



RADIO WORLD

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The “Reference Radio” Looks Ahead

Why the car radio of the future has to be simple, smart and sexy

COMMENTARY

BY MICHAEL HILL



Radioplayer is a non-profit partnership of the BBC and several commercial radio entities with the aim of “keeping radio listening simple, particularly on things which are connected to the internet.”

In November, it demonstrated the Reference Radio, which it describes as a prototype hybrid touchscreen radio for dashboards that can play digital radio, FM and internet radio streams while reducing driver distraction. “The Reference Radio is the culmination of years of research and development with

industry partners like WorldDAB, Digital Radio UK, RadioDNS and Audi,” it stated. “The prototype shows how broadcasters like the BBC, Global, Bauer and dozens of international radio groups want their stations to appear in the car radios of the future.”

Radio World invited founder and Managing Director Michael Hill to explain the project.

Would you ever buy a new car that didn't have a radio? If you're anything like 82 percent of drivers we surveyed, you wouldn't even consider it, with 84

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Tribal Stations Stay True to Public Radio and Native Roots

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Marona Photography

Art Sutton Banks on Over-the-Air Revenue

Georgia-Carolina Radiocasting “sticks to the basics of what made radio great”

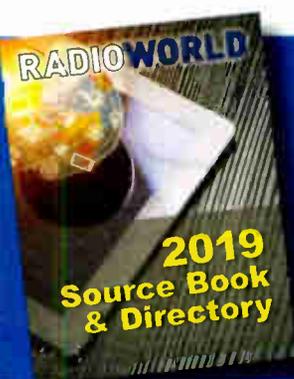
BY RANDY J. STINE

TOCCOA, GA. — While many large radio broadcast groups sink millions of dollars into developing digital services like podcasting and streaming and hoping to make money on them, Art Sutton's Georgia-Carolina Radiocasting Company isn't obsessing about

streaming cume, geofencing, website hits or podcast downloads.

It's not that Sutton doesn't believe in an online and social media presence for his radio stations, he's just not into the great chase to monetize as many platforms as possible. Instead, the mission of Georgia-Carolina Radiocasting is pretty

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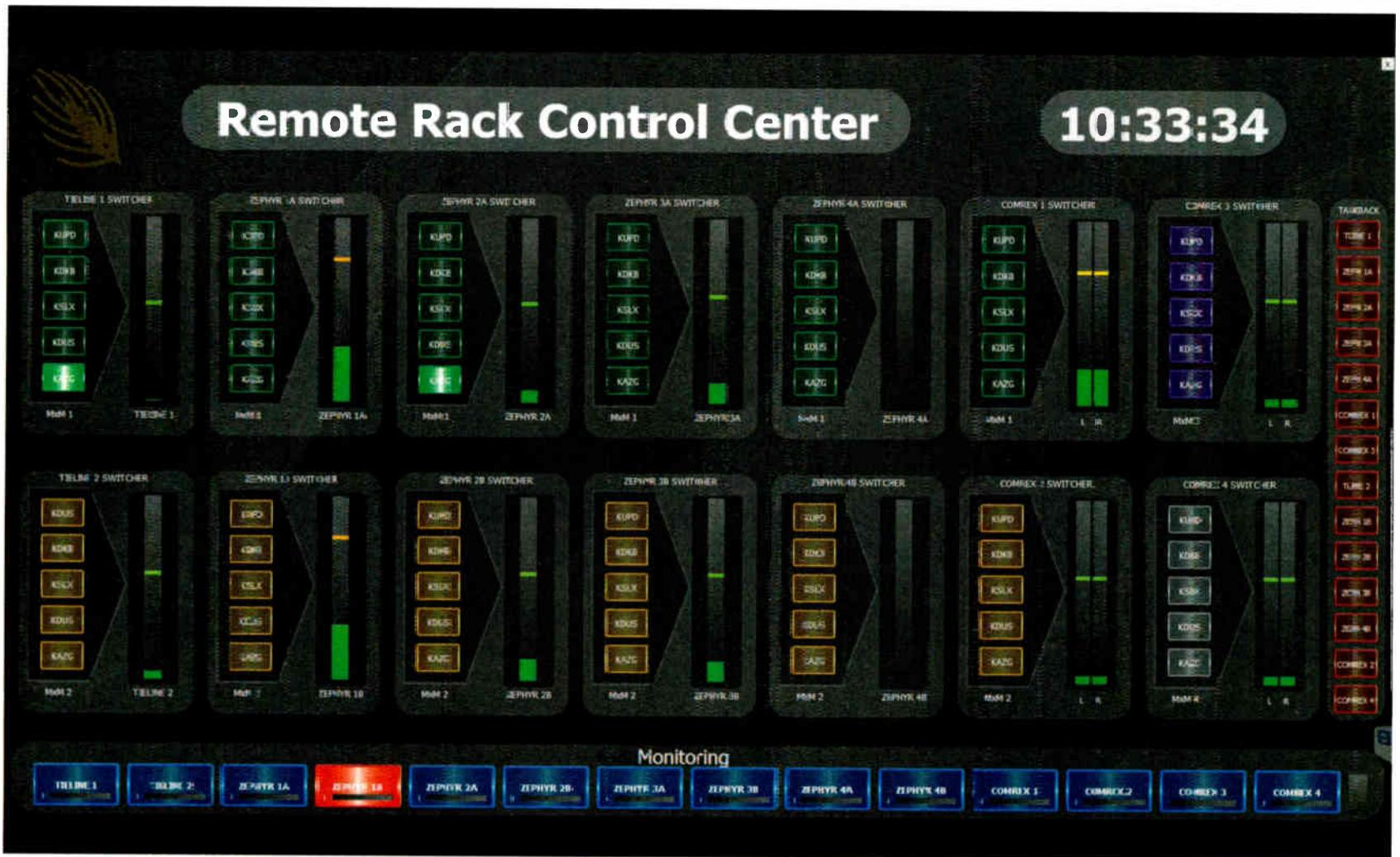
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This screen in the Hubbard Phoenix rack room provides easy touchscreen access to the group's assortment of codecs for its five studios. Included are monitoring and talkback buttons for set up and testing of remotes. Screen courtesy of RadioDNA

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Dash Radio Celebrates the Human Touch

Online service emphasizes active content curation and the power of personalities

STREAMING

BY JAMES CARELESS

Given that online broadcaster Dash Radio (www.dashradio.com) is reaching more than 10 million listeners monthly since its launch in August 2014, the company must be doing something right. And what Dash is doing right, said founder Scott Keeney (aka DJ Skee) "is offering listeners online audio that is curated and voiced by actual human beings, rather than focus group-defined playlists that pose as radio being pumped out by soulless computers."

To be precise, Dash Radio offers more than 80 free audio streams in all genres, produced by some of the world's top DJs, and with no commercials. Yet although Dash Radio is mainly programmed to millennials and available via their favorite platforms — Android/Apple smartphone apps; Amazon Echo, Sonos, and Google Home smart speakers and online streaming to computers — the programming concept that anchors this digital service appears to be 1970s human-curated FM radio.

Asked if this is the case, Scott Keeney replied, "Absolutely. As much as we are moving forward, we're also looking backwards to what made analog radio special, and using that knowledge to make what I call 'digital radio' special again."

DASH RADIO'S APPROACH

In harnessing the power of personality driven, human-curated radio in the online world, Keeney is taking a page from the medium's rock'n'roll revival, after network television stole radio's audiences in the 1950s. By focusing on the cool factor associated with 1970s FM DJs, as opposed to the top 40 on-air mania of 1960s AM music jocks, he is also appealing to the sophistication of Dash Radio's listeners and their devotion to major music personalities.

This is why many of Dash Radio music channels are directly produced and voiced by major names in the contemporary music world such as Snoop Dogg, Lil Wayne, Ice Cube and Oscar De La Hoya. Weekly shows are also provided by celebrities such as NFL Hall of Famer Warren Sapp and hip-hop veteran Too Short.

"We have our headquarters here in Hollywood where the majority of our shows are produced, but we have also empowered our talent to build studios wherever they want," said Keeney.

"For instance, Snoop Dogg build his production facility at his headquarters, and produces his channel out of there. And although he has a range of DJs on his channel, you never know when he might pop into the booth and take over the mic."

At the same time, Dash Radio isn't leaving out older listeners. There are music channels based on decades going back to the 1960s, jazz, swing and even classical. But what all of these channel have in common is that they are curated and hosted by people — which Keeney says is what makes Dash Radio different from streaming services such as Pandora and Spotify.

"We look at what the music streaming services are doing, and see their models as being more of a music business transactional system than a form of digital radio," Keeney said. "It used to be that people would



Scott Keeney and Ice Cube broadcast at Dash Radio's Dream Hollywood storefront studio.

The programming concept that anchors this digital service appears to be 1970s human-curated FM radio.

buy a vinyl record, a tape or a CD of their favorite music. Now they pay \$9.99 to get anything they want on demand. To us, that's a different market than broadcast radio, be it over the air or online."

MAKING MONEY

The fact that Dash Radio is reaching so many monthly listeners has not gone unnoticed by the business community. In October, Dash announced that it had raised \$8.8 million in seed money from a group of investors including Nimble Ventures, Slow Ventures, Lazerow Ventures and new board members Kevin Tsujihara and Michael Zeisser, whose business credits include notable work with the likes of Warner Brothers Alibaba Group and Liberty Media.

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Gary Liebisch Reflects on His Career

Sharing knowledge has been a touchstone over his 50 years in broadcast tech

Attentive transmitter shoppers will notice that a familiar face is missing from the Nautel booth at future shows. Gary Liebisch is retiring from his role as a regional sales manager (to be succeeded by another industry veteran, Ted Nahil).

Liebisch is known to many of us for his work on the manufacturing side — at Nautel and at Harris before that — but also earlier in his career as a chief engineer in Raleigh and Cincinnati.

I caught up with Gary recently.

Paul McLane: When you look back, what are you most proud of?

Gary Liebisch: I recently celebrated 50 years in broadcasting on Oct 29. As my hair began to gray, I took a lot of satisfaction on drawing from those years of experience to assist young engineers and non-technical managers in solving their RF transmission challenges. So the years with Harris and then Nautel afforded me that opportunity and was a lot of fun, particularly as HD Radio began to roll out. That technology was new to everyone 15 years ago, so every-



Gary Liebisch on the air at WVOT(AM) in Wilson, N.C., in 1976.

one was hungry to learn, and I was in a position to share my knowledge.

McLane: Any mentors or early advocates you particularly are grateful for?

Liebisch: When I made the transition

from on-air to engineering early in my career, I had a First Phone license but only my ham radio experience to draw from. I took on a number of AM directional antenna projects during the early years and am grateful to

FROM THE EDITOR



Paul McLane

early mentors like Lawrence Behr, the late Palmer Greer, Ron Rackley and William Culpepper for their guidance. Mitch Montgomery was the Harris rep in the Carolinas in the '80s, and when he came to town there was always an opportunity to learn. I said, "Gee, that's the kind of job I'd like to do someday."

Since there was no internet at the time, the SBE was invaluable as a resource. I think I may have been the first or one of the first certified engineers in the state of South Carolina in 1980, and I worked with Jerry Massey to start SBE Chapter 86 in Greenville-Spartanburg and later Chapter 93 in Raleigh.

McLane: At one point you succeeded Jeff Littlejohn as a chief engineer, which brought you to Ohio. What prompted you to switch to the vendor side?

Liebisch: The prospect of not carrying a pager? No brainer! Actually, within the first two months after I arrived in Cincinnati at Chancellor Media, I read in the local paper about the Harris plan



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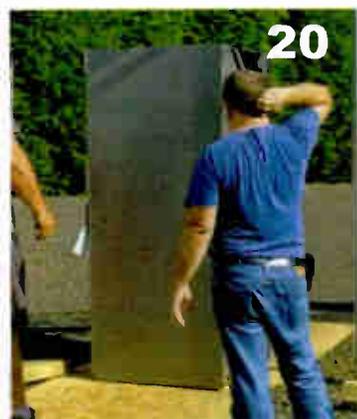
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Photo by Phil Tuck

to open a headquarters there. So I just sat tight as I watched those plans develop. Two years later it became a reality when that facility opened.

Initially I was a studio systems engineer — Harris was buying PR&E — but as HD Radio got closer to reality, I knew that RF transmission and this new technology was where I wanted to be. As an applications engineer and later, product manager, I was quickly immersed in the product development side and was put in the educator role for both customers and sales staff as HD Radio products rolled out.

I never did sales at Harris, but was a resource of technical information in support of the sales staff. So when I had the opportunity to become the first U.S.-based salesperson for Nautel, I knew I was ready. Wendell Lonergan told me in our first meeting that my background was exactly what they were looking for.

McLane: What's the coolest product or project you've worked on?

Liebisch: When I joined Nautel in 2007,

You really need to live and breathe the "culture" of broadcasting as a prequalification, or you'll inevitably be lured away to another field.

— Gary Liebisch

there were quite a few "holes" in the product line. Harris and BE were dominating the HD Radio rollout, so it was a risky move for me. But when I learned of the Nautel plan to introduce high-power solid-state FM (the NV series), I was excited. I felt this was a *major* breakthrough in FM transmitter development, and the industry really buzzed at NAB in 2008 when we introduced the NV40 for the first time.

For the next several years, we seemed to hit the ball out of the park each year with something new and innovating. It was great time to be in sales, as a lot

than one. Now "high-tech" encompasses so many other diversified fields. A young person has a wide array of choices, which is why there is such a shortage in broadcasting of young engineers. While opportunities exist for experienced engineers to take on a full facility, the opportunities for mentoring are more limited, but they do exist. Ratios are reversed.

You really need to live and breathe the "culture" of broadcasting as a prequalification, or you'll inevitably be lured away to another field.

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DASH RADIO

(continued from page 3)

“With this new funding and an all-star board, Dash is now ready to aggressively expand its footprint and pursue the next stage of its growth journey,” stated Keeney in a news release. “Our team has done an incredible job in building a best-in-class product, and by adding an incredible group of investors and world-class team, Dash will continue to rapidly expand and take advantage of the \$45 billion per year radio market as it evolves from analog to digital.”

In that announcement, Tsujihara was quoted saying that Dash is “positioned to disrupt analog radio and convert listeners to Dash users.”

Dash will continue to rapidly expand and take advantage of the \$45 billion per year radio market as it evolves from analog to digital.

— Scott Keeney

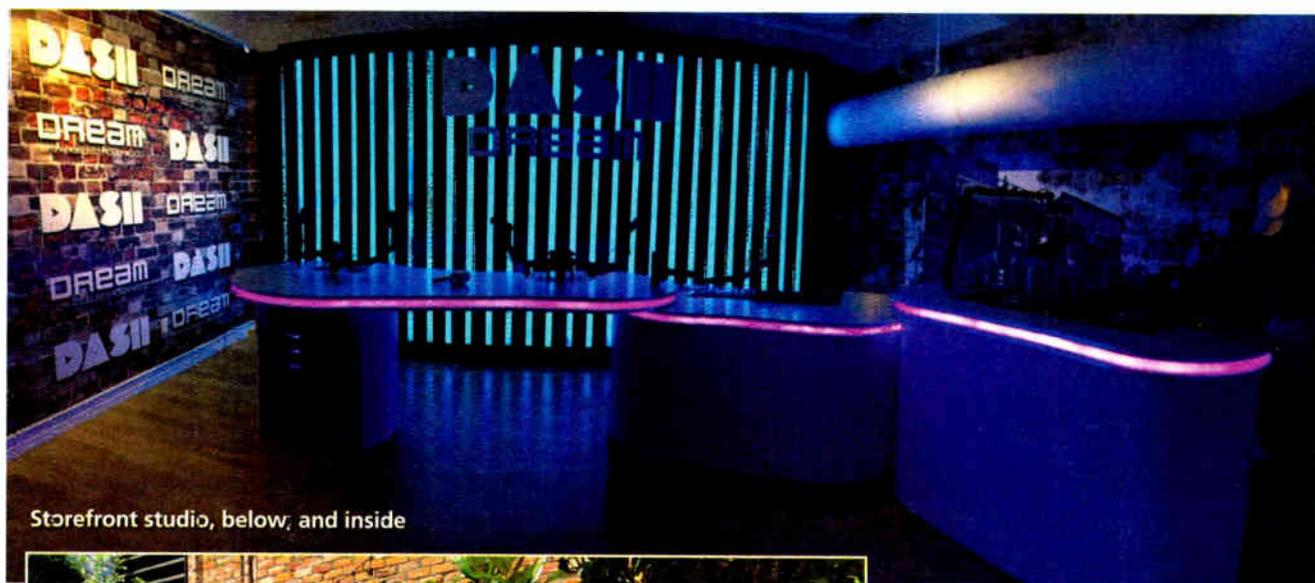
So where are the revenues to come from, to make these investors happy? Well, Dash Radio may not run commercials per se, but its announcers do read 30 second spots during their shifts, just as in the old days of “traditional radio.”

As well, Dash Radio allows sponsors to mount their own individual audio channels on the platform, such as Build-A-Bear Radio. Programmed by the Build-A-Bear Workshop retail chain, this channel offers “music that kids and parents are sure to love, as well as a schedule of fun segments, including interviews and kid-inspired content,” according to a news release in October.

“Music is an important part of the Build-A-Bear Workshop experience,” said Sharon Price John, president and CEO, Build-A-Bear Workshop in the announcement. “Hit songs and original music, inside sound chips that are added to our furry friends, have been incorporated into our Make-Your-Own process for years.” The channel was thought up by Dash Radio Vice President of Business Development Clinton Sparks, who worked with Keeney and Foundation Media Partners to pitch the idea to Build-A-Bear.

WHAT WAS OLD IS NEW AGAIN

In allowing sponsors to program and



Storefront studio, below, and inside



brand their own Dash Radio channels, Keeney seems to be going back to radio’s roots. When network radio began to catch on in the early 1930s, it was the

sponsors whose names were front-and-center on programs; thus comedian Jack Benny’s shows had names like “The Canada Dry Ginger Ale Program,”

“The Chevrolet Program” and “The General Tire Revue.” Or if Benny’s name appeared it may have been “The Lucky Strike Program Starring Jack Benny.”

In returning to this and other traditional advertising models — and avoiding 20-minute blocks of commercials — Keeney is relying on many aspects of traditional radio to make Dash Radio’s version of digital radio a hit with listeners. Add the platform’s emphasis on human content curation and program presentation, and what was old is new again at Dash Radio.

“In the move towards industry consolidation while competing against online music services, over-the-air radio broadcasters have abandoned their great edge — which was great personalities and human-curated music formats that listeners really cared about and were loyal to,” he believes. “At Dash Radio, we’re trying to bring that back.”

LIEBISCH

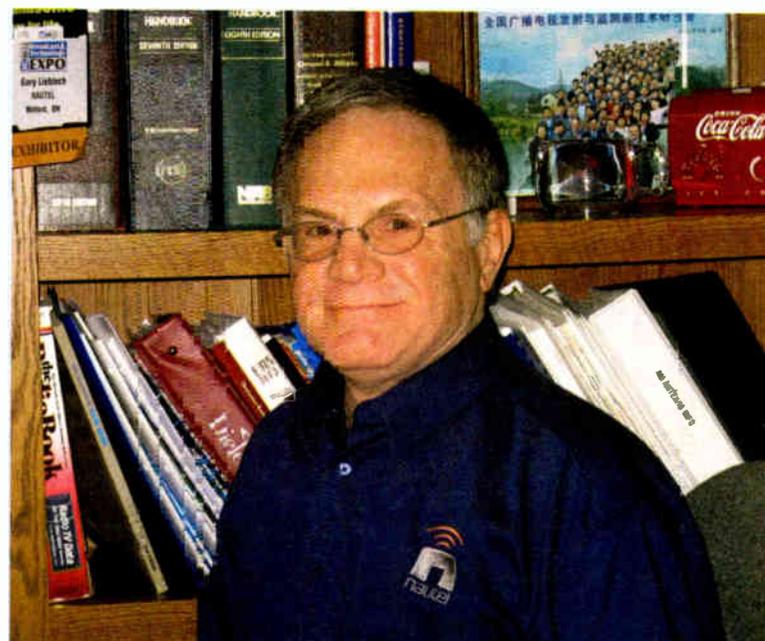
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McLane: What are your plans? And any other thoughts?

Liebisch: I hope to remain active in the industry, and perhaps entertain special projects from time to time. I have taken on a local non-com station just to keep my hands dirty on a Nautel transmitter. My man cave in the basement of our home houses my O gauge model railroad layout, my ham radio shack (W8GEL) and my radio airchecks collection. My wife and I also enjoy traveling to U.S. national parks, and there are still many more to see.

I would just want to acknowledge the great engineering teams I worked with at both Harris and Nautel. I worked with Geoff Mendenhall and the Harris team on the groundbreaking Flexstar project. And with Nautel, the team led by Mike Woods was equally aggressive and innovative in making high-power solid-state HD FM a reality.

Read an interview with Nautel’s Ellis Terry about his own retirement at <https://tinyurl.com/rw-terry>.



Liebisch said, “I have taken on a local non-com station just to keep my hands dirty on a Nautel transmitter.”

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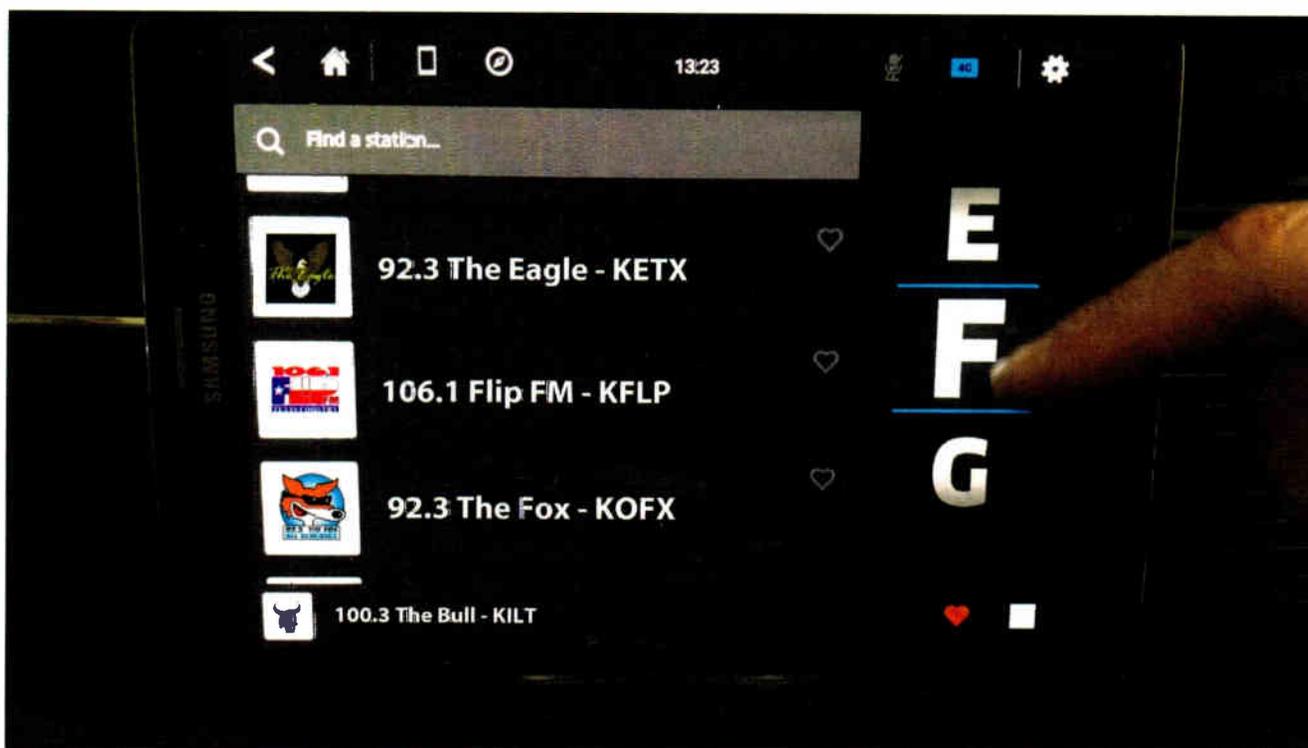
percent of drivers “always” or “mostly” listening to the radio on every journey.

With numbers like these, you might expect radio to be a top priority for the car industry — but sadly this is not always the case.

Radio is a vital part of the driving experience for the majority of vehicle users, yet the design and user interface of most modern car radios is often quite old-fashioned. The upshot is increasingly impressive tech specs for cars, but underwhelming, outdated and hard-to-use radios in dashboards.

What’s more, car manufacturers — perhaps spellbound by the shiny new toys out there — often prioritize integrations with platforms like Spotify and Apple Music in their dashboards, even though the majority of drivers prefer to listen to the radio.

With the advent of connected vehicles, we’re at a critical moment in radio’s long association with the car, so it’s crucial



Reference Radio screen showing U.S. stations

It’s important to note that the interface of the Reference Radio is platform-agnostic; it could just as easily be attached to an HD Radio tuner in the United States.

that we work together to maintain its primacy in the dashboard.

MULTIPLATFORM

That’s why we’ve been working on the prototype Reference Radio.

The Reference Radio is a smart multiplatform radio, able to play DAB digital radio, FM and internet radio streams. But unlike most modern car radios, the Reference Radio shows a single list of stations across all those platforms. There’s no need to select different “bands” first — the driver just taps a station logo to play it, and the system does the rest.

There’s a single A–Z list of stations across all platforms, and it’s easy to set favorites and personalize your station list by dragging and dropping logos. It’s

important to note that the interface of the Reference Radio is platform-agnostic; it could just as easily be attached to an HD Radio tuner in the United States.

If you can get the interface right, you can make a car radio safer — and that’s paramount. Safety has been a major consideration in the design of the Reference Radio, with a large and intuitive interface, and easy ways to change station. In the next phase of development, voice control will be tested, so that drivers can keep their eyes on the road while changing stations.

We’re not starting from scratch here — there are already examples of great practice, like the hybrid radio in the high-end Audi range. Radioplayer has helped with the development of these elegant interfaces, by partnering with Audi to supply official feeds of metadata (logos, streams etc.) from stations across all Radioplayer countries.

We’re building on strong foundations too — there’s been brilliant research done by the WorldDAB Automotive group, of which Radioplayer is proud to be a member. We filmed dozens of drivers from five different countries as they used their car radios. The result was a common-sense list of guidelines



A display of U.K. stations

for how car radios should work — and the Reference Radio follows them all.

WRAPI

Like any construction project, it’s important to have the right raw materials. “Metadata” is a dull word that describes a critically important ingredient in radio design. It’s the information about the thousands of radio stations in the Radioplayer family — like logos, streams and podcasts.

Over the years, we’ve learned that it’s impossible to build a great-looking modern radio without it. So we came up with the “WRAPI,” which stands for Worldwide Radioplayer API (an API is a data feed). It’s how we send the

metadata to Audi to power their radios, and it’s also where the Reference Radio finds its metadata. We’re talking to other car companies about data partnerships — and now about new radio designs too.

“Combining good design and great data in the dashboard” was the title of my recent talk at the WordDAB General Assembly — and that’s how we’ll crack this challenge. We can definitely make radio simple, smart and sexy in the connected cars of the future — but only if we work together and invest in research and development to achieve it.

Watch a promotional video about the prototype at <https://tinyurl.com/rw-referenceradio>.

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SUTTON

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straight ahead: "To provide high-quality, informative local radio programming to listeners in the markets we serve."

Sutton's group, which operates small-market radio stations in Georgia, North Carolina and South Carolina, still embraces classified ads shows like Trading Post and Swap Shop. And yes, even the obituary report.

Sutton has been vocal in his criticism of the radio industry's habit of jumping on the latest digital trend. He told Tom Taylor's NOW newsletter in late 2018 that "all we hear now is podcasting and how it's the hottest thing in radio. If that's really true, how sad to realize how empty the radio leadership bench has become."

Instead, Sutton says he is focused on delivering results to his advertising clients and engaging local listeners in the community.

"We are in a business that is supported by advertising. This whole notion of diversifying and monetizing digital is off base. We don't make money off digital. It's not a priority with our sales staff. We really don't make any revenue off digital," Sutton said.

However, the group's websites and Facebook pages are popular, he says. "In one small market, a county of 25,000 people, our station had 30,000 unique visitors to its website in a month."

Sutton sees online and podcasting as "just add-ons" for his sales staff who target over-the-air advertising.

"I have noticed that most successful radio stations have leadership focused on sales. Even if they were not that good at sales themselves, they had good local sales staffs. It doesn't take a dummy to make the correlation that this business is really about advertising," Sutton said.

Sutton thinks it is gimmicky for radio to pitch digital over on air presence. "It frustrates me when I see what we do best,

which is selling advertising on air, and it gets relegated to second rate. The industry has always been bad about coming up with the next new gimmick.

"Podcasting is not going to save the radio industry. That is ridiculous. Some folks now are more concerned with what the ideal length of a podcast is rather than selling advertising. I think it's a disservice when the leaders of our industry get up and talk only about digital. Corporate radio is too focused on impressing investors when they should really focus just on what we do best, which is deliver-



Art Sutton with Phil Hobbs, vice president/general manager of WNEG(AM/FM).

ing customers to clients in through traditional over the air means," Sutton said.

Sutton applauds Jeff Smulyan and his efforts at Emmis to promote the NextRadio initiative, the radio industry's recently aborted attempt to get FM radio chips activated in smartphones to allow for over-the-air reception.

"The traditional radio receiver is quickly going away, and in the future if you can't pick up every FM radio station on a mobile device, radio's easy and no cost accessibility will be a thing of the past," he said.

"It's already underway with auto receivers. The greater good for every owner of a radio station is getting reception on mobile devices, turning them

into the transistor radios of today, but the big operators wouldn't step to the plate because it's competing with their own streaming services."

A TRUE GEORGIA BROADCASTER

Georgia-Carolina Radiocasting is based in Toccoa, Ga., about 90 miles northeast of Atlanta and home to Sutton's flagship stations WNEG(AM/FM). It has around 60 employees company-wide. The group has four AM stations, six FM stations along with seven FM translators (four of which repeat AMs and two that repeat HD channels on FM) and one FM booster station.

"Our stations primarily sit in areas outside the edge of big FM signals in Atlanta and Greenville, S.C.," he said, "and that is by design, really. We don't have that out-of-market deep signal penetration that can really hurt a small town station. If you have success in small town radio, it is usually one of the contributing factors."

Sutton, 56, was inducted into the Georgia Association of Broadcasters Hall of Fame this past year. According to his bio, he got his start in radio broadcasting at the age of 15, starting with his home-town station, WOGA(AM) in Sylvester, Ga. He later attended Abraham Baldwin College in Tifton, Ga., and by 1982 was full-time news director/part-time sales person at WTIF(AM) in Tifton. Then in 1986, he acquired 50-percent ownership interest of WMGA(AM) in Moultrie, Ga. In 1991, he became station manager of WJTH(AM) in Calhoun, Ga., and then proceeded to buy and sell a series of radio stations through the 1990s.

Sutton, who was born and raised on a peanut farm in Georgia, formed Georgia-Carolina Radiocasting in 2002 and focused for a time on upgrading and developing the frequencies and signals of his own stations while assisting other operators in enhancing their signals by

taking advantage of FM move-ins.

"I was self-taught through study of FCC station allocation rules. The move-ins were eventually sold but resulted in several new radio stations in places like Atlanta and Asheville and Charlotte in (N.C.)," he said. "Luckily, we made those moves just prior to the Great Recession in 2007."

Since then Sutton has focused on securing FM translators to rebroadcast several of his AM station's signals.

LOCALISM

He believes that localism is why he has been successful — and it's localism that will ultimately save radio. In fact, his company once wrote in 2008 comments on a pending FCC NPRM on localism that "failure to associate with the communities' needs is tantamount to a 'death sentence'" for a radio station.

"Localism has been and is our theme," he says. "We still emulate what hometown newspapers used to do. Through local news and being community oriented, we connect with the listeners. It's about local information and being seen in the community. A strong local news department is critical. That's the one thing that can't be recreated by some music stream originating someplace else."

Since Sutton has radio stations based in small markets, he isn't afraid to admit that "radio advertising in small markets is priced cheaply, so let's own it."

His stations have also found a non-traditional source of on air advertising: local county governments.

"I think some of that has to do with newspapers going away. Even though local governments need to communicate with constituents. They need to advertise events, ordinance changes and meetings. We are tapping into that money."

Sutton said he doesn't believe future revenue growth in the digital sector for radio is a guaranteed thing. In fact, Borrell Associates, an advertising research firm, revised their local advertising forecast for 2019 to include warnings of digital growth slowing, according to Taylor's NOW newsletter.

"In order to survive we will continue doing local radio. A radio station has to remain relevant in the community," Sutton says, "since 'relevancy is what it is all about. We need to stick to the basics of what makes radio great.'"



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World Radio History

Shine a Bright Light on the New Year

Also, helpful tidbits about interference and station logs

WORKBENCH

by John Bisset

Email Workbench tips to johnpbisset@gmail.com

Exploring the big box stores for the latest in tools and useful accessories is fun. Projects engineer Edwin Bukont was scouring Lowes for neat finds and came up with the little LED flashlight shown in Fig. 1.

In addition to being rotatable, there's a strong magnet on the back, making it ideal to "stick" onto steel racks or steel rack rails, as seen in Fig. 2.

The light intensity is adjustable, too; and being LED-powered, it does not get hot. Ed also found a larger plug-in floor LED lamp, shown in Fig. 3.

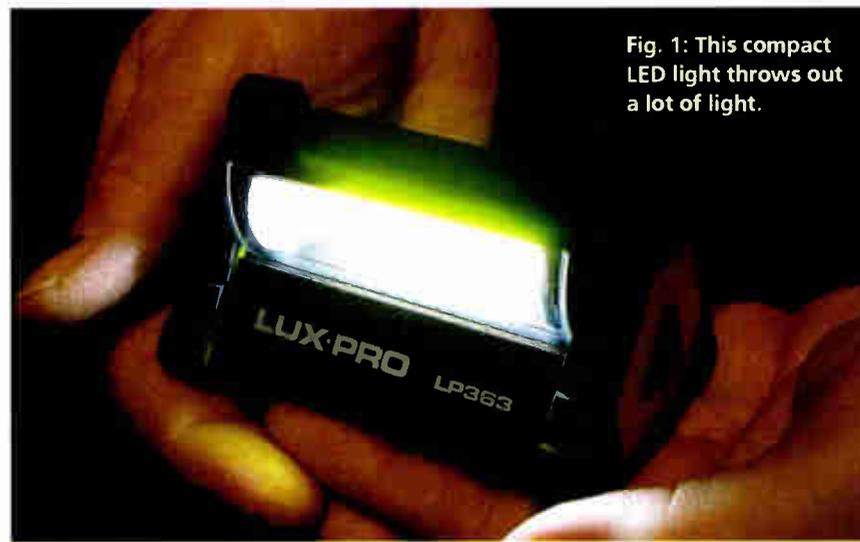


Fig. 1: This compact LED light throws out a lot of light.

Interference could also be on-channel interference, and in that case, a filter won't really help. In those cases, use a spectrum analyzer to diagnose the problem or search for the offending signal source.

Salem Media Group Orlando's Louis Mueller wanted a portable workbench that was sturdy and inexpensive but that didn't take up too much space in the transmitter building. Engineers often need a place to set test equipment, and the floor just isn't convenient.

(continued on page 15)



Fig. 4: A portable voting booth makes an ideal workbench.

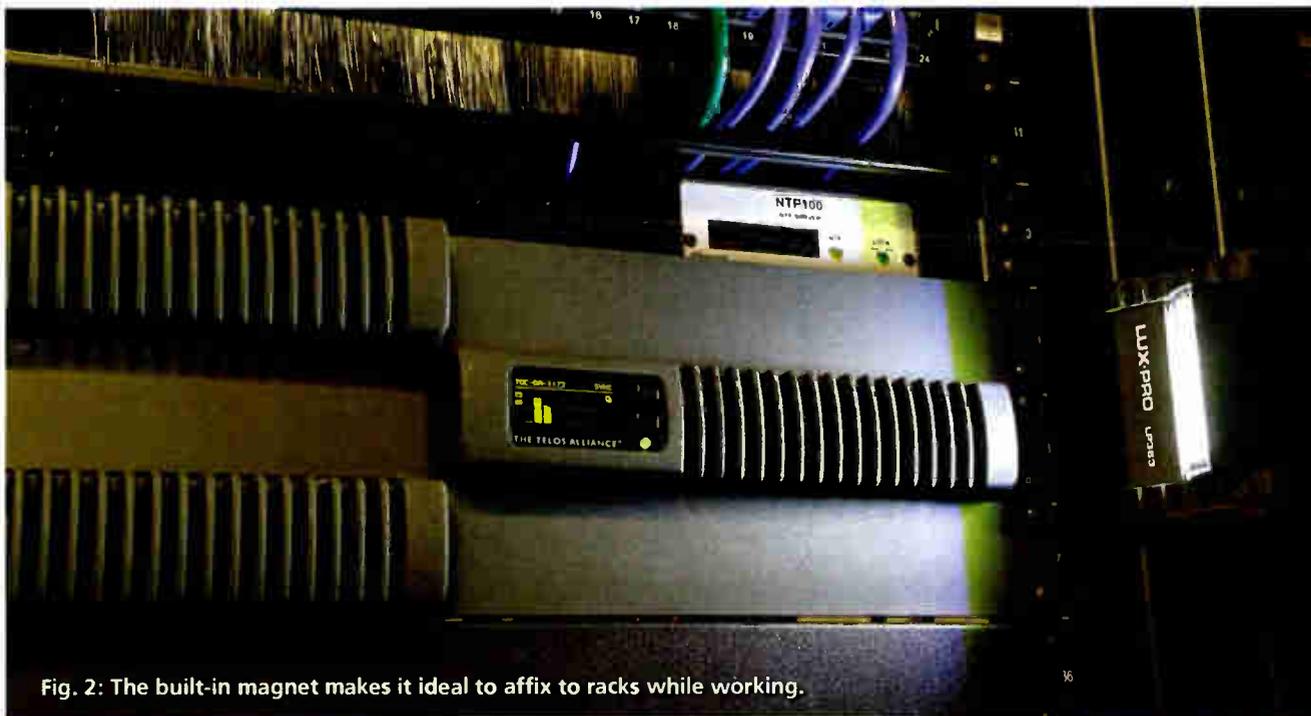


Fig. 2: The built-in magnet makes it ideal to affix to racks while working.

If you haven't converted to these LED lamps and flashlights, you're missing out. The lighting is bright, plus the case doesn't get hot as with traditional incandescent bulb trouble lights. Perhaps the best feature: When you drop the lamp, the bulb doesn't break.

I received an email from an engineer asking about satellite interference.

Broadcast engineering veteran Ira Wilner offered some advice to engineers experiencing terrestrial interference to their satellite dishes. His first question for C-band operations is whether you have a C-band pre-selector filter between your feed horn and your LNB. Ira strongly suggests one.

In some cases, Ira has used two of these filters in series. LNBs are far more susceptible to out-of-band RFI than LNAs plus down converters. Their front ends are easily overloaded, and the spurious response will generate noise all across your down-converted C-band signal at L-band.

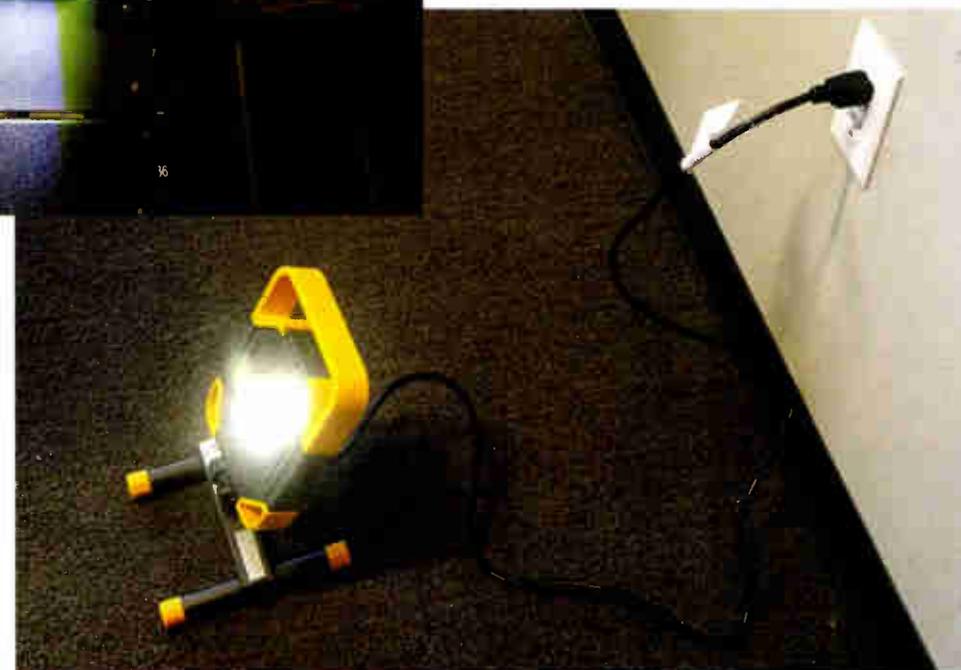


Fig. 3: This larger AC-powered LED lamp replaces the traditional incandescent trouble light.

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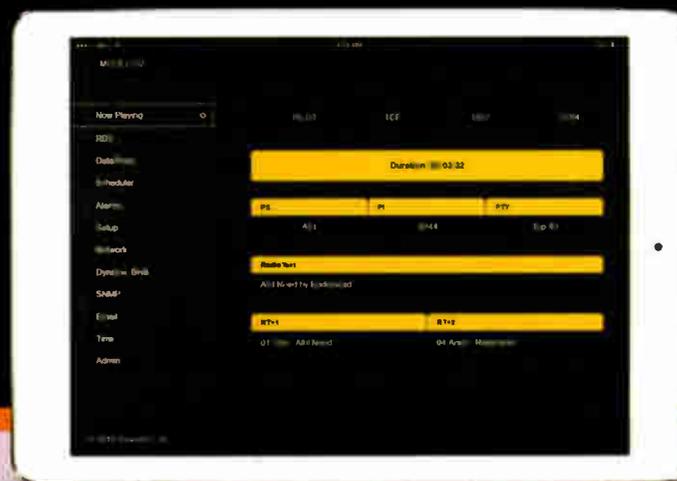
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Here's What Cumulus Wants in Every Transmitter

Yancy McNair and Michael Gay talk about their "must haves" and their wish lists

TECHNOLOGY

Yancy McNair and Michael Gay are vice presidents of engineering for Cumulus Media, which delivers content to 245 million people each week through 440 owned-and-operated stations in 90 U.S. media markets.

Radio World: What recent developments in transmitter design or new features excite you or have made a big difference in the daily lives of your engineering staff?

Michael Gay: Personally, we have always been in favor of the move to switching power supplies. Removing all that "big iron" in the transmitter has made them lighter, smaller and much easier to service.

As more and more SNMP monitoring capabilities are being put in transmitters, the further convergence of IT and engineering is solidified. That excites us because as we look for the next generation of broadcast engineers, it opens up the ranks of young IT professionals to our trade. They can easily slide into monitoring and control systems of our RF plants, and then we can continue their training in the ways of a transmitter Jedi.

A lot of our new young market engineers have come from the IT side of the house. The more these transmitters present themselves as a piece of IT gear, the easier it is to attract young talent, and then we sneak in the RF training when they least expect it, like a velociraptor in the first Jurassic Park movie ... "Clever girl!"

RW: List three specifications or features that you consider "must haves" in any transmitter you buy.

Yancy McNair: First, HD ready. Even if a station is not ready to broadcast HD Radio, we want to be ready if a business case presents itself in the future and would rather not purchase an entire new transmitter to facilitate that future change.

Second, SNMP. As we work toward better monitoring and gathering operating metrics over time, we feel this is a logical function to have. Given the amount of central monitoring systems that support SNMP, it seems logical to use this open standard to our advantage.

Third, modular. We have been buying a lot of transmitters lately, and the fact that many of the parts in these systems are the same across power levels

means that we should always have a spare module or power supply somewhere close by.

RW: What RF technologies, applications or features would you like to see in future transmitter designs?

Gay: Some transmitters already support it, but I would like to see a lot more support for MPX over IP. It seems a shame to have a digital audio path all the way to the transmitter site, only to end up with the last few feet running analog multiplex over a coax BNC cable. As the IP convergence proliferates from the studio to the tower site, I think this will happen eventually.

McNair: I'd like to see a continuation of the trend toward higher efficiencies. The more efficient these units can run, especially HD-enabled units, the more cost-effective it is to operate.

RW: Some engineers report concern over availability of replacement parts for certain applications. Do you view this as an issue; and what steps if any are you taking to manage transmitter life expectancy and availability of parts?

Gay: This is just the world we live in ... the disposable world where an iPhone is considered useless and inadequate after about two years. The price of using new technology in RF systems means there is always a risk of component obsolescence.

When we buy a new transmitter, we include with every purchase a spare parts kit, a spare RF module and a spare power supply. When it comes to transmitters, the life expectancy is directly related to the environment in which it is installed and how well it is maintained.

That is not much different than, say, a station vehicle. If you use a station vehicle in Detroit or Buffalo, it is going to rust out faster than one in Atlanta; that is just the environment. A site that has a closed air conditioning system and is relatively clean will yield a longer life for a transmitter than one that is in a dirty, critter-infested site that

This article originally appeared in the November 2018 ebook. Read the full ebook online at: <https://tinyurl.com/trendsinttransmitters>.



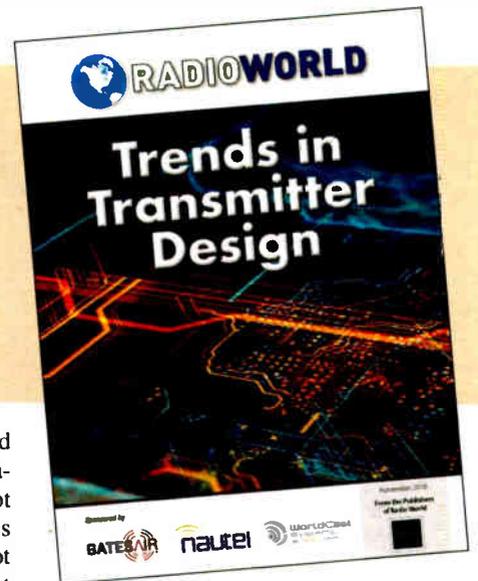
Yancy McNair



Michael Gay

brings in outside humid and/or dusty air. A station vehicle that does not get regular oil changes and lubrication will not last as long as one that has regular preventative maintenance performed.

A transmitter that is ignored and not taken care of will not last as long as one that is routinely checked, cleaned, filters changed and generally well maintained. Since our company has grown through acquisition, we inherited a lot of the transmitters currently in service. We can tell you that, over the years, we have seen both extremes across our portfolio, and we know which transmitters are going to present problem.



for the next 15 years at least. We tend to purchase from top manufacturers in which we have confidence that are committed to supporting us and will be around in the far future to support what they sell. These transmitters are one of the largest investments a radio station can make and it important to us to know that if and when we have issues, they have our back. We have made it very clear to our suppliers that we expect the same level of attention for support issues as they provide when bidding and quoting products.

RW: Networked GUI control was once a cool new thing, but it's become familiar. What new and useful features would you like to see in interfaces in the coming years?

When it comes to transmitters, the life expectancy is directly related to the environment in which it is installed and how well it is maintained.

—Michael Gay

RW: If you could sit down with major transmitter manufacturers and speak frankly, what areas of concern or trouble would you talk to them about, and what would you want them to do?

McNair: We actually did have the opportunity to visit a couple of major transmitter manufacturers and sit down with them and speak frankly.

One of our biggest concerns was service and support after the sale. We need to know that whomever we purchase this long-term asset from, that they will be committed to supporting it

Gay: I love a good GUI ... everyone loves the blinkenz and flashenz and the eye candy of a flashy GUI. However, at the end of the day, it needs to be easy to use, get us the information we need at a glance and be generally useful.

A good GUI should be something that the end user uses routinely and regularly for it to add value. As the transmitter control systems get smarter, it is feasible for the transmitter to become the iPhone (or iPad) of the tower site, meaning that there could be an app for everything!

(continued on page 18)

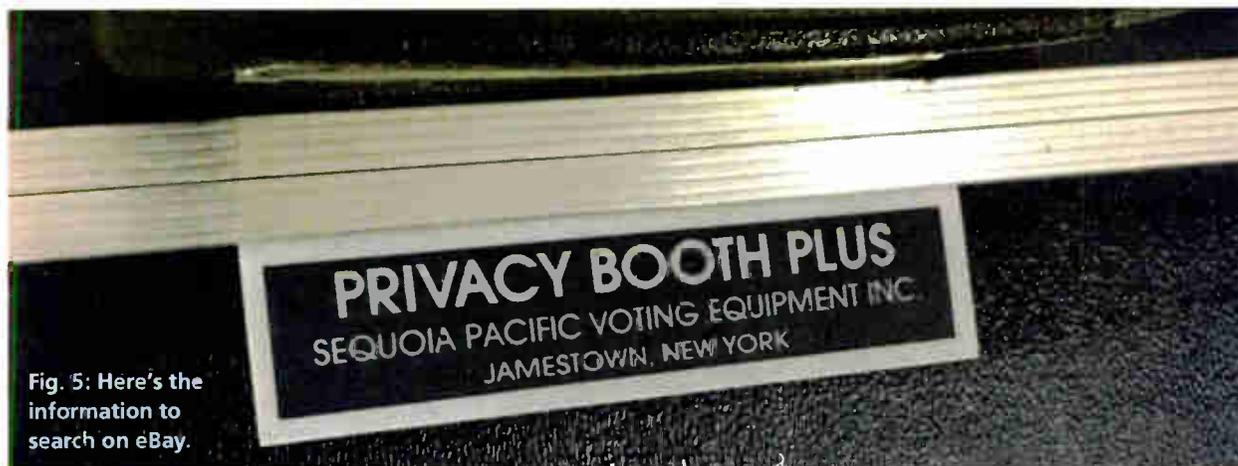


Fig. 5: Here's the information to search on eBay.

WORKBENCH

(continued from page 12)

Lou found portable voting booths on eBay for less than \$20. Shown in Fig. 4, the legs go in the case. When disassembled, this is small enough to fit in a corner or, for contract engineers, in the back of your vehicle. Because it's portable, the case can be used outside to hold a bridge or an FIM. Fig. 5 is the identifying label, should you want to search for your own portable workbench.

As we start a new year, a great reminder from Larry Wilkins' Alabama Broadcasters Association newsletter, Monday Morning Coffee Technical Notes.

Section 73.1820 of the FCC rules require the licensee of each station to maintain a station log.

I've heard engineers say, "Logs are no longer required." This is not true. The station log shall be kept by the station employees competent to do so, having actual knowledge of the facts required.

All entries are required to be reviewed once each week and must accurately reflect the station operation. The chief operator or his designee must sign and date the log, thereby attesting to the fact that the entry, or any correction or addition made thereto, is an accurate representation of what transpired.

Items required to be posted in the station log include:

- A record of all EAS activity (test and alerts) during the preceding week.
- A record of any malfunction or extinguishment of tower lighting.
- A record of failure, out-of-tolerance condition or corrective action (including calibration of automatic devices) made to the transmission system equipment, including monitoring and control devices.

Finally, these logs must be retained for a period of two years. Start the New Year by ensuring that your station engineering paperwork is in order.

Workbench is Radio World's iconic tech tips column, edited by John Bisset, who has worked in broadcasting for 48 years, is SBE certified and is a past recipient of the SBE's Educator of the Year Award. However, this column relies on you, the reader, to share your great ideas, work-arounds, facility photos, war stories and DIY projects. Help your colleagues — and qualify for SBE recertification credit while you're at it. Send your ideas, tips and high-resolution photos to johnpbisset@gmail.com. Fax to (603) 472-4944. Aren't sure it's a worthy tip? Send it anyway, we welcome all great ideas, and sometimes the smallest one can turn into a great discussion with other readers.

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Tribal Stations Stay True to Public Radio and Native Roots

Colorado's KSUT and KUTE have maintained community focus for four decades

STATION PROFILE

BY DONNA HALPER

The word unique is overused but seems appropriate when applied to KSUT Public Media.

Licensed to Ignacio, Colo., in a region of the southwest known as Four Corners, KSUT is a National Public Radio affiliate but also has long been known for its live and local programs and its commitment to community service.

KSUT was founded in 1976 by the Southern Ute Indian tribe with a goal of keeping tribal members informed and entertained. Today, KSUT provides two services.

One, "Tribal Radio" (KSUT), serves as the voice of the Native Americans who live in the area. It plays traditional Indian music, provides news and talk shows about issues of concern to the community, and tells the stories the mainstream media often ignore.

The other, "Four Corners Public Radio" (KUTE), offers a blend of popular NPR staples like "Morning Edition" and "All Things Considered," as well as a locally-programmed adult album alternative (Triple A) format. The station's playlist includes not only big names like Joni Mitchell or Coldplay

but also local artists, in-studio live concerts, jazz, blues and world music.

REFLECTION OF THE REGION

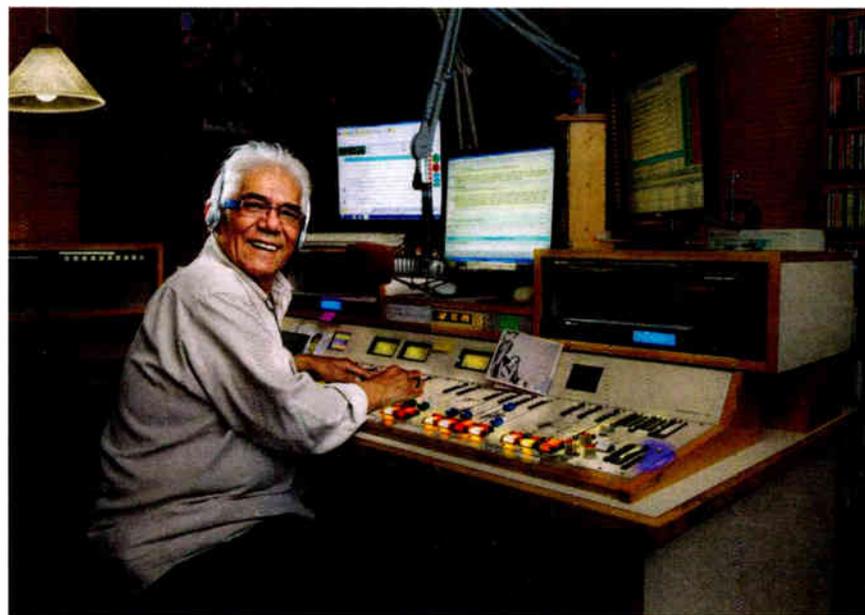
While a lot has changed in the more than four decades since KSUT made its debut, the community focus has never wavered, according to Executive Director Tami Graham.

"We reflect the cultural diversity of the region. We're unique because we're tribally-founded, and we stay true to our roots; but we are also an NPR affiliate and an independent nonprofit."

Graham is proud of KSUT's suc-



Executive Director Tami Graham



For Eddie Box Jr., KSUT is a family affair. His father was a founding member of the station in 1976. Eddie Jr. hosts a blues show and was the station's board president for 25 years.

cess and its popularity in the region. In fact, it was recently voted "Best Radio Station in Durango and La Plata County" for the sixth consecutive year, in a reader poll by the Durango Herald.

Graham oversees an 11-person staff, and she wears many hats, as do her colleagues. Graham's include fundraising and grant-writing (an ongoing part of being a listener-supported station); and she hosts an on-air shift on Four Corners Radio on Wednesday afternoons.

Four Corners Station Manager Rob Rawls also handles day-to-day engineering and hosts a Tuesday night blues show. Four Corners Music Director Stasia Lanier, who has been with KSUT for 25 years, not only oversees the station's music but helps with marketing and promotion, and can be heard Tuesday afternoons on "Afternoon Blend" as well as on a Saturday morning program called "San Juan Sunrise."

When KSUT went on the air in June 1976, it was one of the few tribal radio stations in the United States; back then, it had only 10 watts and a signal that could be heard for about 20 miles, and it broadcast four hours a day.

And yet, as Lillian Seibel, KSUT's first station manager, recalls: "People appreciated [KSUT] right from the beginning. It was exciting for them to hear native music."

Today, says Tribal Radio Station Manager Sheila Nanaeto, native music is key to the station's identity; she hosts the morning show, and she enjoys



Rob Rawls is Four Corners' station manager and does engineering.

promoting the songs of native artists. And while the station's founders were Southern Utes, the music comes from all tribal groups.

But the station is known for more than just the music. It is also a focal point for educational programs on health, the environment and other issues. There are nationally produced talk shows like "Native America Calling," but there are also locally produced programs.

For example, Nanaeto says, "We reached out to different organizations, who came in to discuss how they were preventing domestic violence." Included in the 42 hours a week of native-oriented programming, Nanaeto hosts a show aimed at the homebound elderly population. And because Tribal Radio broadcasts high school sports as well as reporting live from area pow-wows, "People know us ... and we have listeners of all different ages."

KSUT's two signals serve 14 towns

(continued on page 18)

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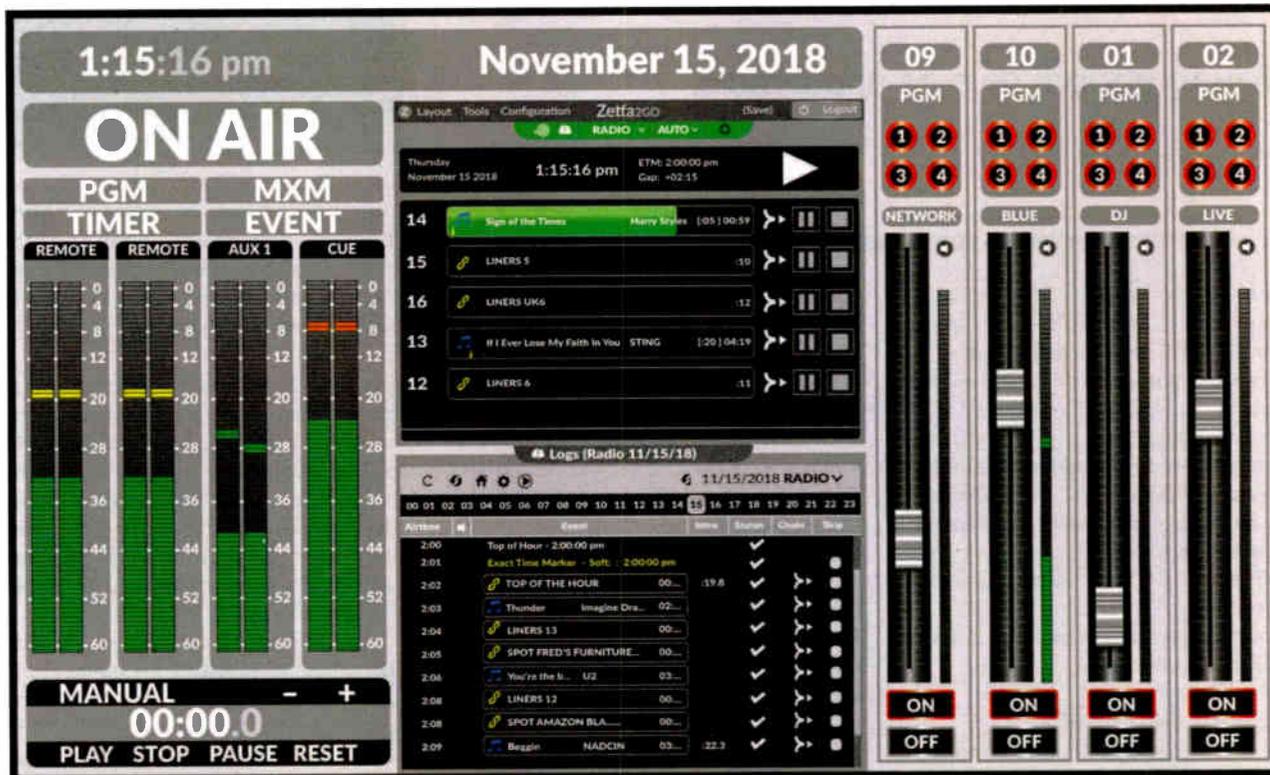
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It's All in WheatNet-IP

KSUT

(continued from page 16)

across parts of four states (Colorado, Utah, Arizona and New Mexico). It's quite a challenge serving such a wide area. Twice a day, the organization's footprint results in a very long station ID, reflecting the call letters of six FM transmitters and four FM translators. The market is unrated, but by many accounts, KSUT reaches a potential audience of more than 200,000 people. (Most of the time, the stations just use the KSUT identifier, and the website's audio stream, too, refers mainly to KSUT.)

which everyone hopes will result in an upgrade of the current equipment.

"And boy, do we need it," Rawls says. "KSUT on-air studios currently use 20-year old analog PR&E consoles that are in need of constant repair. KSUT has Tascam CD players in each studio, but they are rarely used. [There is] a digitized library of over 70,000 songs stored in a NexGen audio server — with a Raid 5 hard disk array — that is used by announcers, producers and programmers to create music programming. KSUT has standardized on EV RE-27 microphones for all studios. And audio processing is provided by an Orban Optimod 8600."

Young people do care about radio.

—Tami Graham

Rob Rawls explains the logistics: "Tribal Radio [KSUT]'s main transmitter is 2,000 watts and is located in southwest Colorado. The Tribal signal is repeated in New Mexico on KUUT at 500 watts. Four Corners' primary transmitter is located in southwest Colorado and runs at 900 watts. Four Corners is re-broadcast on KDNQ in Durango [200 watts], KUSW in Farmington [900 watts] and KPGS in Pagosa Springs [500 watts]."

Both services also can be heard via the KSUT.org website.

THE GOODS AND THE GEAR

He also mentioned the technology behind the on-air product: "KSUT uses a mix of Harris, BE and Crown transmitters and translators. Most of KSUT's transmitter sites now have internet, which allows KSUT to use Comrex Bric Links to deliver our programming to remote locations. KSUT is an NPR affiliate, receiving national programming through a 4-meter satellite dish ... KSUT manages music, national programming and local programming using NexGen automation from RCS Sound Software."

He also notes that KSUT is in the process of building a new broadcast facility,

Until 1998, KSUT tried to do it all with one service, but although the NPR programming was well-received (the station became an affiliate in 1984), some listeners felt the station was straying from its tribal roots. So, in June 1998, KSUT put the second on the air: Tribal Radio could now focus on the three Indian reservations within the signal range, while Four Corners could focus on the diverse blend of area residents that included students from Fort Lewis College in Durango, as well as tourists, and local residents drawn to the region's scenic beauty.

As a listener-supported station, KSUT relies on fundraising drives in order to raise the money needed to operate. Fortunately, both Four Cor-



Marona Photography

Sheila Nanaeto is shown in a photo by Christopher Marona taken for a station fundraising brochure. "Sheila's portrait was created to show her passion for dance," Marona said. Whirling live dancers blur behind her.

ners and Tribal Radio have loyal and devoted audiences: In the most recent fundraising campaign, more than \$4.6 million was raised from area residents and businesses, as well as from grants (the Southern Ute tribe provided \$1 million), augmented by some revenue that came from the Corporation for Public Broadcasting.

But raising money is an ongoing challenge, says KSUT's Graham. She praises the Southern Ute tribe and tribal council for its commitment to KSUT's success, and she is grateful for the many listeners who donate and who reach out to the station on social media.

EXPANSION AND OUTREACH PLANS

On Graham's to-do list is getting funding for a tribal media center.

"Young people *do* care about radio," she says, and she hopes to use the media center to train them to participate in broadcasting.

Graham also hopes to reenergize the station's local news. Currently, due to budget cutbacks, there is no longer a local news department, but the plan is to restore local news coverage in the future. For now, the station uses its website for local headlines from area newspapers, and it broadcasts bulletins (such as impending bad weather) when they are received.

And like everyone on the staff, Graham is a big believer in the power of radio. "I fell in love with radio in college," she explains, and after a long career in broadcasting, she ultimately joined KSUT because "I loved what the station was doing."

People who think radio no longer matters haven't listened to stations like KSUT, says Stasia Lanier. "KSUT is beloved in the region. Our slogan used to be 'We create community on the air.' People still think of us as a community asset."

Donna Halper, Ph.D., is an associate professor of communication and media studies at Lesley University. The organization Historic New England recently awarded her its Prize for Collecting Works on Paper for her collection of memorabilia related to the history of broadcasting and pioneering men and women in the early days of radio and television.

CUMULUS

(continued from page 16)

It seems that with modern tech, it would be fairly inexpensive to add much more capability to these GUIs. I think every GUI should have — in addition to the basic ON/OFF, power raise lower and forward reflected power — a spectrum analyzer, modulation monitor, time domain reflectometer, temperature monitors at various points in the transmitter as well as outside the TX, operating efficiency from power input to coax, power line input voltages and local weather forecasts. We should also consider having it tell us when we are out of K-Cups.

It should be able to store a history of all of these measurements and provide outage history and operating parameter data for the last 365 days minimum, since, unlike the stock market, past activity of a transmitter is actually the best indicator of future performance.

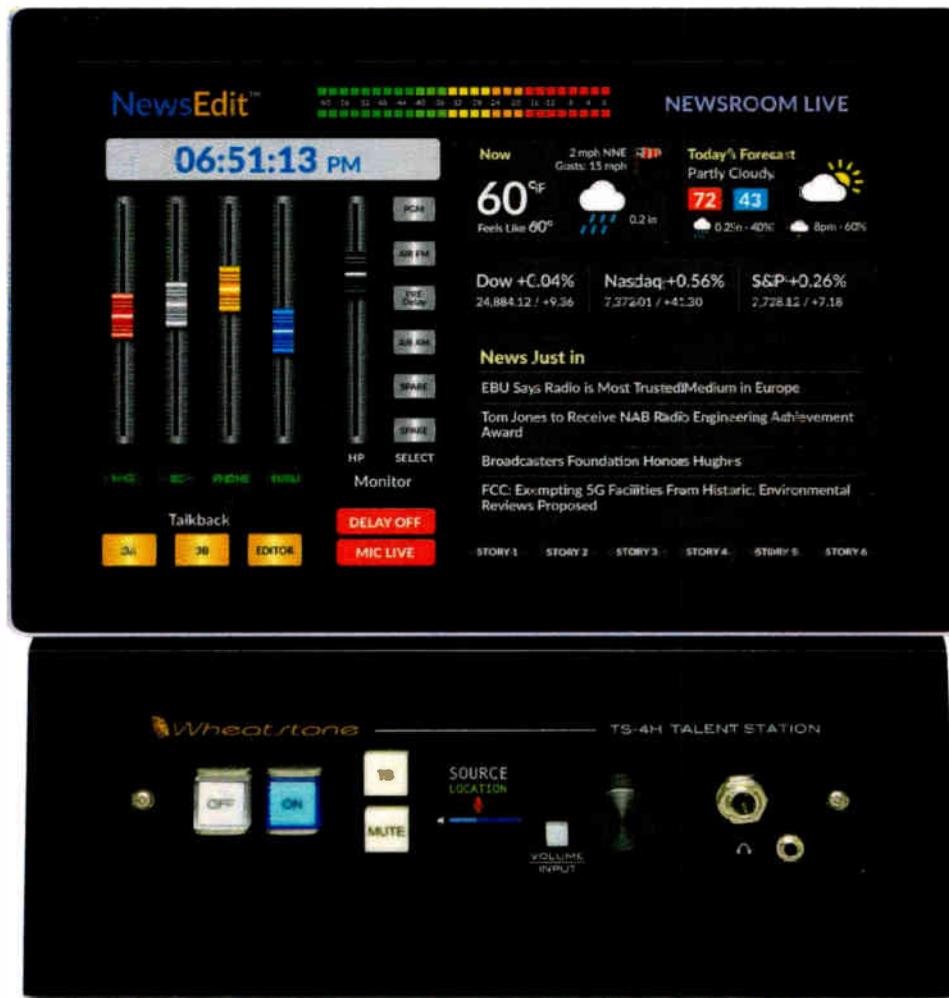
While we are at it, let's add some self-learning AI in there like IBM Watson so it can look at this history and tell

us when and what will break next. That way we can prepare station management for the blow to their budget in advance.

RW: What do you think of the reemergence in liquid cooling, and would you consider it for your own facilities?

Gay: I am not sure liquid cooling can be considered a reemergence, since TV transmitters have been doing it for years, and the technology is neither new nor complex. We recently installed one in Bridgeport, Conn., where space and power prevented us from putting in an air conditioner large enough to compensate the heat load of the transmitter. A liquid-cooled transmitter was the perfect solution for that facility, but was a bit more expensive than if we were able to go with an air-cooled unit with an external AC unit.

I think the price of these units still makes them a bit of an outlier for most installations. If they were priced comparable to air-cooled units, I am sure you would see more proliferation. I also think that the more of these that get produced and sold, the price will naturally come down. Low-power stuff will likely remain air-cooled for the foreseeable future.



Augmenting your hardware with application-specific software can create cool, unique solutions. In this case, a standalone news desk with access to all news functionality from a tablet but with key controls and interface from the Talent Station.

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Big Package Brings Star 99.1 Into the Next Decade

A new transmitter for a radio station has the same effect that a new car for everyone else

FIRST PERSON

BY CURT YENGST

With the recent installation of a new Nautel GV15 FM IBOC transmitter, WAWZ(FM) in Zarephath, N.J., finally has both feet firmly planted in the 21st Century. And while the install went smoothly, it wasn't without a fair amount of fancy footwork.

For nearly 15 years, Star 99.1 has been able to broadcast in HD Radio with a Broadcast Electronics FMi-1405. This has also allowed us to add two additional program channels to our main offering of contemporary Christian music. Our 99.1 MHz HD2 features a Gospel format, while 99.1 HD3 features Christian rap and hip-hop.

The BE FMi-1405 has been very good to us during its tenure, but when maintenance or component failure made it necessary to switch to the backup transmitter, we found ourselves hobbled. Our backup transmitter was a Gates FM10H3 tube transmitter that WAWZ purchased new in 1975! (Regular readers may remember my account of the Gates restoration; see <https://tinyurl.com/rw-gates4>.)

The Gates was, and still is, a beautiful piece of engineering, and saved our bacon more times than we can recall; but it operated at a lower TPO and wasn't capable of HD Radio broadcasting. Every time we put it on the air was like taking a small step backwards. Clearly, an upgrade was in order.

CAREFUL PLANNING

WAWZ's General Manager Scott Taylor said, "Nautel's reputation precedes them, but after doing the research it was the reliability and efficiency that sold the day." Chief Engineer Ron Habegger echoed that sentiment and added, "It has much higher efficiency in hybrid FM mode than we were accustomed to. And built-in asymmetrical HD capability, ready to go with a finger tap on the UI screen, is something WAWZ will be taking advantage of in the near future."

Another feature that got our attention is the ability of the GV15's exciter to accept the MPX output of our Orban 8600 processor directly via AES/EBU digital format.

Installation of something this critical obviously takes careful planning. Ron and I, with the help of our longtime electrician Bob Fernandez, had to plan out some rerouting of the utility wiring to ensure the GV15 would have proper UPS protection and generator backup. This also affected power to our FMi-1405, which would become our backup, and we had to carefully choreograph switching to the old Gates one last time before it would be decommissioned.

The GV15 would then occupy the same space in our small building as the Gates once the latter was moved out. This was no mean feat. Even though the GV15 is



Our new Leg Lamp arrives!



Unwrapping our new transmitter

smaller than the Gates, it's much heavier. With little room to maneuver dollies or hand trucks, we resorted to using sections of 2-inch steel pipe as rollers. (Hey, if it worked for the ancient Egyptians ...) The Gates was placed in an adjoining building on the site, where it will likely reside as a museum piece of sorts. She doesn't owe us a dime!



What do you mean you forgot the hand truck?

(continued on page 22)

Moseley



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GV15

(continued from page 20)

Once it landed in its new home, the GV15 was a breeze to install. Thankfully, Ron had all the plumbing in place ahead of time, having spent the previous months reworking much of it to allow us to switch seamlessly either the GV15 or the FMI-1405 between our main and backup antennas or dummy load.

This was a long-overdue improvement to our facility in general. Previously, just having one coax switch meant we could only switch our main or backup transmitter to either our main or backup antenna. Using the dummy load meant disconnecting the 4-inch coaxial line from the backup antenna to connect the dummy load line. Ron's addition of a second switch now allows us to keep everything "hard-wired."

NEARLY SILENT

Once the UPS-conditioned power and RF output line were connected, we brought the GV15 to life. The first thing we noticed was how quiet this

transmitter is. Because of the noise in the room from the air conditioning and other equipment, Ron had to put his ear to the cabinet to confirm to himself that it was actually running.

Although we had spent several weeks studying the manuals, it was still a testament to good design that the touch-

screen interface was intuitive enough that we were able to configure all but the IBOC parameters without having the manuals in our laps.

Getting IBOC to behave was a bit of a head scratcher, even with the manual, but this turned out to be self-inflicted. Just when we were about to give up and call Nautel tech support, we traced the issue to a faulty connector on a Cat-5 cable. (Ron must have crimped that one! Cough, cough ...)

Speaking of tech support, a key feature of the Nautel GV15 interface is "Phone Home." Once the transmitter's onboard computer was connected to the internet, this feature allows it to contact the factory automatically. This lets Nautel know, first, "I'm here! I'm up and running!" It also allows factory technicians to more effectively troubleshoot should we find ourselves in over our heads.

The GUI is presented on a fairly large screen, especially compared to those on our audio processors. The graphics are large and easy to read, without the fear of sausage fingers like mine inadvertently breaking things. It's also easily customizable. We were quickly able to customize it to a way that made sense to us without even a peek at the documentation.



The 1970s-era Gates prior to her retirement



Putting rollers to good use



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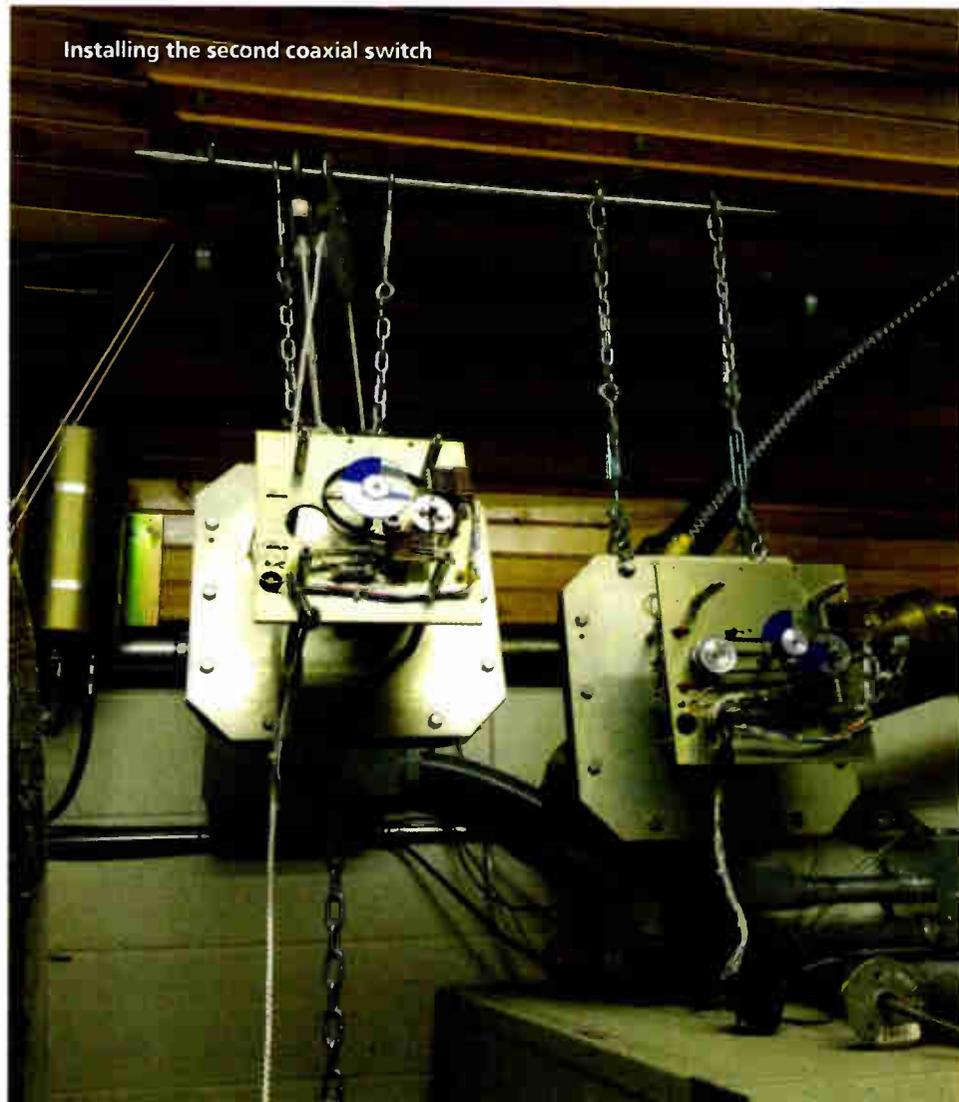
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Installing the second coaxial switch



WAWZ General Manager Scott Taylor (left) with Program Director Rick Hall

In addition to running much quieter than our older transmitters, it also runs much cooler. We have three five-ton-capacity air conditioners servicing the building. One usually runs all the time, while the second kicks on as needed to supplement. The third is a backup.

We soon found this arrangement kept the building too cold for comfort. Dialing back the unnecessary cooling has brought the noise level down even further. Time will tell just how much of an impact this has on our electric bill.

Ron says, "After a month on the Nautel, our electric bill for the site is

about 30 percent less than the previous month."

As we enjoy the "new transmitter smell" of the Nautel GV15, we're looking forward to many years of efficient, economical operation, with the added plus of being able to keep all three HD Radio channels alive regardless of which transmitter we operate.

Again, Scott Taylor. "We're confident in our ability to serve our large and loyal NYC metro audience for years to come."

Curt Yengst, CSRE, is assistant engineer at WAWZ(FM) in Zarephath, N.J.

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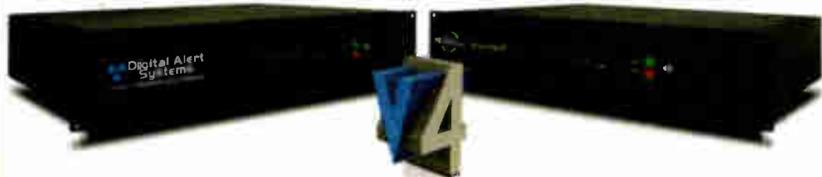
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DASDEC-II Is More Secure: Digital Alert Systems has upgraded the operating system for its Digital Alert Systems DASDEC-II emergency alert devices to provide greater security in its release of Version 4.0 software.

"The upgrade also includes industry-first Triggered Common Alerting Protocol (CAP) Polling, a powerful tool for presenting more complete alert information to the public, as well as support for the new Blue Alert (BLU) Emergency Alert System (EAS) code," the company stated.

Noting the risk of hackers and the lure of EAS infrastructure to bad actors, DAS said cybersecurity is "a paramount concern" in system design. Version 4.0 provides a new mechanism for more rapid security updates. A new login screen is designed to prevent hackers from finding devices that might have been attached to the internet with no firewall present.

Triggered CAP Polling offers better message handling when messages come from both EAS and CAP sources. "This feature ensures that for every over-the-air EAS event, the system will immediately start looking for a matching CAP message and, if one exists, use it instead of the EAS alert for better message propagation."

Customers who bought or upgraded since March will receive Version 4.0 at no charge. Other users of V3.0 can buy it for \$495. For users of DASDEC-I and original One-Net devices, an upgrade/exchange program is available.

Info: support@digitalalertsystems.com

Marketing Your Station in 2019

“Spray and pray” is not the best way

21ST CENTURY PD by Dave Beasing

Ask a radio advertiser: One of our medium’s strengths is the ability to target specific audiences with affordable frequency. So as the program director or marketing director of a radio station, you’d probably buy spots on a direct format competitor ... if they’d sell them to you. They won’t. I’ve tried.

Here’s another option. Rather than “spray and pray” by marketing to everyone and hoping you hit the target audience, digital advertising can come close to pinpointing them.

“Of all the traditional media, radio is the farthest behind the digital curve,” says Rick Flowers, managing partner of Kmph Digital in Phoenix.

Flowers spent most of his career in newspapers before starting a company that helps ad agencies with digital strategies.

“Newspapers were forced to move to digital early when they lost their classified section revenues. Now the big TV station groups are finally seeing the light, too,” Flowers said.

LISTENER LISTS

Starting and growing a listener data-



Rick Flowers

base is a great place to begin. You may be thinking, “Oh, we have one, and we send out an email every week about our contests, concerts and promotions.” If so, good for you!

Yet in 2019, collecting listener data and using it effectively can be far more, a highly sophisticated process and a long-term commitment.

“Start from contest entries,” says Leigh Jacobs, EVP of research analysis for Nuwoodoo, the firm founded by longtime radio researcher and marketer Carolyn Gilbert.

Jacobs recommends you proceed

slowly, only asking for the information that’s absolutely necessary to play the game — name, email and a checkbox to confirm they’re of contest-legal age. That maximizes entries. Then, over time, you ask for more. “People love giving their opinions, and those opin-



Leigh Jacobs

ions are gold,” he says.

Imagine always getting station emails with content that feels like it’s just for you — because it is! It might feature an artist you love, let you know that the contest you won last year is back, or contain a personal note from your favorite DJ.

“Developing the most valuable email campaigns means making sure every email is relevant to the recipient. Even if

you’re emailing to the entire database every time, being able to customize emails based on the personal tastes of each listener or cohorts of listeners will make your email more relatable and powerful,” says Jacobs.

“Just sending out one-size-fits-all crap doesn’t add any value,” warns Flowers. He thinks it could even cheapen your brand. “If your email takes into account what it is your audience has in common and is not just a constant barrage of self-promotion then it can be meaningful. Unfortunately, few stations put in the effort to make that happen.”

Getting to know your most active listeners has another benefit, because — as mom always said — “Birds of a feather flock together.” Once you know more about their lifestyles, you can find more people just like them.

BIG DATA

“The amount of information available is tremendous — and scary,” admits Jacobs. “We often build look-alike audiences using ‘big data.’ These are people who may not come to the station, but have so much in common with station listeners, the odds are good they’d like the station, too.”

That can include tracking your listeners’ online behaviors through the use of those dreaded “cookies” when they visit your website. Is that evil?

Using data to find potential new listeners to a radio station is noble compared to the ways that Facebook has allegedly misused data. Despite that, “People are still hooked on Facebook,” says Flowers.

In his opinion, Google may even be a worse offender. “They were fined \$5 billion by the EU last year. Users sound off about the misuse of their personal data, yet they click OK to any changes a platform makes.”

Many consumers may accept that some loss of privacy for marketing purposes is a fair price to pay.

If we believe in our hearts that our radio stations perform a valuable service — making the workday and commute more fun, lifting listeners’ spirits, bringing them together to enjoy each others’ company and support good causes — a data-based strategy to grow our audiences is a win-win, for us and them.

Comment on this or any story. Email radioworld@futurenet.com.

Dave Beasing predicted the growth of podcasting and started “Sound That Brands.” Among other projects, the company co-produces “Inside Trader Joe’s” with Amplifi Media, the most successful branded podcast of its kind.

PRODUCTS & SERVICES SHOWCASE



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When Audio Is a Utility, Distribution Wins

You've heard that content is king, but sharing it is equally crucial

PROMO POWER

Mark Lapidus



Consensus from those who measure trends is that audio consumption is up!

C'mon ... this has gotta be cause for celebration for the radio industry. Haters will be quick to point out that consumption is being fueled by streaming services like Spotify, combined with the still-emerging — but assumed to be ubiquitous — smart speaker.

The takeaway I'd like to address concerns the proliferation of on-demand content and the soaring growth of smart speakers. These two items — content and distribution — are always connected, but radio stations don't think too much about the latter because we have wide-reaching broadcast signals.

I am a huge fan of commentator Bob Lefsetz, who points out that distribution, not content, is actually king. You can make the most wonderful movie ever, but if you can't get it into theaters or on a major streaming service, few people will see it. My proposition is that radio is not an exception to this rule.

Nielsen reports on-demand audio



Thinkstock/antohoto

streaming up 45 percent year over year. As you might expect, the proliferation of podcasts — and the listening audience that connects to them — also continues. Edison Research indicates that monthly podcast listeners grew from 24 percent of Americans 12+ to 26 percent year over year. And yes, listening of podcasts in vehicles is growing as well.

JUMPING ON THE ON-DEMAND BANDWAGON

Seeing this growth in on-demand, what's a broadcast radio station to do?

If it's about immediate profit, there is no question that you should stay away from on-demand audio. Creating highly entertaining/informative podcasts and streaming on smart speakers each requires investment without immediate return.

On the other hand, if you want to stay relevant — not just for the future but in the present — radio stations don't have much choice. The more places in which people can listen to your product, the better the chances that they will actually do so. If you're not present on a smart speaker, on an app and streaming via a website, you're not covering your bases.

Fence-sitters will be bested by competitors — not just radio stations, but by other streamers who are flooding the marketplace. While broadcast stations still have the advantage of large mass audiences, we must promote our own on-demand content, whether that's a live stream, podcasts or both.

Who should be the best at creating the best on-demand audio? It's us — the radio industry. We know how to find talent. We know how to structure talk and news shows. And we certainly know how to tell stories, create characters and set up actual plots.

And what are we not good at? It's a list just as long: patience, investing in the future, taking risks and two things that are small but important: repurposing our own content and fully utilizing our talent.

The barrier to becoming a podcaster is extremely low, so most podcasts are not good. It's often a group of people laughing at inside jokes or taking forever to get to a not-so-interesting point. Typically, the host has little experience and can't even hear how self-indulgent they sound. The appearance on the scene of so many badly-done podcasts should show us that there is still plenty of room for quality shows.

I'm all in for original content creation. Surely you've got creative people on staff who are ready to give fame a whirl. Local fame is great! A podcast listened to by thousands in a small town can have an amazing impact.

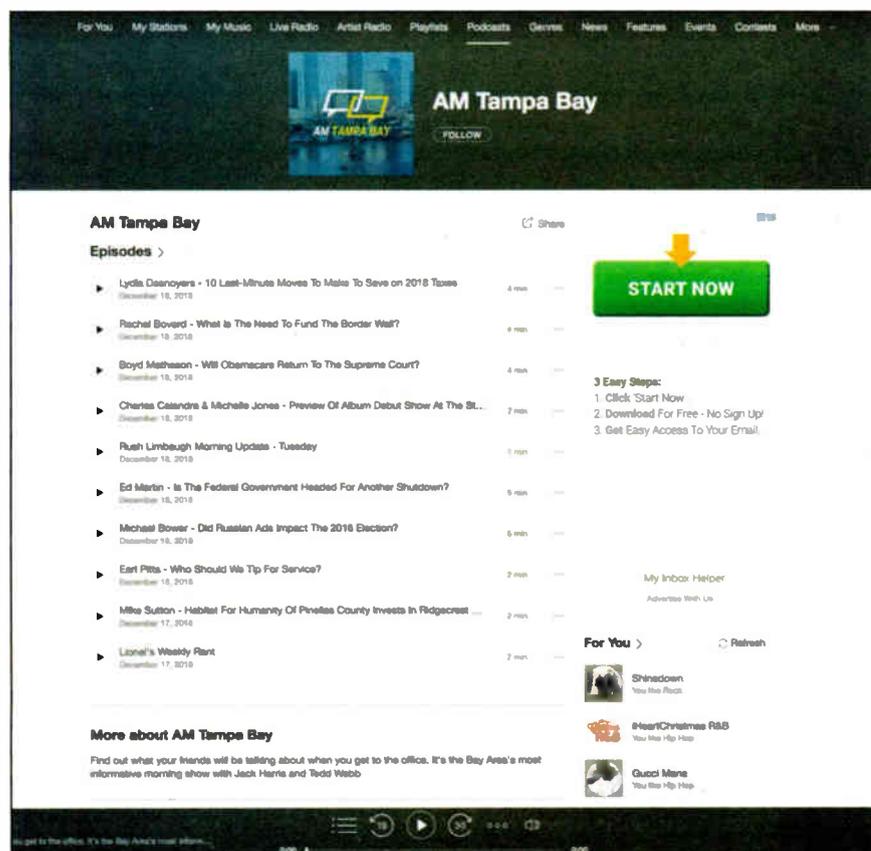
Bob Lefsetz points out that distribution, not content, is actually king.

You're looking for themes or plots that can pass what I call the Jerry Seinfeld test. Any of Jerry's shows can be described in one sentence, such as, "Jerry, Elaine, George and Kramer, each suffering a time-sensitive issue, can't remember where they left Kramer's car in the enormous parking garage of a shopping mall in New Jersey." If you can't describe a podcast in one sentence, it's not worth even starting.

Radio stations already make quite a bit of content that isn't being "versioned" properly for podcasting. Stations are notorious for taking an entire morning show and putting it up as a podcast. That's fine when shows are exceptional, but it's the rare talent who can be entertaining for four solid hours. Much better to have a savvy editor create a better show for on-demand use that's of reasonable and consistent length.

When technology introduces a "utility" that by definition is user-instant, we must pay attention. Turn on a lamp and in one second you get light. Turn on a radio and you get audio. Turn on a speaker and your house comes alive with on-demand audio.

Flip the switch and turn on the light!



The AM Tampa Bay podcast features short, snackable bites, so listeners can easily find something of interest.



Radio's Community Commitment Shone Bright This Season

♥ RADIO DOING GOOD

Here are just a few photos of the how broadcasters rallied their communities' generosity. See more at <https://tinyurl.com/ldchlo9y>.



i-HeartMedia San Diego's stations participated in the First Annual iHeart Rady Children's Give A Thon in partnership with Rady Children's Hospital.



Entercom Riverside's KFRG(FM) 17th annual Stater Bros. Charities K-FROGGERS 4 Kids Radiothon raised over \$321,000.



iHeartMedia Boston's WBWL(FM) raised \$458,236 for St. Jude Children's Research Hospital during a two-day live radiothon.



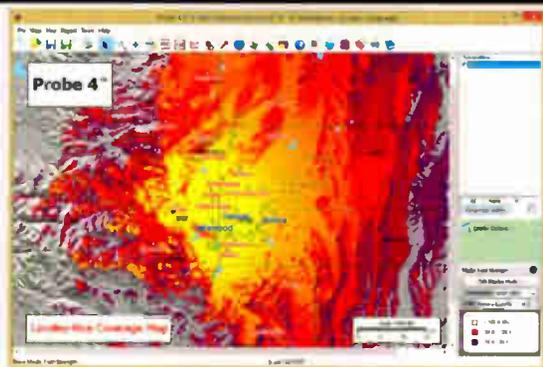
Cumulus Nashville's stations collected thousands of toys and gifts for The Salvation Army's Forgotten Angel Program.

What did your station do to celebrate the holiday season? Send your stories and photos to emily.reigart@futurenet.com — we may add your contributions to the online gallery or feature your contributions in an upcoming article.

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MISCELLANEOUS

WANT TO SELL

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 as 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: 250' tower w/building on 4 acres; 12' satellite dish on concrete base; prices drastically slashed or make offer. 315-287-1753 or 315-528-6040

WANT TO BUY

Collector wants to buy: old vintage pro gears, compressor/lim-

iter, 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 KFRC radio special of Elvis Presley which aired on January 8, 1978. I'd be willing to pay for a digital copy. Ron, 925-284-5428.



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MISCELLANEOUS

WANT TO BUY

I'm looking for the Ed Brady radio show in which he did a tribute to Duke Ellington, the station was KNBR, I'd be willing to pay for a digital copy. Ron, 925-284-5428.

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example news-cast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KQWB, KSF, KQBY, 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 home-run 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.

I'm looking for KTIM, AM,FM radio shows from 1971-1988. The stations were located in San Rafael, Ca. Ron, 925-284-5428.

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 promo-

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tion 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 KSF radio shows, Disco 104 FM, 1975-1978. R Tamm, 925-284-5428.

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

of central Florida on the gulf coast, covers the county, get out of the cold weather, come to Florida, call or write for particulars, 352-613-2289 or email boceey@hotmail.com or Bob, PO Box 1121, Crystal River, FL 34423.

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KB5LPK Signing Off

His son memorializes Jim Withers, engineer and RW contributor, a year after his passing

REMEMBRANCE

BY RYAN JAMES WITHERS

This is a tough article to write; my dad — James “Jim” Withers — was my hero for many reasons, and capturing the entire significance of that statement in the space of this article isn’t possible.

To start, he handled a battle with Muscular Dystrophy with grace, dignity and courage.

He knew what he wanted to do from the time he was five years old. He was an engineer at heart, and much of our bonding was over tinkering with something to make it work, or from him teaching me about how something worked.

He frequently commented that after I was born he knew he was meant to be a father. I had a great dad; I know I was fortunate, as not everyone can say this. He encouraged me to do things that I may not have otherwise done including: water-skiing, glider/pilot lessons, amateur radio and many other pursuits.

He lived a full life and encouraged everyone close to him to do the same.

As many longtime readers will attest, my dad had a knack for making complex topics very approachable. He contributed many articles in this space on subjects ranging from Ohm’s Law; the digital transformation as necessitated by World War II; AM radio; and “Twas the Night at the Site,” a broadcast engineer’s parody on “Twas the Night Before Christmas,” to name just a few. He was a longtime contributor to Radio World, writing about his first love and

what turned into a lifetime working in broadcasting, both as an employee and an entrepreneur.

As I started to grow up, Dad began teaching and mentoring, and as I continued growing those lessons were taught as he pursued radio as a side career.

Many times I got to see up close and personal the number of hats an entrepreneur has to wear when building a business. There were invaluable lessons on engineering, accounting, marketing and the value of personal relationships. Dad created many of these relationships on his ability to tell a good story. This is the story of how engineering, business and life shaped the relationship I had with my dad.

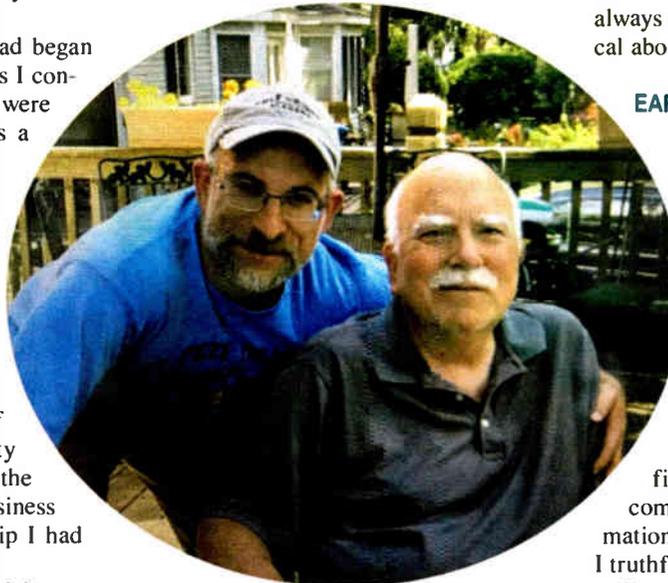
It really starts not with a job or a side career at all, but with a connection established when I was in junior high. Dad took a job with an independent TV station down in San Antonio, KABB — Channel 29, and as with most companies, when they realized they needed him, the start date wasn’t tuned to our school year. So he went down ahead of us, and we stayed up in St. Louis so my sister and I could finish out the school year.

HAM RADIO LESSONS

I had just received my novice license and with it my call letters KB0FSO. Shortly after this my dad and mom helped me buy a Hallicrafters radio that I still have in my basement today. It can

broadcast at 150 W on 80, 20, 15 and 10 meters.

My dad bought a HeathKit that looked very similar to the Hallicrafters rig and could broadcast on the identical frequencies. He also got his license and received call letters KB5LPK. Most of our early sessions would begin with a



The author, left, poses with his father, Jim Withers.

phone call where we would make contact and work out what frequency we’d meet each other on. Even with “cheating” like this, it wasn’t always easy to connect with one another.

Then we’d begin the process of coding in a series of *dah-dit-dah-dits*, letter by letter, what we wanted to say. A very primitive version of today’s text messaging, but a version nonetheless.

I never did graduate beyond thinking of Morse Code letter by letter. We had a neighbor who was a general class and he could code at 25 words per minute, he had a very impressive setup. He talked about how the best coders begin to think in patterns of words. I was 13 or 14 at the time and could never quite make that leap.

My dad had patience with me, and we would finish and sign our call signs and then I’d call him and we’d tell each other goodbye. This usually happened on a weekend or during the lunch hour.

I’ll never forget these sessions or the lessons it taught me. My dad had a way of instilling things in all of us kids. I went on to get QSO cards from people all over the country, many contacted by broadcasting “CQ, CQ, CQ” along with my call sign over and over again. All of them were patient with me. This was before email, before Microsoft was a household name and before phones would become “smart.”

It was a time and a pursuit that had a

nobility about it and a certain groundedness. I could sit in my bedroom and look out the window and see the dipole antenna that I was transmitting and receiving from; I felt like I was joined to a network of another era. This never changed whether I was broadcasting or just listening to some foreign program from some country far away. I have always felt that there is something magical about radio.

EARLY AUTOMATION

As I started moving through high school, Dad ramped up his business pursuits on the side. He had already managed engineering departments in privately held TV stations as well as network affiliates. While he didn’t leave those positions, he added his love for radio and started a business to build radio automation.

To my knowledge it was his firm and Scott Studios that were competing in the space of radio automation (there were probably others, but I truthfully don’t know who they were).

It was pioneering work because it was in the days of 14.4 and 28.8 kB modems, a large hard drive at that time was 300 MB spinning at 7200 rpm, and they cost in the vicinity of \$900.

His package was called RadioMax and primitive versions of it were run with MS-Dos Batch files. Then, many iterations and a couple programmers later, it was supported by Borland and interfaced with Digital IO boards triggering commercials and playlists to run. Perhaps, most importantly, you could upload a playlist and run it on a remote computer. The transmitter sites were outfitted with remote controls that allowed “dialing” and using a touch-tone phone, you could manipulate the on-air computer or the transmitter.

Dad bought a little Mackie mixer and began recording commercials using a closet in our home as a recording studio. His vision was to achieve fully automated remote station management, and he got very close to that goal over the course of several years.

Bandera County, Texas, is a part of south Texas known as the Hill Country, and as many readers will know, height in radio can trump power. One of the first stations that Dad tried to implement RadioMax at reached into Kerrville, Texas, and the transmitter site for that station was appropriately located on a large hill. The first time Dad brought me up there we were greeted by one of Hill Country’s finest, dressed in overalls leaning on a double barrel shotgun.

The transmitter building was a sin-

READER'S FORUM



FM CHIPS & APPLE

It is absurd for Apple not to offer FM radio capability in their products. There is certainly no technical reason not to do so.

BlackBerry has had built-in over-the-air FM radio reception for years. My BlackBerry 10 Passport Smartphone has excellent reception, using the plug-in earphones as the antenna. Unlike Apple’s iPhone, no after-market third-party add-on or supplemental app installation is needed.

James G. Howes
President
Atlas Communications
Baltimore

gle-wide trailer that had been shelter for everything from raccoons to rattlesnakes, and it would eventually be home to the KEEP(FM) transmitter. For all I know it's probably still up on that mountain. I watched my dad as he soldered RF components, ran wire, figured out schematics, and frequently, he would look up and say, "You can figure out any circuit if you know Ohm's law."

OHM'S LAW & SAGE

I must have heard that a hundred times as I watched and helped him with build that station. He learned about Ohm and RF engineering in the Air Force where he would work on the radar sites that were feeders into the SAGE (Semi Automated Ground Environment) computer that was built by IBM on contract for the Air Force.

This setup was used to track every airplane that entered or exited our national airspace it was quite a technical achievement for the time. Each radar site had a drum disk for data that cost about \$90,000 in the late '60s, and it only held a couple K worth of data.

He would recall how he would start every shift putting a couple pocketfuls of vacuum tubes in his flight jacket because they would burn out on such a regular basis.

It was against this backdrop that he brought experience into radio cabinets both near and far. He really had a gift for buying radio transmitters that were in disrepair and getting them going again.

While military service was ultimately a bit too stuffy for him, I'm convinced that it was his early days in the Air Force that gave him the foundation he needed to pursue a career in broadcasting.

WILL AND SKILL

As my high school years gave way to college, Dad's radio ambitions continued. In 1996, Dad and some business partners/investors bought into a radio station that was no more than a license and a construction permit in Beaumont, Texas. They ended up purchasing that station for \$600K and turning around to sell it for \$3.2 million.

The build time from start to on air was about one month, with the vast majority of it happening in two weeks. It was during the build of Beaumont that I realized that the secret sauce to entrepreneurship consists of both will and skill.

It was more than just engineering, too. We met with locals, we worked on marketing, we wired and networked a studio.

The transmitter had three-phase power, which was my first exposure to that kind of power. Residential power, as most of you will know, is standard



The late Jim Withers, surrounded by family.

two-phase, what we know as alternating current, and it makes a kind of square wave of sorts. Three-phase power shifts this square wave so that the period is a third of the standard two-phased equivalent. This three-phase power is produced by piping the AC coming from the utility company into a contraption that looks a little bigger than an upside down propane tank, inside of which is contained a motor spinning to produce power with this phase shifted attribute. It has contacts rotated 120, 240, 360 degrees around the armature of a motor the output from this then heads into the transmitter.

The way Dad explained this to me is that it produces a cleaner power for the transmitter. Truthfully, there's a lot more engineering involved that is way beyond my ability to describe. My dad went beyond engineering, though, and I remember, while working on this same project, Dad interacting with a guy who came into the studio. We heard stories about how the previous owners owned a

NASCAR team and then came up with the game UNO. Radio and business were as much about engineering as they were about stories for my dad; he often connected with people through his ability to tell a story.

VAX COMPUTER

While I started out desiring to do an electrical engineering degree, I took one of my first programming courses on a vax mainframe using the C language. Almost all colleges had a VAX computer when I started my college career, and for many, this was their only computer. My first email address was served from a VAX mainframe computer.

It was my first programming class that convinced me I wanted to write software for a living. My degree became computer science, and I transferred to a school that would allow me to focus on this and provide opportunities for placement afterwards.

I bring this up because over the years as my career necessitated greater focus,

my dad and I continued to have a lot of respect for each other's abilities. He frequently remarked that he didn't know how I could manage all the interconnectedness of software and its abstractions, and I always struggled to map the details in a schematic onto a board of intricately connected resistors, capacitors, voltage regulators and more.

However, as I think back on it, much of the foundation of modern-day networking came from packet radio and the "aloha standard" protocol formed in the Hawaiian Islands. And vacuum tubes were a precursor to the modern day transistor, which was the precursor to integrated circuits, which was the precursor to the microchip, which ultimately provided the basis for the CPU.

So while our career pursuits diverged, much of the foundation of computers and networking was paved by ideas that were discovered in radio. And to think that I started my career right across the street from where the Victor Talking Machine was manufactured in Camden, N.J.!

CORPUS CHRISTI

My dad had a love for the Corpus Christi area. He first drove down to the Gulf of Mexico in October 1989, shortly after moving to San Antonio. After that he never stopped commenting that in October he could be in a T-shirt and cut-offs by the beach.

Those early days led to the acquisition of permits for four radio stations, of which three were granted by the FCC and subsequently built. The fourth wouldn't get signed on until 2007, and just a little over a year ago I remember him commenting that 20 years ago he would have never believed he would still own a radio station in the year 2017.

I'm helping my mom run KYRK(FM) — "106.5 FM The Shark" — in Corpus Christi, Texas, and have been very thankful for the memories this experience has allowed me to reflect on over this last year.

It's been a long, hard slog because a month prior to his passing, Hurricane Harvey impacted the tower and the antenna on it, severely affecting our broadcast capability. My dad filed the first STA with me in concert with his FCC attorney in late September 2017, and I renewed in March 2018.

(continued on page 30)

WITHERS

(continued from page 29)

I'm happy to report by the time this article hits the presses, we will be back at 100 percent power. Along the way we came to find out, as we were bringing the main transmitter back to life, that our FM exciter needed to be replaced. I got a quote of \$2,800. As you might imagine being a single-station operation, we run a pretty tight balance sheet. So an added \$2,800 was not something I was all that enthusiastic about.

I figured I would make a trip to my mom and dad's house to check out the old garage. Mom and I went nosing around out there — and sure enough we found the shell of an Armstrong FMX 30c exciter out there! In all honesty, it needs a power supply and probably to be bench tested, but that's not a problem. The treasures found in an RF engineer's garage!

In 2005, Dad and I took a trip down to Houston and then to Corpus Christi. In Houston we met with a broker who introduced us to one of the inheritors of the King Ranch, which for the uniniti-

ated is a ranch in Texas larger than the state of Delaware (yes, things really are bigger in Texas). It was during and after this meeting that Dad spoke with me about the art of successful negotiation, and about how he hadn't always negotiated successfully for himself. It was a deal that wouldn't happen, but it was an impression that was lasting.

In later years I valued my dad's input on all matters business. He had argued both on the side of management and the union. He did much of his own legal work for the FCC, and often was consulted for his legal expertise. He could command a room and yet knew how to make everyone feel at ease.

Most importantly he had a mind that never slept, at the time of his passing he was working on 61 pages of engineering, a book for the family with memories of growing up in Rockhill and Webster Groves, Mo., and he had just completed planning the wedding of my youngest sister.

My dad never suffered from an idle

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Jim Withers wrote "Twas the Night at the Site," a poem that first appeared in Radio World in December 2009.

mind, and yet he still made time to take care of and support his family. He gave me encouragement and advice. He had a listening ear and a wonderful sense of humor. He knew how to stay balanced in life and had the ability to maintain a positive outlook, even under the most trying of circumstances.

When he passed away, my sisters Kara, Kayley and I knew one of us had to return to the pages of Radio World to remember the man we thought so highly of, and to perhaps encourage his readers to connect with their sons and daughters, to explore and to never give up

hope for a better and brighter tomorrow.

As I think about it, radio and engineering are about these ideals: making something better and, in so doing, leaving the world a little better than you found it.

Radio World joins the author and his family in remembering our friend and contributor Jim Withers.

Ryan James Withers lives with his wife Lisa and their four kids Clayton, Nathan, Madeline and Reagan. He is chief technology officer at 1904labs in St. Louis, Mo. Reach him at withers.ryan@gmail.com.



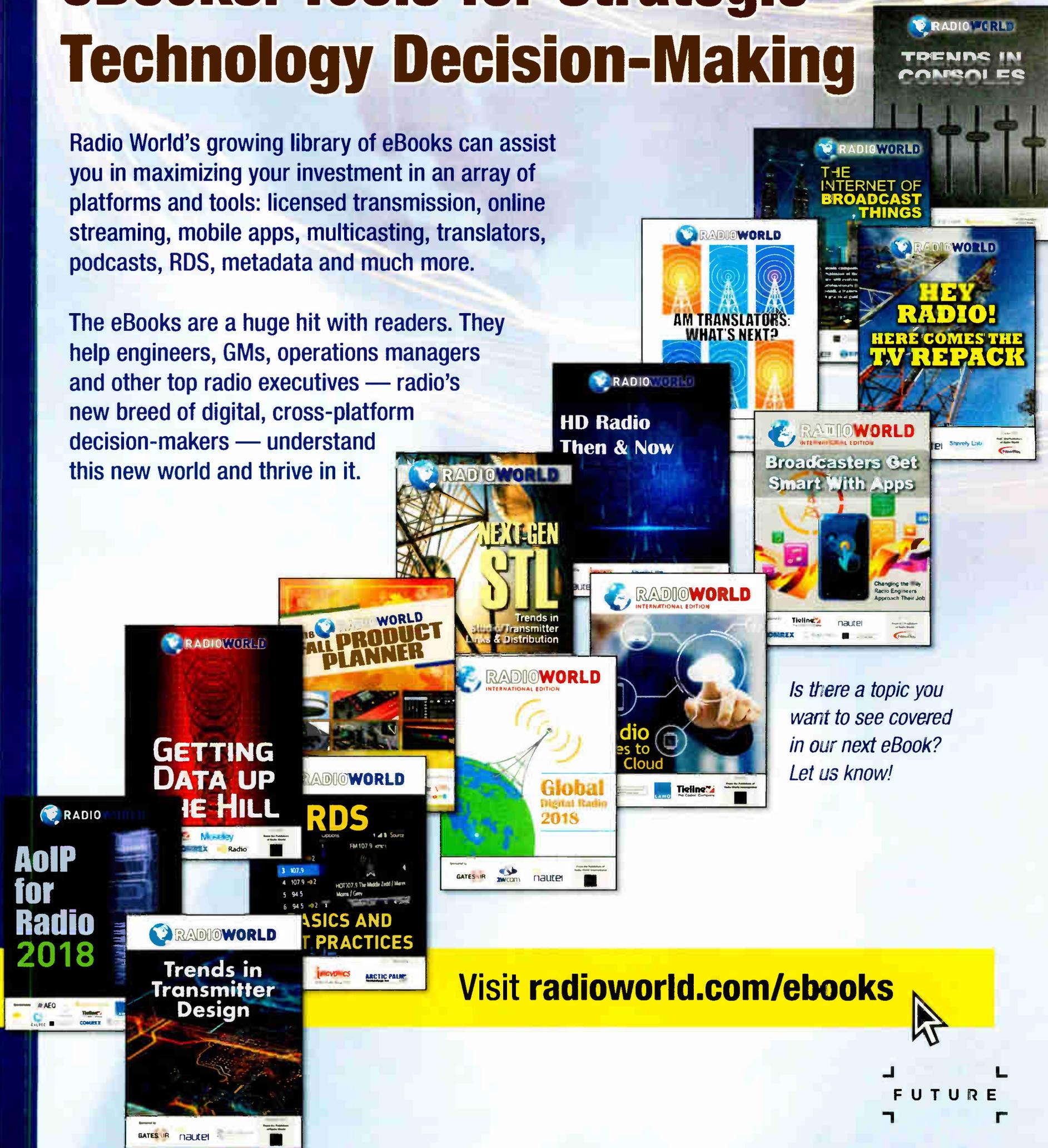
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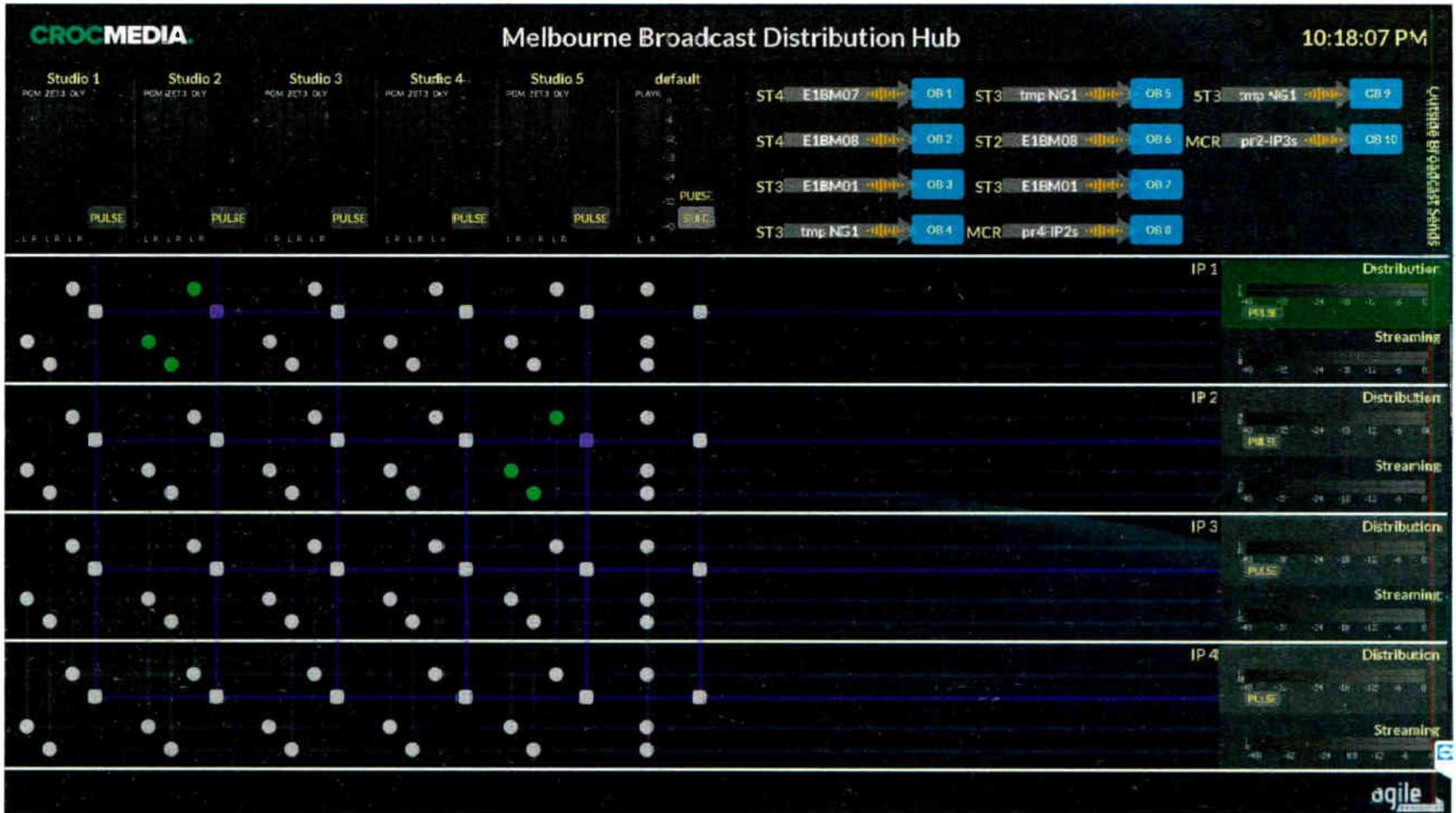


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FUTURE



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