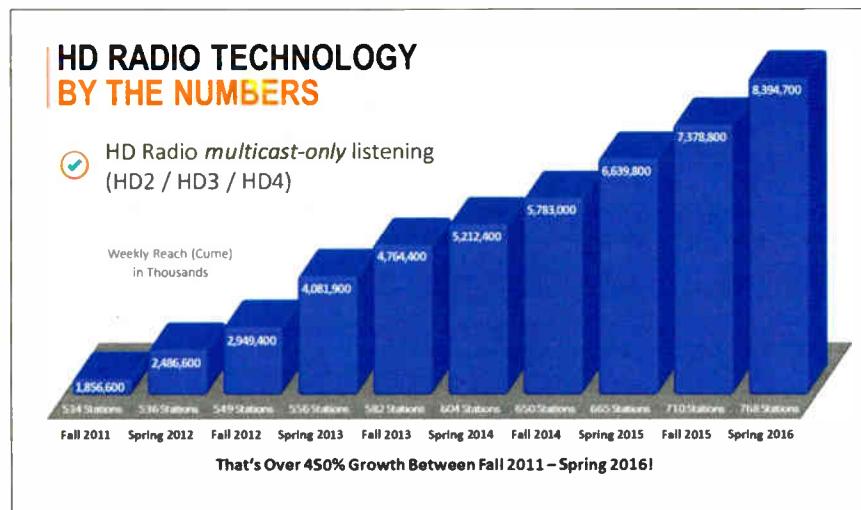
Ebook respondents include executives of Cromwell Group, WDGY(AM), Emmis, Scott Communications Inc./Alexander Broadcasting Co., RUSA Radio, BTC, HERE LLC, as well as our eBook sponsors and other observers.

Here is a summary from my introduction of the ebook.

CONTEXT

The percentage of vehicles sold in the United States in 2015 with HD Radio was about 35 percent, according to HD Radio parent DTS Inc., and three dozen vehicle brands now offer the technology. The number of U.S. stations with HD Radio installed is about 2,300 out of 15,500 or so licensed stations.

The great majority of installed stations are FMs. While these tend to be in larger markets to date, about 95 percent of Americans now have access to at least one HD Radio broadcast. Three-quarters of U.S. radio listeners listen to stations that have HD Radio, though



This chart from HD Radio parent company DTS Inc. documents growth in multicast-only listening over the past five years.

many of these consumers may not actually be listening in digital. There are about 1,700 FM multicasts, including 50 or so HD4 channels. HD Radio has made its biggest inroads in the car, compared to mobile and home listening.

When talking about the ROI from a digital investment, be clear on what, exactly, you're discussing. One might be referring to an AM or FM station's main HDI digital signal, or to one of several FM multicasts, or to an analog FM translator that is rebroadcasting content

of an HD multicast. To a listener in the latter case, the role of HD Radio might be invisible, but that digital component is now a key part of many stations' ROI considerations.

IN TRANSLATION

Proponents have argued that "content is king" and that HD Radio is an important tool to be used not for its own sake but to gain listeners. They say the cost to add digital is roughly comparable to the cost of going FM stereo in the early 1970s

and that radio cannot afford to remain analog in an increasingly digital world.

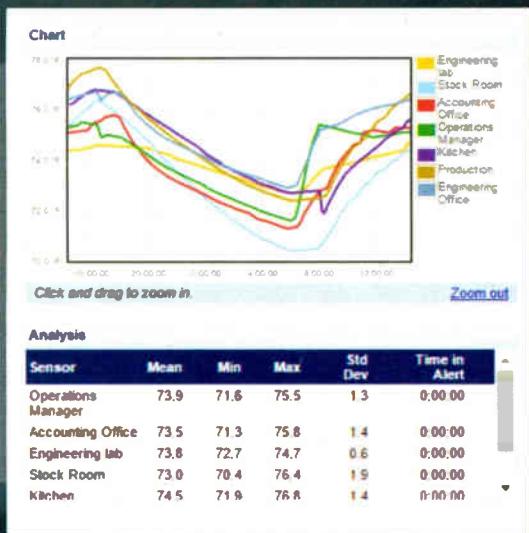
Much of the discussion about immediate ROI from the investment focuses on the strategy of programming an HD2 or HD3 multicast in order to feed a separate FM translator. Proponents point out that certain groups like Saga, iHeartMedia and Cox jumped early on this idea and have been successful in markets large and small. DTS tells us numerous broadcasters have done this, realizing monetization and recovering their investments.

Some show up in the ratings. Rick Greenhut, director of broadcast business development for HD Radio at DTS Inc., has tracked HD-on-translator multicasts in PPM markets since early 2014, when there were 23 multicast stations in 11 markets meeting minimum reporting standards to be included in Nielsen monthlies. "As of this month," he said in December, "there are now 54 multicast channels that appear in their respective monthlies in some 26 markets, despite the higher listening requirements (Nielsen MRS or minimum reporting standards) for inclusion in the monthlies."

As a case study for translators, DTS points to WLZX(FM) in Springfield, Mass. This Saga station uses the HD2

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HARMONIC

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ers get access to more streaming sites that have the ears they are trying to reach, through a sophisticated sales portal like Pandora.

Pandora, of course, has been viewed by broadcasters as a direct competitor for traditional radio advertising, and not everyone is impressed by the Harmonic sales model. One skeptic is Thom Callahan, president of the Southern California Broadcasters Association.

"Pandora is for sale and has been for months; the business is losing millions every year, and their business model is just not sustainable," said Callahan. "Pandora is desperate to keep their sales staff, and since their core business is failing, the thinking is this will keep those sellers from leaving."

"By stating they have a new revenue stream and new partners, the value of the company becomes a bit more appealing for a buyer. However, any company looking at Pandora will see that the streaming space is a low fruit, low-CPM business with minimal market demand."

The model makes sense, and Pandora has the sales force to do the job. So we are very hopeful.

— Bill Hartman, Tuneln

Radio World asked Pandora for a reply comment. The company's response via its media relations department was that "as a policy, we don't comment on rumors or speculation" but also stated that it is "one of the biggest advertising platforms in the U.S., generating over \$1 billion in annual revenue ... streams more hours of music than YouTube streams hours of video each month on mobile" and "is the #1 radio station in 49 markets (Scarborough 2016)."

Harmonic Audio Network's viability will be proven (or not) by how many extra ad sales the partner streaming services achieve via Harmonic, and whether those sales are enough to drive overall revenues up despite Harmonic's cut.

"The Harmonic deal doesn't kick in until 2017, so it's too soon to determine how Harmonic will work for us," said Tuneln's Hartman in December. "But the model makes sense, and Pandora has the sales force to do the job. So we are very hopeful."

NEWS

NEWSROUNDUP

SBE: Wayne Pecena was appointed secretary of the board of the Society of Broadcast Engineers. He fills a seat vacated by Tim Anderson, formerly of GatesAir, who is pursuing a career as a commercial airline pilot. Pecena is director of engineering at Texas A&M University; he chairs the SBE Education Committee and will continue to do so but he will no longer serve as a director on the board. Pecena was 2014 recipient of the Radio World Excellence in Engineering Award.



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HD ROI

(continued from page 4)

channel to feed programming to a translator that targets five major area colleges, "super-serving" student populations and supporting the effort with a dedicated sales team. DTS says that by introducing a CHR station in the market, Saga realized "a significant source of ROI."

Ed Christian, president/CEO of Saga, has been quoted using the term "metro station" to describe the HD-on-translator opportunity. After all, the thinking goes, local advertisers don't know the difference between a primary FM and a translator as long as the signal covers the market.

Critics may carp that the translator approach only further demonstrates the proven desirability of access to frequencies on the FM dial. But there's no question many broadcasters find this strategy attractive. While stations we contacted were reluctant to cite numbers, Radio World had no trouble identifying a number who embrace and endorse the translator strategy.

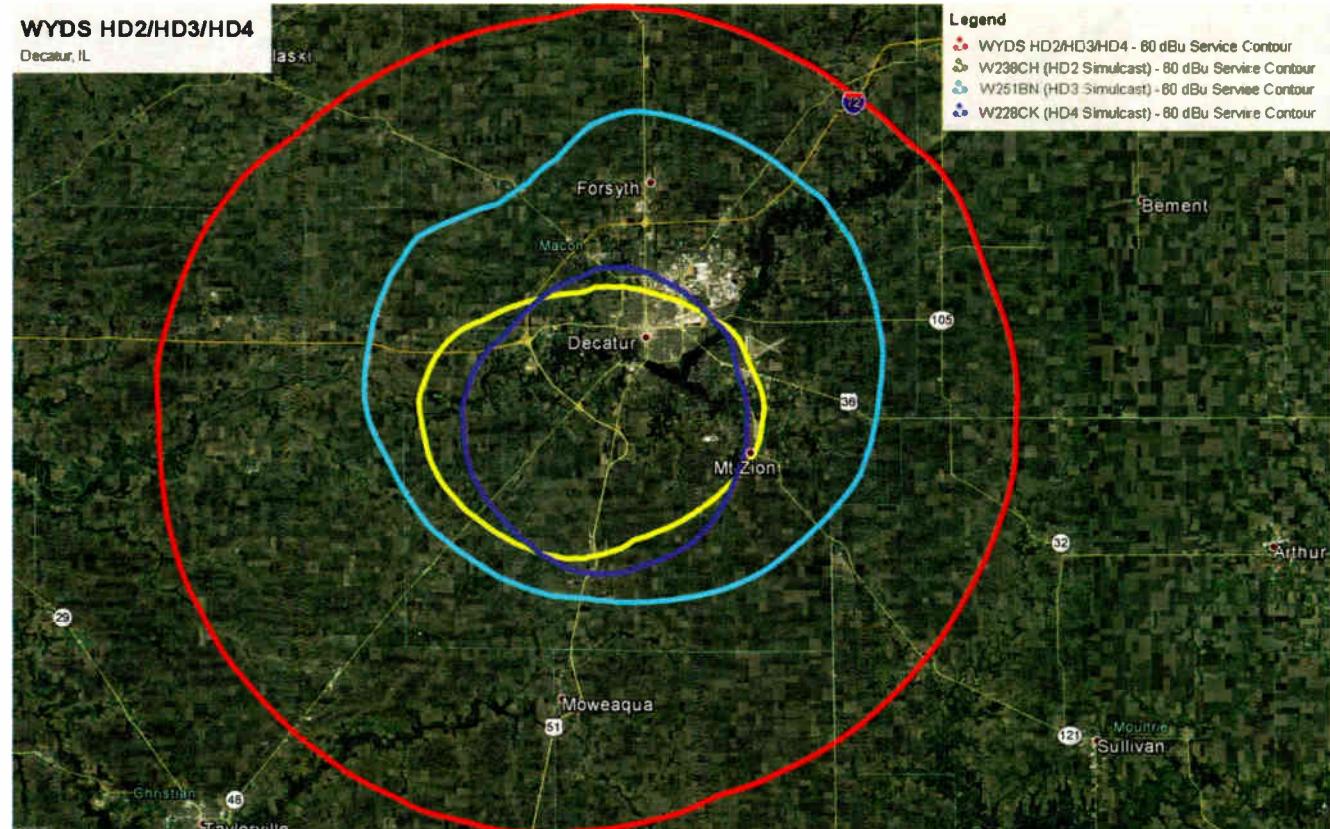
Further, while there is a 250-watt limitation on translator power, there's no height limit, so you don't have the "tower vs. power" issue that applies to traditional FM signals. "You can put your translator antenna on top of someone's 2,000-foot TV tower, and have a signal that rivals a Class A FM in many smaller markets," one HD Radio insider says.

Backers also believe HD-on-translator is not a "zero-sum" game. Add a unique format to a market and there are additional listeners and dollars that come into a marketplace from those not currently involved with radio, both on the listener side as well as the advertiser's, supporters say.

Niche formats, foreign-language broadcasts or even an oldies channel targeting baby boomers can serve to generate audience and dollars. As this proponent put it, "You don't rob Peter to pay Paul by adding a new way to serve underserved listeners."

"ENLIGHTENED USE"

Evidence supports the idea that at least some smaller operators are putting this HD2/FM translator strategy to good use. Translators that originate on HD multicasts are an increasingly



Map, described in the article, shows 60 dBu coverage of Cromwell Group's WYDS(FM) in Decatur, Ill., and its three translators fed by its multicast channels.

important part of the FM landscape.

Obviously the overall market for translators has been heated, with plenty of money being spent by groups large and small; it's due also to the special recent opportunity offered to AM stations, unrelated to the HD Radio sector. But clearly the package of an HD2 feeding a translator to gain more FM footprint has been a successful one in many situations.

(analog + HD1) plays CHR. It is 4.6 kW Class A at 367 feet HAAT. The HD2 is urban adult contemporary, simulcast on a 250-watt translator at 244 feet HAAT; the translator's 60 dBu coverage is the yellow circle. HD3 is classic country, and simulcast on a 250-watt translator at 538 feet HAAT; its circle is cyan. HD4 carries sports and simulcasts on a 175-watt translator at 277 feet HAAT; it is blue.

spot packages that can reach an advertiser's primary and secondary demographic targets.

Translator signals typically are smaller than the native HD2, HD3 or HD4 signal. "As more HD Radios hit the marketplace, we expect a natural migration from the analog simulcast to the digital original," says this DTS source.

OTHER MODELS

But what about other revenue opportunities?

"Pureplay" HD multicasts are not uncommon, both commercial and public. Stations might, for instance, use their HD2 channel to replicate a legacy sound from the 1960s or '70s, using period jingles and air personalities.

HD Radio, its backers say, also allows a station to bundle digital assets. "Package banner ads on your website along with spots on your HD2 for clients who might not be able to afford your main channel rates," a marketing piece states. "Your additional multicast channels can serve to bring new advertisers into radio by lowering the cost of entry for smaller clients."

Proponents say public stations in particular do a good job in general of promoting their alternate programming on their main channel; they also often cross-plug program reruns: "If you can't listen to all of this show now," a public radio station might tell listeners, "we'll

(continued on page 8)

The leasing argument is supported by a universal truth: Spectrum remains scarce and in demand.

The best guess is that there are about 250 HD-on-translator simulcasts on the air; there may well be more.

An interesting case is demonstrated in the accompanying graphic from DTS Inc. It shows 60 dBu coverage of Cromwell Group's WYDS(FM) in Decatur, Ill., and its three translators fed by its multicast channels.

The image is an example of what one pro-HD source calls "enlightened use of HD-on-translator" to maximize coverage, ROI and ensure market dominance. The main channel and the HD2/HD3/HD4 60 dBu coverage are indicated by the large red circle. The main channel

Based upon the target audience of the formats on the multicast channels. Cromwell apportioned translators to ensure that to the extent possible, coverage of the translator and the highest population density of the target audience coincided. Between those four formats, the argument goes, Cromwell can make the case for a piece of virtually any local or regional ad buy, either as a standalone or sold in combination. A buyer who wants to reach African-Americans can buy the HD2. A buyer who seeks to reach men 18–49 can buy a combo of the HD3 and HD4.

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INAUGURATION

(continued from page 1)

address, then a luncheon before the formal procession down Pennsylvania Avenue to the White House and finally concluding with the inaugural ball.

Unsurprisingly, given the nature of the recent campaign, the inauguration of the country's 45th president is generating keen anticipation, according to radio network news executives.

"There is tremendous interest in this particular event driven in part by the president-elect," said Chris Berry, senior VP and general manager of NBC News Radio. "It's a tremendous civic lesson for our listeners."

THE TECH BEHIND THE SOUND

Audio over IP will be the backbone of radio's broadcast network infrastructure for Inauguration 2017, network officials said. IP audio tools, utilizing a variety of hardware and software, have mostly replaced older fixed technologies like ISDN and POTS lines.

Field codecs can connect to the internet with wireless links like Wi-Fi and 3G/4G modems via a cellular provider.

This will be the first presidential inauguration during which radio networks do not generally expect to use ISDN, according to one network official. Verizon representatives told broadcasters during the planning stages that obtaining ISDN is no longer a realistic option within the Washington beltway, according to one expert. "Even if it were," the technician said, "its use is cost-prohibitive."

Fitzgerald of ABC News Radio said

most of the radio networks will be located on a platform near the Capitol about 30 yards from the presidential podium where President-elect Trump will take the oath of office.

"From there we will use a Comrex Access unit plugged into wired internet connection along with a wireless backup," Fitzgerald said.

ABC News Radio will use IP codecs to transmit multiple audio paths from across Washington, he said, but the

to cold and rain as the top concerns when it comes to their day-long coverage.

"You plan and go ahead and hope for a decent day. There have been inaugurations where it is too cold to even be outside. Our coverage will focus on the swearing in and inaugural address," Tessler said.

Part of Westwood One's coverage package — which tallies about a dozen people on site at the Capitol and other

Marantz PMD620 or PMD620 digital recorders, Akey said, and utilize laptops loaded with Adobe Audition for editing. Shure SM58 and Sennheiser MD 46 are in the mic package.

"We will utilize Luci Live as a filing app or an audio over IP backup to the Comrex units," Akey said.

Akey said all equipment will be tested over a two-day period just prior to the rollout. "Our goal is to give our staff the maximum amount of flexibility that we can."

Greg Peppers, executive producer of AP Radio, said the network will offer its affiliates live coverage of the inauguration from the U.S. Capitol, anchored by White House Correspondent Mark Smith.

"AP Radio also will cover the inaugural parade with correspondents Jerry Bodlander and Ed Donahue along the parade route. We are planning to use IP technology to report live from the Capitol and along the parade route," Peppers said.

Smartphones may not be of much use for filing reports near the Capitol; Pepper said it's widely believed that the U.S. Secret Service jams cell phone signals in close proximity to a president or president-elect.

Fox News Radio will provide coverage for their broadcast network stations, Fox News Talk Digital and Mobile Channels, along with partners SiriusXM on Channel 450 Fox News Talk and Fox News Headlines Channel 115, according to a Fox News Radio spokesman.

FNR has transitioned to IP-based broadcast solutions for its coverage but

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Radio networks will use streaming audio and social media platforms along with traditional methods to reach audiences.

parade presents unique challenges because of possible spotty internet bandwidth along the route.

"We'll have a correspondent on the media truck traveling the parade route, but we plan to use microwave technology to broadcast along the route," Fitzgerald said.

In case of total internet failure, the network will have BGAN satellite equipment capable of creating an ISDN-quality feed as a back-up, Fitzgerald said.

Inauguration day weather is always a huge consideration as radio networks lay out their preparation plans, news executives said.

Westwood One EVP of News and Talk Programming Bart Tessler points

event locations — includes doing a number of custom reports for a variety of large market affiliates, Tessler said.

The technology package for conducting such a huge live remote calls for a variety of devices and techniques, according to Zach Akey, director of engineering for Westwood One Washington. The network's technical needs vary site by site.

"This is really the first inauguration that we are totally getting away from ISDN. Most everything will be IP audio using Comrex Access codecs. We utilize the CrossLock feature where possible to aggregate LTE and Wi-Fi and/or dedicated MIS. Other options include smartphone recording," Akey said.

Westwood One reporters will carry

HD ROI

(continued from page 6)

be repeating the program at 8 o'clock tonight on our HD2 channel." Talk and religious stations find this useful too.

Demand for multicast capacity also comes from highly targeted program sources, often ethnic or religious — echoing the days when stations built revenue streams from their analog SCAs. Now, however, the receivers required can be readily available HD Radios rather than custom-built SCA radios, helping the sub-channel broadcaster solve the "receiver availability" problem.

In our eBook, we interview an enthusiastic supporter with such a lease, Anna Pekerman of RUSA in New York. Other organizations reportedly using HD multicasts as part of their distribution include Sputnik Radio, Saigon Radio, YTN radio (Korean in Los Angeles), G & E Chinese Radio, Pillar of Fire and Radio Hamrah (Persian language in L.A.). The scope of the leasing marketplace is difficult to quantify; but as one of our interviewees told us, the lease argument is supported by a universal truth: Spectrum remains scarce and in demand.

In another example of how HD2 channels can be used, in 2015 the iBiquity-owned HD Radio Ad Network (now part of DTS) announced a deal to broadcast Radio Disney content 24/7 via numerous HD2 and HD3 stations owned by several major broadcasters. The ad network sells advertising on them and shares the majority of revenue produced with the stations. That agreement remains in place and is being expanded to more stations in 2017, a DTS official confirmed.

Yet another approach of which we hear are one-off lease arrangements that broadcasters sign with local churches broadcasting in Spanish, Korean or Chinese. Anecdotally, at least some stations have added HD because they knew they had a lease with a church for an HD2 channel. (I welcome information about such deals that we can share with readers; my email address is at the end of the article.)

To be sure, there are 13,000 AM/FM stations that have not yet made the digital choice or have opted for a long-term waiting approach. At one big group, an engineering executive told me that smaller/medium markets aren't producing revenue and "we are looking at not replacing [HD Radio] as they die. Translators are really the only justification." Another industry leader is supportive of HD Radio but feels it's too hard

for consumers to find HD and multicast options on car hardware, compared to one-button access for services like Spotify.

And more than one person wished for better and more detailed industry analytics and ratings for these forms of digital consumption. Nielsen does not report who listens in analog-only vs. who is listening in "native" HD; the diary and PPM meter encoding just note call letters or frequency. There's no way to capture analog vs. digital, nor a percentage of listeners listening to an analog simulcast of an HD2/3 in HD vs. analog.

Another observer with significant major-group experience thinks the ROI remains difficult for small- and medium-market stations. Yet like his colleague quoted above, he too immediately qualified this by adding: "... unless you can get a lucrative HD2/HD3 lease, or unless you can secure your own analog FM translator that can relay HD2/HD3 content."

Those are the kind of applications that we heard about in the market. And he expects the outlook to improve over time as receivers proliferate further and hardware becomes more affordable.

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NEWS

NEWSROUNDUP

NATIONAL EAS: September's nationwide EAS test was a success, though it revealed "shortfalls" in some state-level EAS plans and other areas that could be improved. These are among the findings of FCC public safety officials, who published initial results. They said improvements made to EAS after the first nationwide test five years ago, plus the implementation of a new online reporting system, "appear to have significantly improved test performance over what was observed during the 2011 test." But they discussed ways that the Emergency Alert System might be strengthened, based on data received from EAS participants. We'll have more on this next issue.

IHEART ON-DEMAND: At CES, iHeartMedia launched two new paid, on-demand services called "iHeart-Radio Plus" and "iHeartRadio All Access powered by Napster," describing this as a unique opportunity to capture non-music subscribers with



an on-demand service "built around radio." They had been rolled out earlier in beta form. The cost of iHeartRadio Plus is \$4.99 per month. The enhanced iHeartRadio All Access powered by Napster costs \$9.99 per month. (The existing iHeartRadio service remains in place and is still free.) The basic version includes the ability to replay songs from both live and custom Artist Radio stations, then return to the station in progress. The user can save songs from those stations to personal playlists to play



later; search and play songs from a big library; and use the "skip" feature without limit. The All Access version also "allows them the convenience and accessibility of merely pushing a button to add a song immediately to their music collection at the same time they hear it on the radio — something no other music collection service can offer." Subscribers can listen offline to their music and playlists; create and curate playlists; and have no playback cap. They can delete and sequence playlists and manage unlimited playlists.

BLACKBURN: Rep. Marsha Blackburn (R-Tenn.) was tapped to head the House Energy & Commerce Committee's Communications & Technology Subcommittee. Blackburn



has been active on the subcommittee and also is on President-elect Donald Trump's transition team executive committee. Former communications Subcommittee Chair Greg Walden (R-Ore.) was term limited, but moved up to chair of the full committee, succeeding Fred Upton (R-Mich.).

\$25K FINE: In a case involving proper tower lighting and painting, the FCC plans a \$25,000 fine against

Pentecostal Temple Development Corp., licensee of WGBN(AM) in Lincoln Borough, Pa. In a notice of apparent liability, the Enforcement Bureau wrote that Pentecostal "apparently willfully and repeatedly" violated commission rules by failing to light and repaint its antenna structures to maintain good visibility, and that it also failed to notify the FAA of a lighting outage, failed to complete the lighting and marking repairs to the antenna structures by the end of August 2016 and failed to comply after multiple warnings. The base forfeiture amount is \$10,000, but the commission staff decided that an upward adjustment was warranted because the apparent violations continued despite repeated warnings, "demonstrating a deliberate disregard for the rules."

BMI: Performance rights organization Broadcast Music Inc. filed an action in Federal Rate Court to set interim fees for radio stations represented by the Radio Music License Committee. BMI



asked the court to maintain its most recent rate while new terms are negotiated. Earlier the RMLC announced an interim rate plan for some stations that BMI called unacceptable because the proposed rate is "well below BMI's previous deal." Additionally, BMI says "RMLC has justified its pro-

posed rate based upon incomplete and incorrect information regarding BMI's radio performances." BMI and RMLC are in the midst of negotiations for a new five-year deal, effective later this year.

CATAPULT: PRX announced the first seven stations that will participate in Project Catapult, its new podcast training project for public media stations. Led by Project Director Enrico Benjamin, the program begins this month with a podcast bootcamp at the PRX Podcast Garage in Cambridge, Mass., and continues for



20 weeks. Project Catapult will culminate with the launch or relaunch of seven original podcast series. Project Catapult is funded by a \$1 million grant from the Corporation for Public Broadcasting. The participating stations and their podcasts are KALW San Francisco's "Inflection Point"; Nashville Public Radio's "Verify"; West Virginia Public Radio's "Us & Them"; St. Louis Public Radio, "We Live Here"; WNIN Evansville, Ind.'s "Que Pasa Midwest"; WYPR Baltimore's "Out of Blocks"; and KUOW Seattle's "Second Wave."

INAUGURATION

(continued from page 8)

will still utilize POTS and existing ISDN circuits for redundancy at certain broadcast locations.

All FNR broadcast locations will be equipped with Mackie mixers and MacBook Pros loaded with Adobe Audition for audio editing and digital audio propagation, the spokesman said.

FNR "reporters will be equipped with iPhone, MacBook, Skype, Report-IT Tieline app and air cards with discrete telco providers for redundancy. We also give the ability to reporters to broadcast via BGAN satellite from certain broadcast locations," according to the network.

The radio network utilizes Neumann BCM104 microphones for its news division and EV RE27 mics for their network talk divisions.

In addition, FNR will team with Fox News Channel for inauguration day coverage. FNR will be able to access satellite broadcast trucks for third and fourth channel audio delivery along with utilizing IP codecs from Tieline.

"The Report-IT app via iPhone and Android smartphones with Tieline SmartStream Plus increases and enhances the

reliability of smartphone broadcasting when connecting to Tieline's Merlin and Merlin Plus IP codecs," the Fox News Radio spokesman said.

CBS Radio News, which totals nearly 700 affiliated stations around the country, is expected to provide affiliates with inauguration reports, despite trimming some veteran news talent from its news operations in early December including top Washington correspondent Barry Bagnato. Other notable CBS Radio News hosts lost in that breakup were anchors Harley Carnes and Bill Whitney, according to those familiar with the changes. Also, CBS Radio News VP Harvey Nagler will be retiring from the radio network just prior to the inauguration.

The network declined to comment about specifics of its inauguration coverage plans.

Don't expect the radio networks' coverage of the story from the nation's capital to conclude with the inaugural balls. Demonstrations are expected to accompany the inauguration. For instance, hundreds of thousands of women are expected to march near the Capitol one day after Trump's inauguration.

"We expect those large demonstrations in Washington to be epic," NBC News Radio's Berry said.



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—*Daniel Hyatt, SVP Engineer, Max Media, Denver, Colorado*



As soon as I put Omnia.11 with G-Force on the air, **our Program Director was floored**. He commented on the **clarity and punch** of the audio, comparing it to listening to the station for the first time on high-end speakers. He said to me 'Even the silence sounds better!'. I'm sold on the power, flexibility, and tools... I was able to take the best-sounding station in the market, and make it sound even better!

—*Chris Tam, Director of Technical Operations, Entertom Wisconsin, Milwaukee*



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—*Stephen Wilkinson, Technical Operations Manager, Hope Media, Sydney, Australia*

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Look How Far We've Come

Engineers might be frugal, but they're a creative breed with a respect for history and technology

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

Cracker Barrel is known far and wide to engineers for its great home-style cooking. Their country store always seems to have something of interest, too.

The two signs seen in Fig. 1 should catch the attention of engineers — and other radio staff! The duct tape sign might be appropriate for the engineer-

ing shop. I'll let you decide where to place the other sign.

I visited the California Historical Radio Society last month; they hosted the San Francisco SBE Chapter holiday party, coordinated by RF Specialties of California's Steve Moreen.

In addition to a variety of historical radios and equipment, as shown in Fig. 2, I spotted a Gates Dualux audio console, Fig. 3.

I sent a copy of the picture to Radio World contributor Charles "Buc" Fitch,

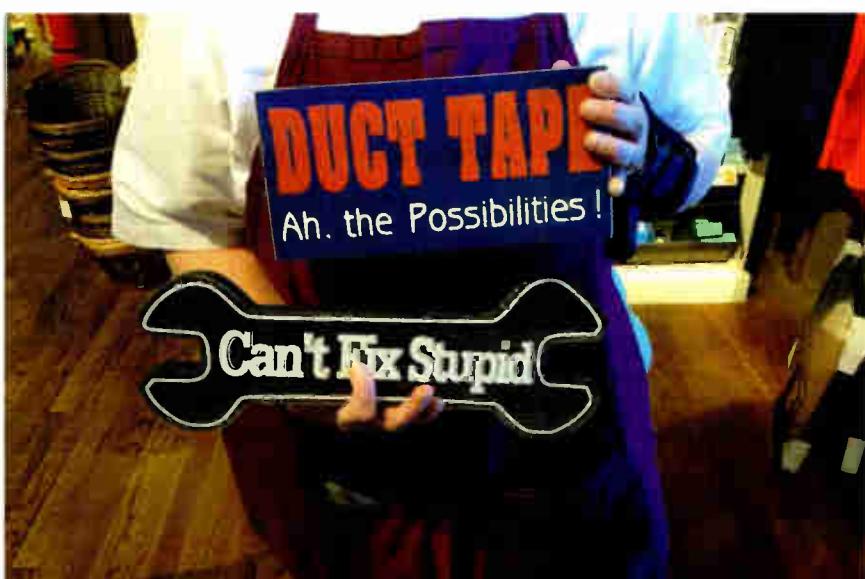


Fig. 1: Two fun signs for the engineer, courtesy of Cracker Barrel.



Fig. 2: Going back in time at the California Historical Radio Society's museum.



Fig. 3: The Gates Dualux audio console, circa late 1960s.

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P.E., who wrote that the console brought back a lot of memories. He says that he had this model board in the air studio in El Paso, Texas, in the late '60s. His CE Mike Gaglio had purchased it at auction from the liquidation of a failed FM station.

The original owner had run it in stereo with left and right channels sent separately to the #1 and #2 outputs (essentially what we would think of as audition and program, respectively). The switching and controlling were laborious and chaotic compared to today's.

The board was rewired to standard mono and used the right-side faders for air and the left-side faders for audition and off-line recording. For the on-air side, Buc installed one of his proprietary "Fisher Space Expanders," a modified reverb. Buc added a level/injection set pot on the face of the board, where the output switches were located. Buc adds that these output switches eventually were disconnected, as it was not uncommon for the fast-paced fingers of

(continued on page 14)



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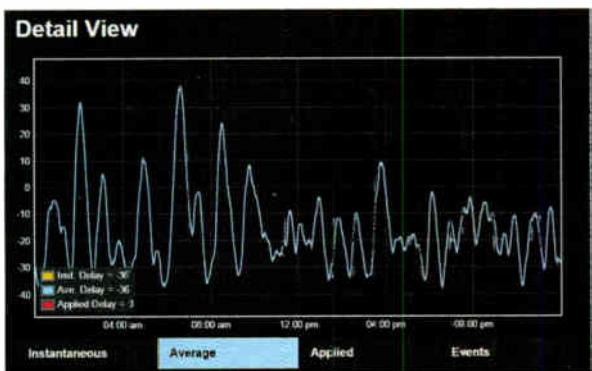
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— Sam Caputa, Director of Engineering, Emmis Communications.

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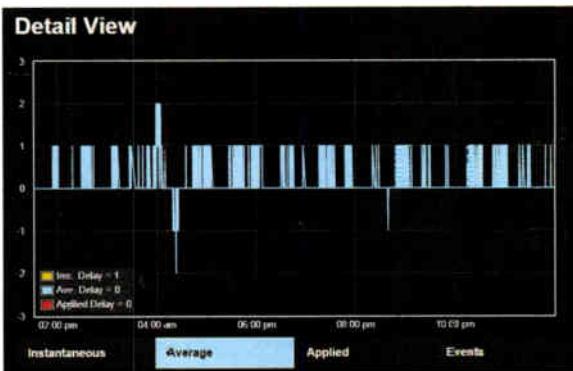
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FEATURES

WORKBENCH

(continued from page 12)

the top 40 jock to accidentally flip one of the output switches and knock the audio off air!

Buc also installed a rather bright light on the console face, which illuminated anytime a mic was switched on. The audition side went off to TV master control, the production room across the sound lock, and to the reel-to-reel recorder input. This was a nice feature, it made it easy to record the sign-off news for TV while one was "on air," as well as to record news for the overnight.

A lot of tubes were used in 1968 in that Dualux, but then again everything was mainly tube. There were some solid-state devices, such as the telco line drivers, the Gates Criterion cart machines, and the low-level sections of the Gates Vanguard transmitter. Exciting times and a changing world. Look how far we've come.

And speaking of tubes, while at the CHRS museum, I spotted a real piece of history: the old tube checker shown in Fig. 4. One was located at a local drug store where I grew up, and I remember flipping all those switches as a young lad and not understanding what they did — though I'd find out soon enough.

It's within most engineers' makeup to be frugal. With that in mind, Bible Broadcasting Network's staff engineer Steve Tuzeneu sends a tip on a dehydrator that he bought when he worked out west.

It's manufactured by GAST Manufacturing, a pneumatics company out



Fig. 4: When most electronics operated with tubes, a tube checker like this one was commonplace.

PRODUCT SPOTLIGHT

Audio-Technica BP40 Large-Diaphragm Dynamic Broadcast Microphone



Audio-Technica's new BP40 broadcast vocal microphone offers a rich, natural, condenser-like sound from a large-diaphragm dynamic design. The 40 mm diaphragm features patented floating-edge construction that maximizes diaphragm surface area and optimizes overall diaphragm performance, while the humbucking voice coil prevents electromagnetic interference (EMI).

With rugged construction and stylish, waveform-inspired design, the BP40 delivers clear and articulate reproduction. Optimized capsule placement helps maintain a commanding vocal presence even at a distance, while the multistage windscreens provides superior internal pop filtering. See the BP40 review on www.radioworld.com. U.S. estimated street price \$349.

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of Benton Harbor, Mich. Search under products for "model DOA" on <http://gastmfg.com>. It retails for \$1,200 but can be found online for less, Steve writes.

I've been suspicious of cheaper dehydrators because many of them contaminate the line they are pressurizing with

compressor oil. So what you think is a good idea (buying a cheap dehydrator) ends up costing much more in the long run.

The company specifically says the model DOA provides oil-less operation, which ensures that the discharge air remains free of any lubricant contamination. In addition, it is compact, yet durable and of rugged construction. The company says the DOA is suited for noise-sensitive environments like medical laboratory applications, due to the low noise and vibration operation. Additionally, the unit requires minimal power consumption and can be used as a compressor or vacuum pump for maximum versatility.

Another plus is that the air filter, diaphragm and all valves can be replaced easily, which helps extend the life of the product as well as minimizing down time. Thanks, Steve, for passing on the information.

I'll close with some words of congratulations. Buc Fitch's local SBE Chapter 14 recently honored him for years of supporting the chapter as well as many engineers, stations and projects he's helped over the years. Buc says it was totally unexpected. I'll add that it was very much deserved, and Radio World Editor in Chief Paul McLane joins me in that sentiment. As many readers too will attest, Buc has always been a great resource and friend to engineers. Congratulations for a job well done, Buc!

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 46 years in the broadcasting industry and is still learning. He 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.

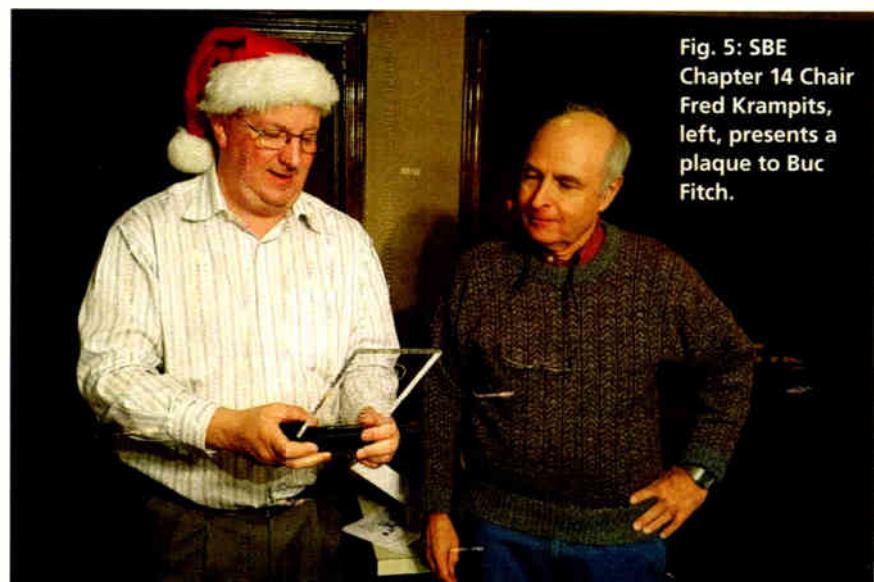


Fig. 5: SBE Chapter 14 Chair Fred Krampits, left, presents a plaque to Buc Fitch.



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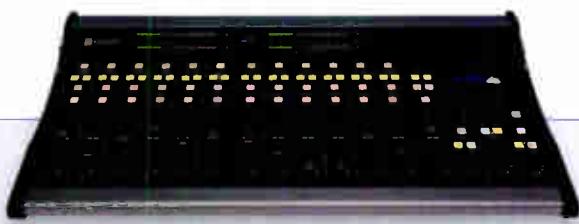
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ROOTS OF RADIO

BY JAMES E. O'NEAL

Some of us collect postage stamps; others coins or perhaps matchbooks. There are a few individuals who collect vacuum tubes. However, one Ohioan has set a somewhat loftier goal: amassing a collection of broadcast-type radio transmitters.

Gerry Moersdorf began rounding up such transmitters more than 15 years ago, uprooting them from their former workspaces and hauling them back to a large warehouse-type building in a Columbus, Ohio, suburb.

Moersdorf is quite selective, though; not just any broadcast transmitter will do. He's especially partial to representative examples from the likes of Collins, Gates, RCA and Western Electric — companies that once supplied transmitters for the majority of U.S. radio stations — and they must be vacuum tube-powered "big iron." He has no interest whatsoever in the compact solid-state high-efficiency pipsqueaks from the last several decades.

"My motto is never operate a transmitter that can't kill you if it falls over," said Moersdorf, a former software engineer, who created and sold off a couple of successful computer-related businesses before devoting his energies to rescuing broadcast rigs.

THE PATH FROM COMPUTERS TO BIG IRON

"My background was in digital electronics and software. My first company built a DEC-to-IBM interconnect back in the days when minicomputers were as big as a house. My second company built equipment used for telemetry. I started it in 1980 and spent 20 years building it up to the point where we had 380 employees, but my real interest was in radio, so I sold it about 10 years ago."

Moersdorf has winnowed his collection down from a high of about 30 transmitters to a more manageable (and eas-



Two of Moersdorf's set of five Collins 20V Series of 1 kW rigs. All have been modified for use on the amateur radio 40-, 75- and 160-meter bands.

ily accommodated) 15, explaining that one factor in the decision was the lack of three-phase power when he recently relocated his collection and manufacturing business to Delaware, Ohio.

Asked about why he started collecting these behemoths from radio's heyday, Moersdorf responded: "It's a labor of love. I just couldn't stand to see them wind up in dumpsters. The earliest transmitter I have is a 1940s Western Electric, and it's an amazing piece of engineering. Seeing something like this pushed into a dumpster is a horror."

Actually, rescuing electronic items from recyclers and landfills is in Moersdorf's blood and goes back to his childhood years.

"I grew up in New Jersey, and we lived near a dump — actually in Jersey, everybody lived near a dump — and as kids, we used to go down to the dump to look for 'All American Fives' [five-tube AC/DC radio receivers] people had thrown out. We'd tie them to our bicycle baskets by the line cords — we might have had 50 at a time — and then we'd go to the local pharmacy with the self-service tube tester and test the tubes. We'd throw the duds out and put the working tubes into maybe 10 radios out of the 50 — actually, we never bought a single tube from the guy that owned the pharmacy. My mother used to give the radios away to neighbors."

(continued on page 20)



Gerry Moersdorf shows off the oldest item in his large collection of broadcast transmitters. The Western Electric 443A1 1 kW Doherty dates to the 1940s. Moersdorf notes that it tunes between 550 kHz and 2,750 kHz, allowing it to be used in the old police band for one-way "broadcast" communications.



Not all of Moersdorf's transmitters are kept "stock," as exemplified by this now one-of-a-kind Gates BC-1F 1 kW model from the early 1950s. (Moersdorf has another with Parker Gates' factory paint job.)

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BIG IRON

(continued from page 18)

STILL ON THE AIR

Asked whether these massive yester-year rulers of the AM band were just for show, Moersdorf, who is a ham radio operator, was quick to show off the mods he'd made to allow the rigs to tune the amateur radio bands.

"The transmitters that I've kept, I've converted for operation on the 160-, 75- and 40-meter [amateur] bands," he said. "The amateur radio world's AM community is the best community. They have a lot of knowledge and love for transmitters like these, and they don't operate plastic radios."

Judging from the number of examples in the collection, Moersdorf's favorite broadcast transmitter line appears to be the Collins 20 V 1 kW series from the 1950s and beyond. It used 4-400 tetrodes in the modulator and RF output sections, and during its production lifespan developed a reputation for high reliability.

"I have two Collins 20V-2s and three 20V-3s," said Moersdorf. "One of these is [permanently] located on a West Virginia mountaintop. I'm a member of this group of amateur radio guys who go camping four or five times a year, and we have this campsite on a 3,000-foot



Moersdorf and his "Big Bertha" 1946 Collins 20T. It was designed for 1 kW operation and weighs in at a whopping 5,700 pounds. (That's less than 0.2 of a watt per pound.)

mountain there. With the help of a bulldozer, we hauled a shipboard container up there to use as our radio station and then hauled up a 20V-3. We have two diesel generators up there to power it."

Asked about "extremes" in the collection, Moersdorf singled out two units.

"The highest-power one is a CCA AM2500D which was made in the

1970s," he said. "It uses four 4-1000 tubes and can make 7,000 watts. The heaviest is a Collins 20T 1 kW model. With it, we like to talk about pounds-per-watt, not watts-per-pound. It came out in 1946 and weighs 5,700 pounds. It's built like an armored battleship."

Moersdorf has been known to travel long distances, if there's a particularly desirable transmitter that needs retrieval from the dumpster.

"I once went to Nevada to pick up an RCA BTA-1," he said. "We have a big truck [18-wheeler] we use for this. I got my commercial driver's license just so I

(continued on page 22)



Moersdorf's collection contains only one non-broadcast transmitter, this Collins AN/FRT-24 1 kW base station transmitter built for the U.S. Navy. It tunes 2–30 MHz and was constructed in the mid-1960s.



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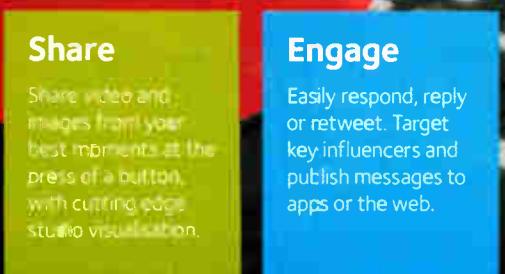
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A Lotta Pasta and a Lotta Love!

RADIO DOING GOOD

BY MARK LAPIDUS

As I've often commented in my Promo Power column, few things give me more pleasure than learning about radio stations making a contribution to make a local community a better place. Starting now, RW will share a few highlights of "Radio Doing Good" in every other issue.

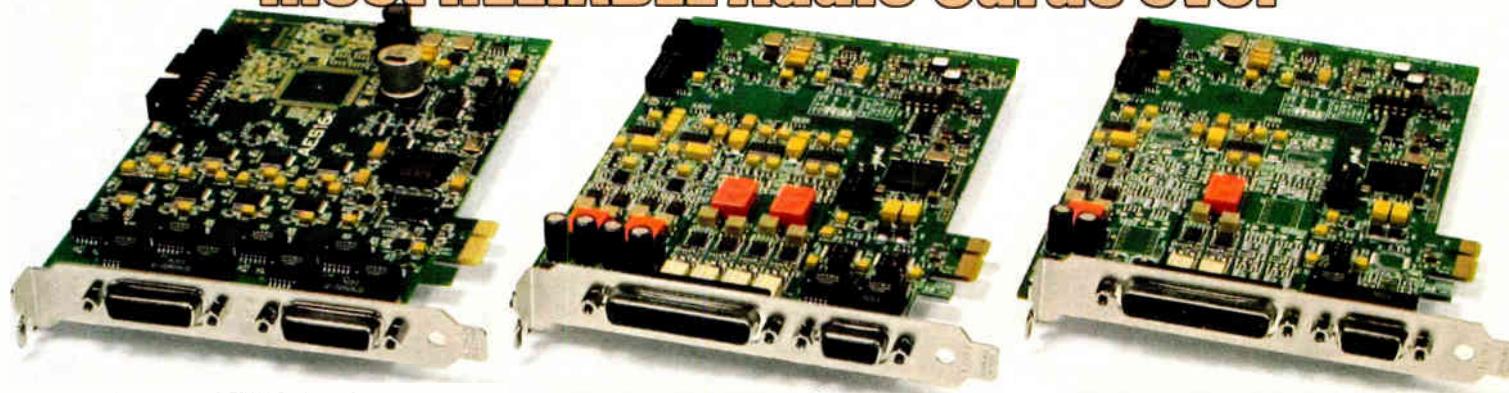
Got good news of your own? Share it with us at radioworld@nbmedia.com.

iHeartMedia station KFI(AM) 640 gave this event a memorable name, and the Los Angeles and San Diego, Calif., communities showed amazing support for the sixth annual "Pastathon."

KFI's on-air personalities were on site at Bruno Serato's White House Restaurant in Anaheim, encouraging listeners to bring packaged dry pasta, canned pasta sauce and cash to feed underprivileged children. The 17-hour broadcast on Dec. 1 raised more than \$320,000 and ultimately collected more than 90,000 pounds of food. This enabled the charity, Caterina's Club, to provide meals for more than 1,800 low-income children in over 15 cities. That's a lot of pasta and a lotta love!



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WHO'S BUYING WHAT

Transmission technology specialist GeoBroadcast Solutions announced it has been granted a patent for "key innovations in its MaxxCasting radio coverage optimization system."

MaxxCasting
GEO BROADCAST SOLUTIONS

According to the company, its technology allows for greater and more even signal penetration within a station's broadcast pattern. Through the use of signal modeling, algorithms and a network of smaller, cell-style transmitters with lower antennas and highly defined patterns, it alleviates blindspots and weak reception areas. In addition, the technology allows for the smaller transmitters to receive separate content that could be targeted at specific areas.

GeoBroadcast Solutions Chief Technology Officer Bill Hieatt said, "Our research has shown that across the United States as a whole, close to 20 percent of the population in the top 30 markets that FM broadcasters could legally reach are not actually receiving such signals. ... That's a huge, untapped audience for advertising that could contribute right to broadcasters' bottom line, but previous approaches have generally had limited success in solving the problems."

FEATURES

BIG IRON

(continued from page 20)

could go out and pick up transmitters in the truck."

SERIOUS AUDIO AMPLIFICATION

Moersdorf noted that the truck had also served as a mobile showroom for another of his enterprises, Audio Power Labs, which manufactured high-end audio amplifiers.

"The audio business came about because of my love of tubes and the sound of tube amplifiers," said Moersdorf. "We built two amplifier models, a 150-watt monoblock that used the 833 [triode]. We also made a 50-watt that was based on the 572."

Moersdorf observed that his audio products weren't intended for those satisfied with an MP3 player and earbuds. While they were in production, a pair of the 833 monoblocks would have set you back a cool \$140,000, and the "low-end" 572 model sported a \$10,000 price tag for a single unit.

"We had one with an outrageous price point and one at a semi-outrageous price point," said Moersdorf, noting that in addition to the six-figure outlay for the 833 monoblocks, the consumer likely would have had to pony up an additional sum for an electrical contractor. "You'd need two 20-amp dedicated outlets to power them."

Asked who would be in the market for such amps, Moersdorf answered "eclectic people."

"They were more for our age [translation: the older demographic], and the market was quite limited."

Moersdorf manufactured the tube amps for about five years before discontinuing production in 2016.

Part of the problem in attracting buyers for high-end audio, he said, is the greying of America. "When you try to map out the intersection between people who are interested in high-end audio and those who are patient enough to sit in a room and seriously listen, you have a very small Venn diagram. My kids have the attention span of a gnat. They're not going to sit around and listen; they'd rather just stream some audio off their phones."

He now limits his manufacturing business to a much smaller and less-expensive device for monitoring AC power quality.

BLAME THIS ONE ON THE COW

One of Moersdorf's most unusual transactions was a package deal consisting of a pair of 5 kW CCA transmitters and a 500-watt Raytheon rig.

"I actually bought an entire 5 kW radio station to get these," recounted Moersdorf. "This was in southern Kentucky. The reason that I got to buy it



A portion of the collection's 15-transmitter lineup. The 2.5 kW CCA "cow killer" is at the extreme left.



Until fairly recently, Moersdorf's Audio Power Labs operation produced high-end high-fidelity amplifiers, including this 150-watt beauty. It was inspired by the 833 graphite anode transmitter triode. A pair of the monoblock amps cost \$140,000. If you want a set of your own, you'll need to act quickly as only a few remain in stock.

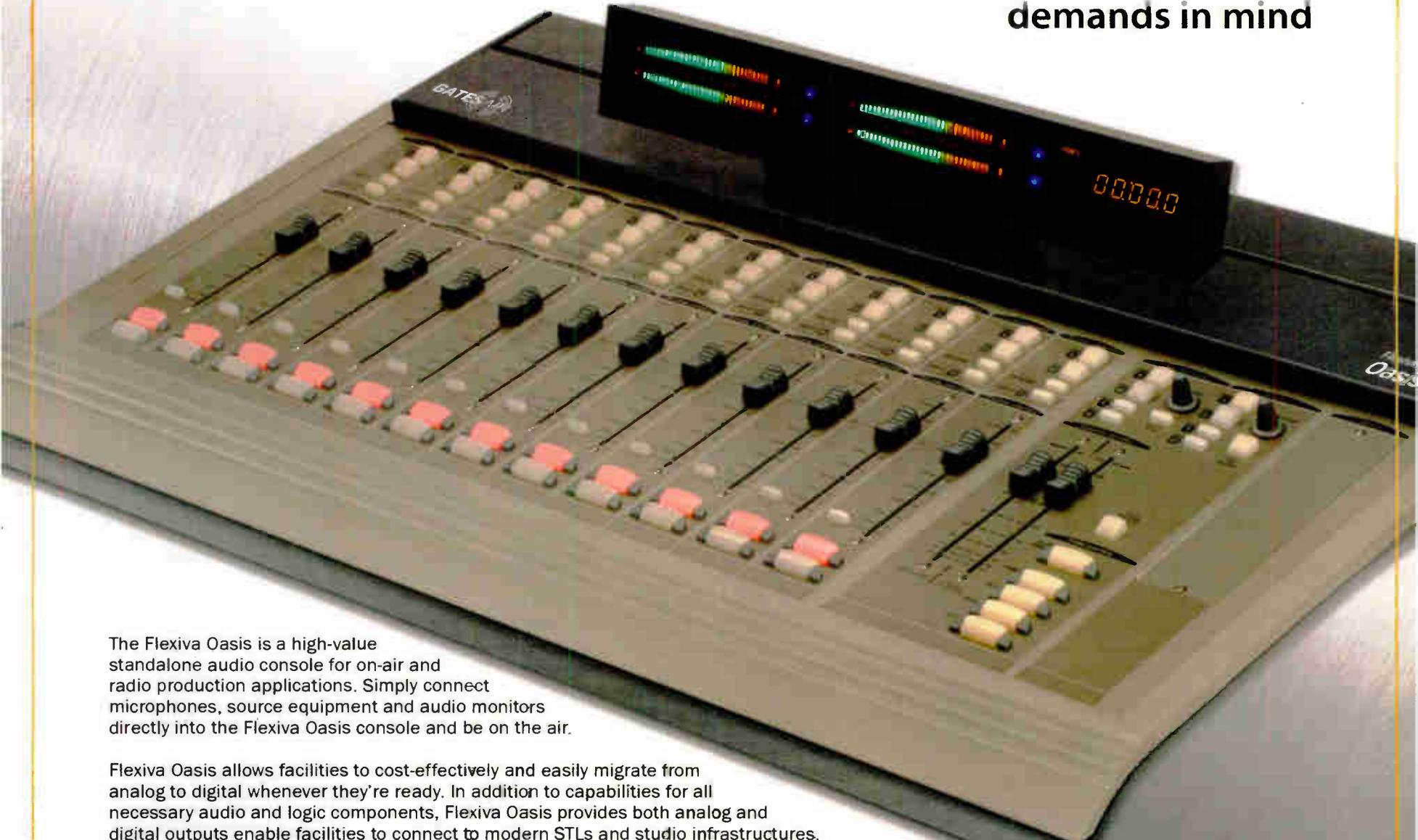
via email (gerry@moersdorf.com) to set up an appointment.

Additional photos of Moersdorf's collection are available online through the QRZ amateur radio website, www.qrz.com. After accessing the site, search for his amateur radio call sign KC8ZUL.

James O'Neal is a retired broadcast engineer who worked in that field for some 37 years before joining Radio World's sister publication, TV Technology, to serve as its technology editor for nearly a decade. He is a regular contributor to both publications.

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* This is the price for the 8-channel. Regular list is \$5450.

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WJOU Bridges the Remote Gap With Comrex

STAC VIP helps station reacquaint itself with the community

► USERREPORT

BY REGINALD HICKS
General Manager
WJOU(FM)

HUNTSVILLE, ALA. — WJOU(FM)/90.1 is a praise and inspiration station, licensed to Oakwood University in Huntsville, Ala. We also do public affairs programming. Even though we've been on the air for 36 years, we haven't been able to do remote call-ins or remotes for years because a lightning strike destroyed our equipment, and the station couldn't afford to repair it.

So for a long time, if we wanted to do a call-in, we had to do it the old-fashioned way and hold a microphone next to the telephone speaker in the studio ... bring back any memories? Our situation was pretty dire.

When I joined the station, one of my first goals was reestablishing a connection with the community.

Since music and programming delivery environments are always in a constant flux, I feel radio's ability to interact directly with the community we serve sets us apart. Purchasing STAC VIP, a voice over IP call management system by Comrex, was a major priority to me because I felt that it was crucial to achieving our community engagement goal through live call-ins and live remote.

Fortunately, two months after arriving at the station, we were awarded a \$5,000 support grant from the



Kenny Anderson, right, host of WJOU's public affairs program "2nd Chance," interviews Huntsville, Ala., Mayor Tommy Battle at the station's annual community health fair.

Nathan L. Anderson Memorial Foundation. When the foundation asked about a pressing need, the answer was obvious: remote equipment. And the solution was just as obvious: a Comrex STAC VIP. So we used the grant funds to purchase the equipment.

On the equipment side, we're a 25,000-watt station about a quarter of a mile from our transmitter. Most of our equipment is a little dated to say the least; our transmitter is close to 30 years old. However, we are in the process of updating and refurbishing some of it. The STAC VIP is probably our newest equipment

purchase.

About a month after we purchased the unit, we conducted our first "live" remote broadcast from a local senior health fair event in Huntsville, and about 350 people attended. The following month, we did our first-ever live town hall remote using up to six microphones, mixers along with the LinPhone app and Wi-Fi to connect to our STAC VIP. Both the mayor of Huntsville and the president of the university attended the event; and this was just the second time we used the unit. During the broadcast, I sat in the car for a while to just listen, and the quality was just great. We later heard from listeners who thought the remote was an in-studio broadcast.

We continue to use STAC VIP to cover a variety of events as part of our community engagement mission. To date, we have broadcast more than 15 call-ins, interviews and program from local community events. Being able to conduct remotes from university events has also helped to forge an even stronger relationship with our licensee. Although this may not seem a lot for just a year and a half from some stations, we only have two full-time staffers.

Even with our staffing restraints, the affordability, connectivity and easy use of the STAC VIP have enabled us to build a stronger connection with the community we serve. It is that community connection which as radio broadcasters sets us apart from other program delivery options.

For information, contact Chris Crump at Comrex in Massachusetts at (978) 784-1776 or visit www.comrex.com.

► TECHUPDATES

AVT TELEPHONE HYBRIDS SHOW OFF NEW FEATURES

AVT has introduced new features to its Magic line of telephone hybrids.

The Magic TH2plus, Magic TH6 and Magic THipPro now support the Ember+ protocol, which can be used to exchange control and signaling commands over IP with mixing consoles from companies such as Lawo or any mixing console supporting the Ember+ standard. Calls through the hybrids can be accepted via a button on the mixer and switched to pretalk or on-air. Vice-versa, users can establish a call from the mixer. Complicated cabling via TTL contacts is no longer necessary.



In addition, for DHD mixing consoles, the AVT hybrids offer DHD SetLogic IDs. These DHD SetLogic IDs can be used to transmit commands over IP from the AVT hybrids to the mixer and vice-versa.

A new highlight for the Magic THipPro VoIP telephone hybrids is an optional Dante module. It offers up to 32 audio inputs/outputs which can be routed via the IP network to Dante/AES67-compatible mixing consoles.

For information, contact AVT in Germany at +49-911-5271-0 or visit www.avt.nbg.de.

D&R AIRLAB-DT OFFERS HYBRID MODULE

D&R's AirLab-DT modular broadcast mixing is the successor of the AirLab-MK2. It has been redesigned into a tabletop drop-through version.

The digitally-controlled analog AirLab-DT offers the N-1 telco module, which includes a telephone hybrid. The built-in analog hybrid offers communication with callers along with studio staff such as DJ and engineer by way of an integrated cue system.

The AirLab-DT is modular in design allowing for expansion as a station's needs grow. Up to 16 modules can be linked in a single system. It is controlled by a PC over a USB connection.

I/O modules include analog and digital (AES3, S/PDIF).

For information, contact D&R Electronica b.v. in The Netherlands at +31-294- 418014 or visit www.d-r.nl.



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 bmooss@nbmedia.com.

►TECHUPDATE

TELOS VX PRIME TARGETS SMALLER FACILITIES

Telos Systems says broadcasters save by making the transition to VoIP phone service from traditional POTS and ISDN lines, dramatically cutting down on monthly telephone bills. The company says this allows an IP phone system to pay for itself over a relatively short period of time.

The Telos Systems VX Prime is an IP-based broadcast phone system that is sized and is economical enough for stations with two or three studios. The company says that like its big brother, the Telos VX system, VX Prime offers flexible, adaptable workflows and Telos audio quality in a smaller system with eight hybrids. Its standards-based SIP interface integrates with Asterisk open-source SIP phone servers and most VoIP-based PBX systems; thus broadcasters can allow transfers and common telco services for business and studio phones for a simplified telephone infrastructure. Each call placed on the air receives a dedicated hybrid for clarity and superior conferencing, Telos says.

Native Livewire integration means one connection integrates caller audio, program-on-hold, mix-minus and logic directly into Axia AoIP consoles and networks. Connect VX systems to any third-party radio console or other broadcast equipment using available multipurpose, AES/EBU and GPIO interfaces, like the Telos Alliance xNode family.

Dynamic line management enables instant reallocation of call-in lines to studios requiring increased capacity. VX Prime is meant to be used with Telos VSet phones, which include color LCD displays with a graphical information display that is easy for talent to operate. If you want to integrate a VX phone directly into a mixing console,

you can do so easily with the VSet Console Controller, a module that can be dropped into your console and made to match with a little metalwork.

For information, contact Telos Systems in Ohio at (217) 224-9600 or visit www.telosalliance.com.



►WHO'S BUYING WHAT

FRENCH TELEVISION CHOOSES AEQ TELEPHONE SYSTEMS

French public television broadcaster France Télévisions has long used an AEQ analog telephone and talk show systems.

In 2016, and in order to comply with and adapt to a new technical and operational expansion of their central studios, France Télévisions' technical managers chose to upgrade their system with new AEQ IP telephone technology.

The chosen AEQ Systel IP call and talk-shows system reduces communications costs, significantly improves the audio quality and increases the flexibility and the integration with already existing telephone systems.

Two complete platforms have been supplied as well as a limited number of gateways allowing the broadcaster to operate the system in combination with their SIP based PBX for VoIP calls and for calls originating from PSTN (analog) and ISDN lines.

This talk-show system signifies a small monetary investment that is amortized very quickly.

Further, and in a more traditional corporate environment, Systel IP allows interconnection of different meeting rooms or other meeting facilities, as well as routing the audio between rooms and systems for simultaneous translation that can be routed either remotely or locally.

Following this new expansion of its talk-show systems with these units of Systel IP, France Télévisions will be able to manage up to 24 simultaneous calls servicing up to eight different production studios at the same time. This ambitious project has been led by France Télévisions' department of engineering in coordination with AEQ's technical support for the configuration and also assisted by the local partner and installation company Eurocom.

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



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DEVA Broadcast FM Radio Monitoring Receiver. Features a built-in receiver for monitoring live broadcast signals. Includes a digital display showing frequency, power level, and signal strength. The unit also features a built-in speaker and a microphone input for monitoring audio levels.

BROADCAST AUDIO PROCESSOR

DEVA Broadcast Broadcast Audio Processor. Features a multi-channel audio processing unit with built-in equalization, compression, and dynamics control. The unit includes a digital display showing various audio parameters and a keypad for manual control.

FM RADIO RE-BROADCAST RECEIVER

DEVA Broadcast FM Radio Re-Broadcast Receiver. Features a multi-path receiver for re-broadcasting FM radio signals. Includes a digital display showing frequency, power level, and signal strength. The unit also features a built-in speaker and a microphone input for monitoring audio levels.

DEVA MODEL DB4004

Price: \$3200

DEVA MODEL DB6400

Price: \$2450

DEVA MODEL DB7007

Price: \$2350

BUYER'S GUIDE

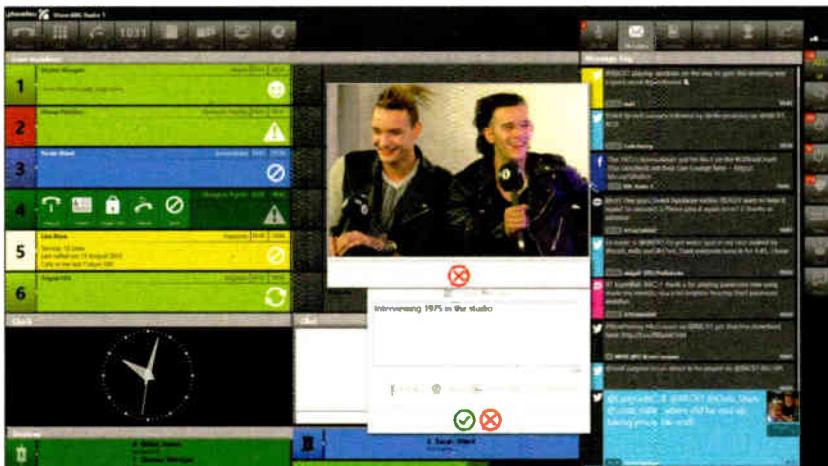
►TECHUPDATES

BROADCAST BIONICS PHONEBOX PROMOTES SOCIAL MEDIA UTILITIES

Broadcast Bionics says that its PhoneBox software talk show system is relied on by local, national and international broadcasters to provide compelling content for radio and TV shows.

The company says that its feature set accommodates every workflow and that calls sound great on the air thanks to G.722 and Opus high-definition audio quality. It can handle any type of incoming line.

According to the company, PhoneBox is more than a phone call utility. The Oasis social media feature shows the mood and mind of the audience as well



as highlighting the best social media content.

The Virtual Director visual radio feature will switch cameras automatically to visualize and stream every link.

Upon closing the fader it takes a few moments to trim and share video clips to social media. This allows for a station's content to quickly become discoverable and easily shareable.

PhoneBox also handles contests, codecs and can run alongside Telos Alliance products. With PhoneBox one screen in a studio allows for collaboration on the same data with colleagues.

SONIFEX RELEASES HD VOICE HYBRID

The new DHY-04HD is an HD Voice hybrid designed and manufactured by Sonifex.

Rather than using a traditional POTS telephone line, the DHY-04HD uses a 3G or GSM cellular network, so it can receive and make high-quality broadcast calls of 7 kHz bandwidth, converting the 3G or GSM call to the four-wire audio signal to and from a connected mixing console. It uses quad-band GSM and five-band UMTS/HSPA+, so it can take and make calls on any 2G/GSM, or 3G network.

The DHY-04HD can accept a SIM card, making it useful for studios in remote locations, for OB vans and for emergency situations where a telephone landline can't be guaranteed, thus offering broadcasters and journalists a connection and with a frequency response twice that of a normal GSM or POTS connection.

For information, contact Sonifex/Independent Audio in Maine at (207) 773-2424 or visit www.sonifex.co.uk.



AXEL OFFERS THE MACROTEL X LINE

Axel technology says the MacroTel X1 and MacroTel X2 are third-generation telephone hybrids, designed to deliver cutting-edge audio quality. The company says they should interface with every phone line in the world.

Though the MacroTel X series has a digital core processor, it

can handle analog environments by offering analog balanced XLR connections.

Axel says the MacroTel X series is a telephone hybrid processor delivering digital quality for an analog budget.

Other features include a two-band EQ; echo canceller and noise gate; separate send and receive; built-in tone generator; auto answer and disconnection along with a remote control software and dialer.

There is also a GSM Quad-band option.

For information, contact Axel technology in Italy at +39-051-736-555 or visit www.axeltechnology.com.

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NEOSCREENER COMES TO SMARTPHONES AND TABLETS

NeoGroupe is the maker of NeoScreener, a set of applications that allows live radio talk shows to handle the flow of incoming phone calls efficiently.

The company says that based on customer requests, it is introducing NeoScreenerSmart, an iOS/



Android application that runs on smartphones and tablets and that gives full lines control to show hosts, wherever they are.

NeoScreenerSmart works on 3G, 4G or Wi-Fi wireless devices.

The original NeoScreener functionalities have been ported to NeoScreenerSmart. It can replace the "Talent" screen of NeoScreener.

NeoScreenerSmart also works in studios, suitable for stations in need of studio space, lacking personnel to monitor and screen phones, or wanting a clean look for their visual radio feed.

In addition, NeoScreenerSmart allows hosts to move around the studio and still control the phone lines themselves.

It will show recognized callers name and city — send to air, hold, conference or drop.

Users who have a NeoScreener installation already can download the app and get up and running quickly.

For information, contact NeoGroupe at (210) 757-4700 or visit www.neogroupe.com.

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I'm selling between 150 and 200 cassette tapes that consist of old-time radio shows, sports shows, some local New York radio talk shows, etc.. Must take entire collection and the price is negotiable. Please call me for details and, my phone number is 925-284-5428.

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

WYBG 1050, Messina, NY, now off the air is selling: 8-channel Harris/Gates console; 250' tower w/building on 4 acres; collection of very old 78s dating back to 1904; 12' satellite dish on concrete base; prices drastically slashed. 315-287-1753 or 315-528-6040

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 SanFrancisco Giant's taped off of KSFO radio from 1959, interviews

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1.3/3.5 KW	2006	Harris Z6HD- Tri-Mode HD
5 KW	1992	BE FM5B
10 KW	2002	Harris Z10CD, solid-state
20 KW	2002	Harris Z20CD, 2x Z10 Combined
21.5 KW	1990	Continental 816R2B, SS IPA
25 KW	1982	Harris FM25K with DIGIT
35 KW	1991	BE FM35B

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Adopt an Insurance Policy for AM Pioneers

FCC should give struggling owners the option of an honorable exit with full-value compensation

COMMENTARY

BY DAVID HONIG

The author is president emeritus and senior adviser of the Multicultural Media, Telecom and Internet Council.

MMTC's 30 years have been wrapped up in AM radio. As the heritage communications technology for minorities, AM has been the voice of the voiceless, the training ground for the underserved and the place to get on the air if most of your audience isn't fluent in English.

As a nonprofit, MMTC has had 10 AM stations donated to us. We've used them to train new entrants to become owners programming black gospel, Spanish and Hmong.

MMTC recently published a series of recommendations for the next FCC, including a recommendation to create an AM Glidepath. Some people thought this meant that MMTC wants to decommission the AM band. That's not the case at all. Radio World invited us to explain not only our recommendation but the history of MMTC's journey around the AM band.

WORTH SAVING

In 1979, I was part of the State Department's World Administrative Radio Conference delegation in Geneva, where I helped negotiate the Western Hemisphere's new AM treaty arrangements. That got me hooked on AM.

When MMTC founded our media brokerage in 1997, we began specializing in AM transactions. Over the years helping buyers and sellers, I rode shotgun with lots of engineers visiting failing AM stations, and it was heart-breaking. These weren't the 50 kW clear channel blowtorches whose audiences rivaled the 100 kW monster FMs. Those heritage AM market dominators will do quite well — even without the millennials who shun AM, even without the mobile devices that don't carry AM.

The AMs I got to visit and to sell, sometimes for a few thousand dollars, were the "sad sacks" of the AM band: small-market daytimers with aging audio chains, temperamental transmitters, audiences older than me (and Truman was president when I was born). negative cash flow, zero audience ratings book after book, huge sums invest-

ed but no buyers except at token prices that would be insulting if they weren't real.

Getting to know these AM pioneers — moms and pops who were giving their lives to their communities using this quirky 107-year-old technology — convinced me that the Federal Communications Commission needed to take dramatic steps to save the band.

work in every radio format. So we kept the format and we used the station to train minorities in conservative talk. We actually ran Glenn Beck in afternoon drive, because he belonged there.

Yeah, I usually disagreed with what he had to say. And I could have hit the "kill switch" at any time, but I never did. I felt that our audience in Augusta, Ga., had a better handle on what they should be hearing than I did in Washington, D.C. Besides, I always wondered how Mr. Beck felt about being carried on an affiliate owned by a mainstream civil



"But AM is just a bunch of anti-civil rights right-wingers," more than one friend told me. "Let it go."

My answer to this was "So?" The bulk of minority communications investment was and is on AM. The vast majority of multilingual radio service is on AM. I'm not going to let these folk down just because someone else benefits too.

Besides, I'd be a hypocrite if I didn't fess up to having been a conservative talk impresario for a while. Here's how that happened:

A few years ago, someone with a sense of humor donated the Multicultural Media, Telecom and Internet Council a right-wing conservative talk AM station. It featured "The Blaze" and came with a first-rate audio chain.

I studied the market — and what do you know, the format hole was indeed conservative talk. The audience liked the programming, which included some nonpartisan, informative, non-ideological local talk.

MMTC — a nonpartisan civil rights organization — feels strongly that minorities need to become qualified to

rights organization. Maybe it calmed him down a bit.

So that's the story of MMTC's journey into AM. That explains why we set out to do everything we could do to extend the life of the band.

We knew that AM, like a shopping mall, could collapse entirely if the anchor stores failed. So we sought solutions for the entire band, not just for the small failing stations.

RESCUE PLANS A AND B

In 2010, our "Radio Rescue Committee" had a Plan A and a Plan B.

Our Plan A was to join forces with the Broadcast Maximization Committee and ask the FCC to allow AM to migrate to TV Channels 5–6, where the stations would become frequency modulated and triple in value.

That wasn't in the cards. The FCC wanted those channels for the DTV incentive auction.

But thanks to the initiative of Commissioners Ajit Pai and Mignon Clyburn, and the advocacy support of the National Association of Black Owned Broadcasters and National

Association of Broadcasters, we got our Plan B: AM-only translator windows that are saving a boatload of AM stations from economic oblivion.

The FCC still can do more to extend the life of AM. We've asked the commission to deregulate outdated rules on minimum staffing, nighttime interference and some of the public file rules that predated the digital age.

And for our part, we can lengthen AM's life by continuing to tell radio's story with enthusiasm and verve. It's OK to "accentuate the positive."

Advertisers certainly need to understand that those of us who love AM do not want it be "decommissioned," as a couple of recent headlines inaccurately suggested.

Instead, what we want for AM, and for AM pioneers, is the same thing we want for our parents and spouses: a good life insurance policy.

INSURANCE PLAN

Having life insurance doesn't mean we want our loved ones to die. What it means is that we don't want our loved ones' families to suffer if/when those loved ones do die.

Why does AM need life insurance? Is it in danger?

Let's be really honest, folks. In the short run, no. But in the long run, maybe. Someday — perhaps as soon as 30 years from now — AM may be doomed to go the way of the telegraph service, whether we like it or not. And we won't like it.

We certainly are not asking the FCC to hasten that event. Instead, we want the commission to do everything it can to avoid or postpone it.

The nightmare we need to avoid is the nightmare families face when they didn't arrange for life insurance: The AM band becomes unsustainable, and AM pioneers, who've struggled to serve the most underserved communities, get told "Sorry, you are out of luck — thank you for your service to your country. Now go away." That would be morally wrong, and we cannot allow it to happen.

What would be a good life insurance policy for the AM band?

There are two key elements.

First, we want the FCC to start a process that could lead to lengthening the life of the band by compensating licensees at fair value in exchange for surrendering their licenses, and enabling AM broadcasters to transition their programming to other platforms. The FCC could do that by starting now toward planning for the compression of the band from its present 535–1705 kHz to (for example) 535–1005 kHz, and going

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OPINION

INSURANCE

(continued from page 29)

from 10 kHz spacing to 20 kHz spacing. Such a band would accommodate fewer stations, but the stations would be much more competitive and they — and the AM band — would have a fighting chance at surviving decades longer.

Second, we want the FCC to think three or four decades ahead, toward the inevitable day when AM might no

go to wider spacing and perhaps higher power?

How much skywave protection will we need; can we convert day-timers into full-timers someday in much of the country? Should we go back to the 100 kW "flamethrower" era when two massive signals cover the nation for public safety purposes?

If licensees want to cash out, will the federal government buy their spectrum and redeploy it for such uses as air navi-

Commissioner Pai *loves* and understands radio. When we share with him how the FCC has undervalued and ignored radio in preference to newer "shiny things" in the so-called broadband era, he gets that.

To summarize: We don't want AM radio to be decommissioned. We would dearly love to see AM expand and thrive. What we're hoping the FCC will do is give struggling AM owners an insurance policy: the voluntary option, in a few decades, of exiting honorably and with compensation at full value,

rather than being forced out against their will if the band crashes 30 years from now due to FCC neglect or inevitable market conditions attendant to new technology.

We need help figuring out the answers, and we sincerely want and need the support of all who love and support AM radio. Please email us with your thoughts, criticisms, ideas and prayers at dhonig@mmtconline.org.

Comment on this or any story. Email radioworld@nbmedia.com with "Letter to the Editor" in the subject field.

We knew that AM, like a shopping mall, could collapse entirely if the anchor stores failed. So we sought solutions for the entire band, not just for the small failing stations.

longer be sustainable. If that happens, what other communications services could use AM spectrum? Could it be used for meter reading? The Internet of Things? Drones? The FCC is not known for expedited action, so it ought to start early by convening the best engineering minds to think about these questions. In this way, the federal government could be in a position to offer AM owners fair value for their assets, rather than just letting their companies die if the band dies.

Now, we're not sure what the correct parameters are for this kind of plan.

Should the band be compressed? How far? If stations want to continue to operate, but on lower frequencies, who will pay for their relocation? Should we

gation, sonar, Internet of Things, drones, meter reading, crop irrigation or uses not yet contemplated — and who will pay for this, and over how many years will it be paid for? Finally, where will AM programming go to find a new home, so the public doesn't lose a valuable service?

This is a good time for our AM Glidepath Taskforce to be asking these kinds of questions.

As of early January, it appears likely that Commissioner Ajit Pai will become acting (and possibly permanent) FCC chair. Not since former Broadcast Bureau Chief Ken Cox was a commissioner in the 1960s and 1970s and Jim Quello served in the '80s and '90s has there been a greater supporter of AM radio on the 8th floor of the FCC.

READER'SFORUM

REMEMBERING MIKE

Regarding "Mike Callaghan Dies" (RW online):

I have known Mike Callaghan for much of my life, beginning at the age of 7. My father worked under Mike in the KIIS(FM) engineering department.

When I was in college, an opportunity came about to help out with construction of a new state-of-the-art broadcast facility located in Hollywood, Calif., in the Motown Records Building. I was only going to be working on the project for two weeks, but that sprouted into a 32-year-long adventure working with Mike and the rest of the KIIS(FM) engineering team.

Working with Mike offered a collaborative and inclusive atmosphere. In fact, I would look forward to coming into work every Monday morning. I knew that Mike had gone over the weekend to either a swap meet, computer show or other electronics surplus store and would have brought something back to show the rest of the team what he had found during his excavations.

It was never a "Can we do something?" process working with Mike; instead it was always a "How can we do something?" atmosphere.

Brian Clark

Engineering Manager
Radio Disney Network
Walt Disney Co.
Burbank, Calif.

SCREENS FOR RADIO

Regarding "Screen Time Is Real Time," RW Nov. 9:

Here's how we did it at RI Public Radio. There are four 39-inch LCD TVs/monitors on galvanized pipes bolted to the countertops, plus a 24-inch LCD TV freestanding off to the right.

The two displays on the left are for our ENCO DAD (mostly Live Assist). The top-right is just a TV and usually for CNN. The bottom-right is a general-purpose Win7 computer ... usually for electronic rundowns that NPR provides member stations. The little standalone TV is usually for AccuWeather (we're Verizon FiOS so we don't get The Weather Channel), but we can and do switch the TVs to NESN, CSPAN and/or the local TV affiliates: WPRI, WJAR, etc.

Out in our lobby is an old but functional 36-inch plasma screen TV/monitor that I have a little MicroPC attached to the back of it. It has a Chrome window with several tabs open and the "Revolver" plugin running to switch tabs every 15-20 seconds. The tabs show our Facebook Insights, Tweetdeck, realtime Chartbeat Analytics on our website, and the NPR electronic rundown for "All Things Considered."



Aaron Read

Director of Information Technology & Engineering
Rhode Island Public Radio
Providence, R.I.

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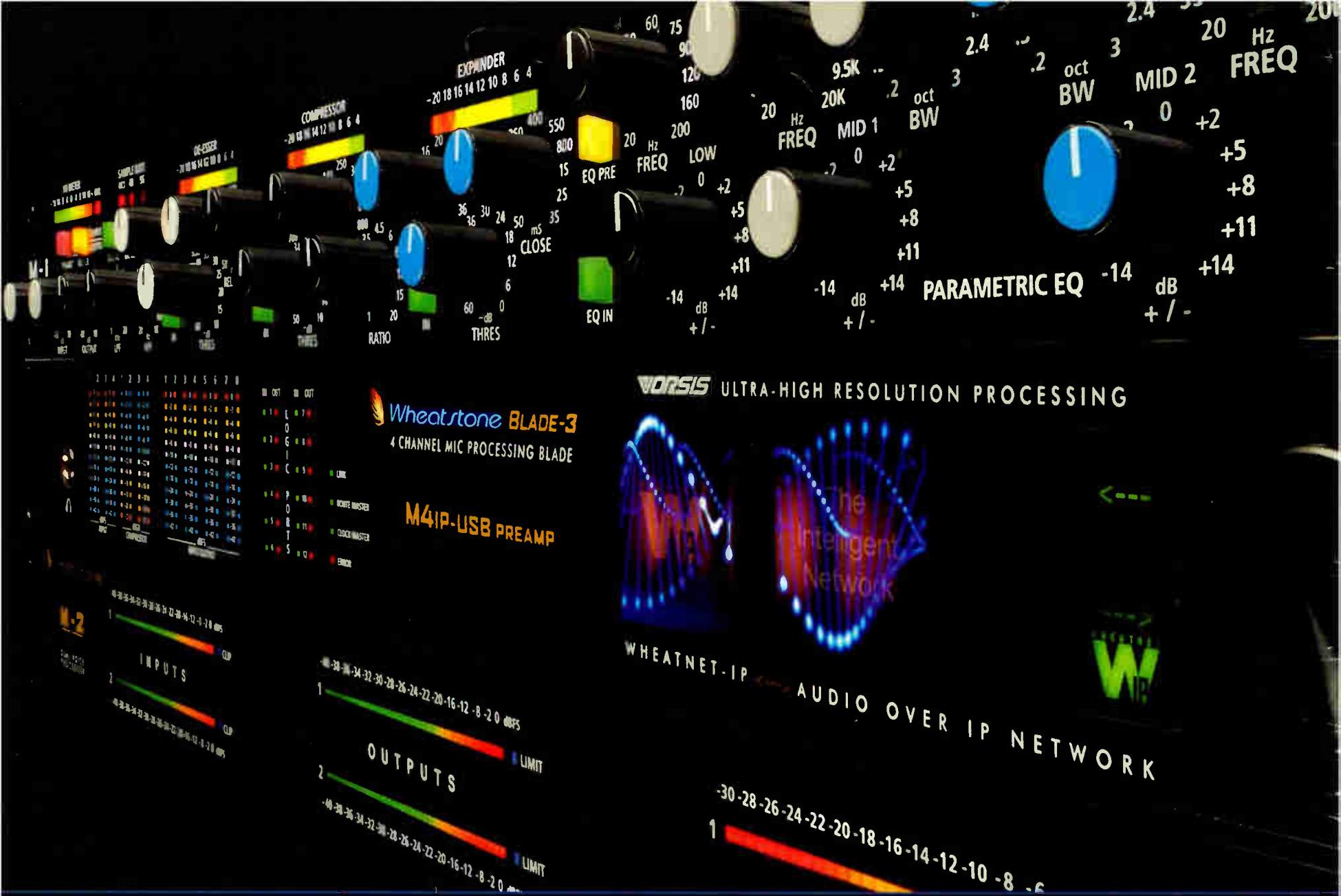
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