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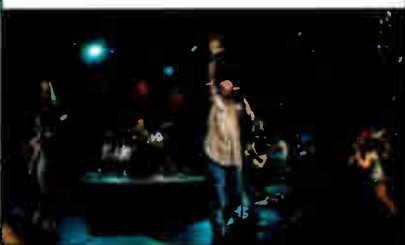


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Photo Courtesy KISW



Are Higher Music Licensing Costs Cued Up?

Lawsuits and legislative proposals complicate efforts to navigate the "licensing quagmire"

BY RANDY J. STINE

WASHINGTON — Some legal experts say broadcasters could be on the brink of music licensing chaos.

Or maybe not. As one said: "It's complicated. So what else is new?"

The issues at play are indeed far from new; yet fresh attention is being paid across a range of major developments in Washington and in the courts, changes that could affect how much stations pay in music royalties. The licensing quagmire, as one observer calls it, stems from a dizzying number of issues, from fractionalized licensing and lawsuits to major new proposals in Washington and debate over pre-1972 music licensing.

Pressure has been mounting from music industry groups to pump up the licensing fees paid by radio stations for over-the-air broadcasts and streaming, while broadcasters hope to toe the line at current levels.

A particular threat, according to those familiar with these developments, are new performance royalty organizations, or

PROs, like the fast-emerging player Global Music Rights. Copyright experts point to GMR as an example of a group inspired only to expand the copyright holders' pie at the expense of broadcasters.

"The only reason for a group like GMR to be founded is to try and drive up royalties for everyone," said David Oxenford, a communications attorney with Wilkinson Barker Knauer LLP.

Radio broadcasters now pay annual licensing fees to ASCAP, BMI, SESAC and GMR for musical works on their terrestrial on-air broadcasts. Those licensing fees are disbursed to publishers and

song writers.

In addition, a broadcaster must purchase a digital license covering performance royalties for sound recordings on its simulcast digital stream, which is paid to SoundExchange, the digital performance rights company, for compensating artists and their record labels. SoundExchange and the record labels have been pushing hard for the extension of a performance royalty to over-the-air broadcasting, which has long been exempted.

In December members of Congress introduced the Music Modernization Act, first in the House and later in the Senate, which leaves a large majority of the fundamentals of musical works

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Phoenix Rising



A story of how a radio station and a radio engineer came full circle.

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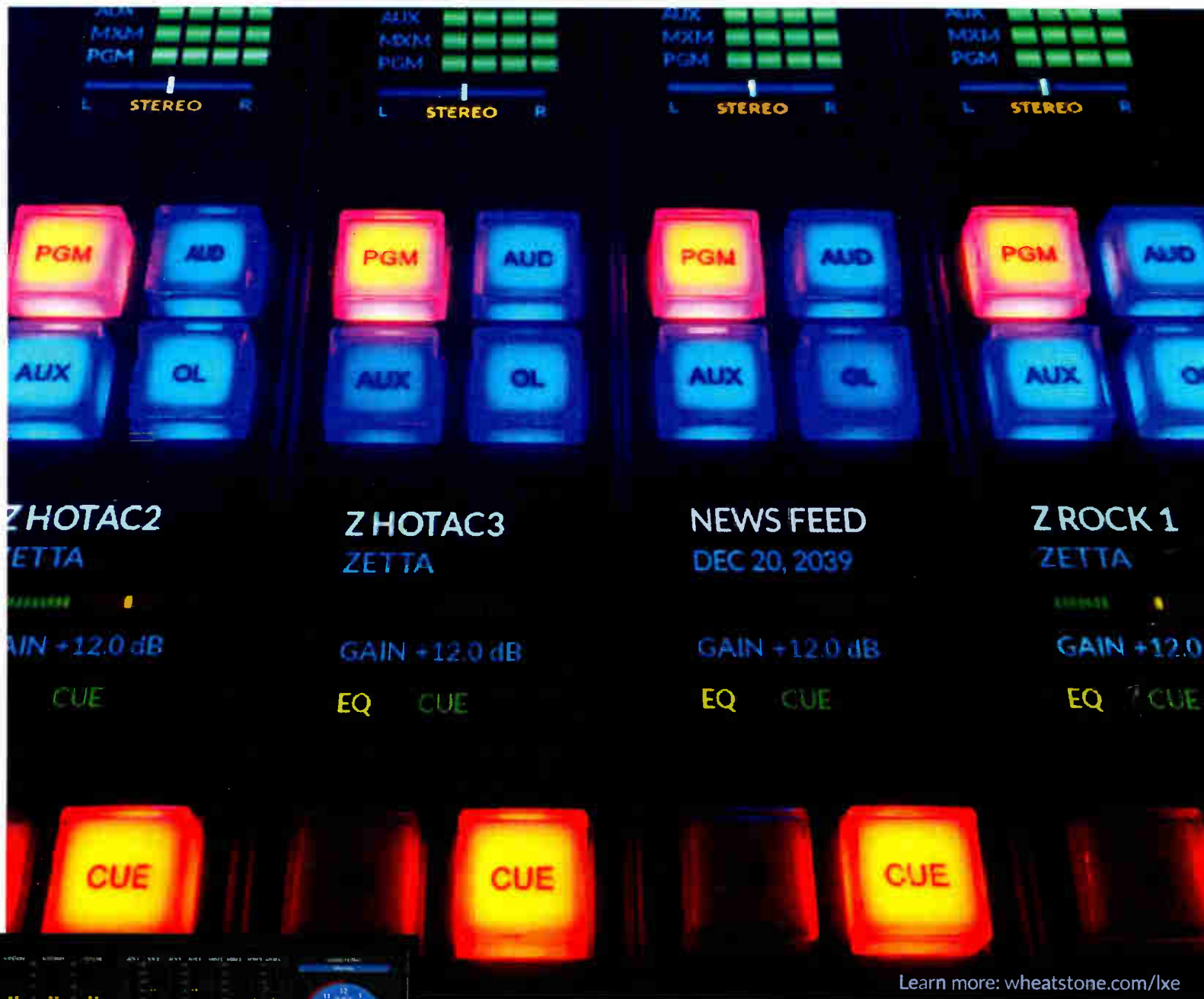
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Radio Caroline Returns to Its Roots



The MV Ross Revenge is the home of Radio Caroline.

The station is now operating 24 hours seven days a week on AM

BY LAWRIE HALLETT

NEAR COLCHESTER, ENGLAND — Well into its second half-century of broadcasting, Radio Caroline has begun the next phase of its operations, returning to wide-area AM transmissions for the first time in nearly 30 years. Although by no means the first offshore radio station (that honor probably goes to one of the gambling ships that operated off the coast of California back in the mid-1930s), it is nevertheless the archetypical "pirate" station and one of the most famous names in European broadcasting.

After some 26 years of unlicensed operations from international waters, off the British and Dutch Coasts, Radio Caroline finally ceased its offshore "pirate" broadcasts in November 1990, just a few weeks before the British government introduced tough new laws against such activities.

LAND-BASED BROADCASTING

Its final radio ship, the "MV Ross Revenge" stayed at anchor, but off air, for about another year, before losing its anchor in a storm and then running aground on the infamous Goodwin Sands off the coast of Kent in November 1991. Unusually, the ship survived its encounter with the sandbank and was salvaged and then towed into the port of Dover, although its ownership at that time was somewhat unclear.

For many broadcasters the change in the law and the loss of its broadcasting base would have brought operations to an end. However, the popularity of the station, its history and the enthusiasm of its team soon saw the station implementing alternative forms of broadcasting.

In a way, the timing for the station worked to its advantage. Changes to

delivery. Using the slogan "Same Ideology — New Technology," Radio Caroline obtained carriage agreements with several of the experimental multiplex operators, including in Birmingham, Brighton, Glasgow, Norwich, Portsmouth and Woking.

Despite developing its presence across alternative delivery platforms, the station continued to take an active interest in getting back to its AM broadcasting roots. In 2010, politicians in the British Parliament called for Caroline to be given a new license to serve its traditional heartlands of London and the South East of England.

BACK TO AM

In 2015, Radio Caroline began to take make progress with its AM broadcasting ambitions, reaching an agreement with "Manx Radio" on the Isle of



Steve Anthony broadcasting from Caroline's land-based studios in Kent.

United Kingdom broadcasting law in the late 1980s initially allowed the station to carry out various low-power short-term broadcasts on AM, mainly in London and other locations in Kent and Essex.

From the late 1990s onward, the station also began broadcasting via satellite, even getting involved in the WorldSpace satellite radio platform until some 10 years ago. More recently, internet streaming has become increasingly important for the station and all satellite transmissions were ended in 2013, as costs rose and audiences steadily moved to IP-based platforms instead. An additional "Caroline Flashback" stream was launched in 2015 and there are now even time-shifted streams of the main station output for listeners on the East and West coasts of North America.

In 2015, the British radio regulator, Ofcom, began experimenting with open source approaches to small-scale DAB

Mann in the Irish Sea between Britain and Ireland to broadcast (on 1368 kHz at 20 kW ERP) one weekend a month, but originating the programs from its, now restored, former home, the MV Ross Revenge, located at a river anchorage in Essex.

At about the same time, Ofcom was looking again at what to do with some other AM (medium-wave) frequencies no longer needed by existing licensed

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Smart Audio Trends to Watch in 2018

In car and at home, will broadcast radio evolve to maintain its place in the new media world order?

CONSUMER ELECTRONICS

BY EMILY M. REIGART

With an NAB Show ahead and a CES show behind, this seems like an appropriate time to ask about defining trends that will affect the radio industry this year.

Many, if not all, will have been on your radar for some time, but in 2018, it's clear these technologies are less "fad" and more "evolution."

THE CAR AND CITY OF THE FUTURE

NAB Pilot joined the Genivi Alliance in Q3 2017. The alliance consists of approximately 140 companies developing open software for in-vehicle infotainment and the connected car.

"Our goal is to advance the in-vehicle radio experience for consumers by engaging with the automotive industry to capitalize on new and emerging technologies," said NAB Chief Technology Officer Sam Matheny.

He said the collaboration offers a "unique opportunity to liaise" with representatives from across the connected car industry.

For Genivi's part, Executive Direc-

tor Steve Crumb said, "Radio is the genesis of in-vehicle infotainment, and collaborating with NAB provides the opportunity to further advance radio technology and deliver other content for incorporation into the in-vehicle experience of the future."

Learn more about Genivi in this article: <https://tinyurl.com/yb84qnsj>.

NextRadio is getting in on the connected car action by partnering with Abalta Technologies to link the hybrid radio app to in-vehicle infotainment systems powered by Abalta's WebLink software platform.

According to the company, the first iteration of NextRadio for WebLink is available in some aftermarket head units from JVC and Kenwood and slated to ship this year.

iHeartRadio is now available to more than a million 4G-LTE connected Chevrolet, Buick, GMC and Cadillac owners on their dashboard. The app will continue to be pre-installed on new GM vehicles throughout 2018.

Also, iHeartMedia says Ford will be the first OEM to fully integrate with the iHeartRadio app through

an upgrade to the Ford Sync AppLink integration.

Media company Gracenote is attempting to address AppleCarPlay's radio "problem" with a "hybrid" radio

app of its own. According to its website, the aim is to offer "one interface for every musical source," and that includes local AM/FM radio.

The streaming platform integration means listeners can hear a song on the radio and then transition to a playlist on their favorite subscription service based on that tune.

Xperi recently announced a new feature for its DTS Connected Radio platform: music recognition technology, enabled by ACRCLOUD. The company's own version of a hybrid radio system combines over-the-air analog/digital AM/FM radio with IP-delivered content is expected to launch later this year.

Xperi General Manager for Automotive Jeff Jury said the addition of music recognition technology is part of the company's quest to "ensure that the best broadcast radio experience is occurring in the vehicle."

And music isn't all that the connected car is learning to recognize — according to Xperi's website, technology from "Inventas and FotoNation are pushing the limits on in cabin recognition and driver monitoring."

Autonomous cars are not without controversy, and the trend is inching closer to reality as manufacturers and ride share companies test out how the concept could work in the real world.

CES 2018 featured a Self-Driving Marketplace that showcased technology from exhibitors including Aptiv, Arbe

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Clockwise from top right: an example of the NextRadio for WebLink platform in action; a promotional image shows a Google Home in a kitchen; iHome's iGV1 could be the next clock radio; and the Amazon Echo is one of many Alexa-enabled devices.



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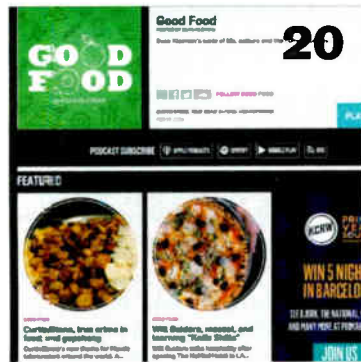
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NEWS

Keep Your HD Radio House in Order

David Day on how pre-processing has changed, and current issues of operational concern

David V. Day is president of Orban Labs Inc. This interview originally appeared in the RW eBook "New Directions in HD Radio." Read it at radioworld.com/ebooks.

**David Day**

Radio World: Orban has been active for years in pre-processing of audio to minimize artifacts in low bitrate codecs such as used in HD Radio. How has LBR processing for HD Radio changed lately?

David Day: There have been a lot of big changes in audio processing since HD Radio started its rollout in 2004. Many FM processors back then didn't have a non-preemphasized output, or if they did they didn't have frequency response above 15 kHz. There were many "Frankensteined" processing schemes that used disparate processors for FM and HD, and some worked better than others.

But there were still big issues with loudness at blend, and nothing addressed dealing with HD Radio's lossy codec, until a couple of years down the road so to speak.

Orban's parent, DaySequerra, delivered its first HD Radio codec preconditioning back in 2006 after looking at the problems of its lossy codec and how to minimize the resultant artifacts. The DaySequerra LBR4 provided four channels of codec preconditioning for all of the HD Radio bit rates. Users reported that it gave them near 96 kbps audio quality at 48 kbps data rate. It allowed them to run music programming on HD2 and HD3, and many of them did.

RW: What are key considerations for proper pre-processing for HD Radio?

Day: First, the NRSC has a great white paper on HD Radio best practices; it's free and you can download it from the NRSC website (www.nrscstandards.org/standards.asp). It is a "must read" for anyone broadcasting HD Radio. NRSC-G203 has 40 pages of case studies and solutions to all of the common problems of diversity delay alignment and processing.

To paraphrase it: Use a single audio processor designed for FM and HD1 processing. Codec precondition the HD1 output — and off you go. HD2 and HD3 can be handled independently (based upon program material) and again precondition after the processor.

RW: What is Orban's offering for pre-

processing for low bitrate HD Radio?

Day: DaySequerra has been doing audio codec preconditioning since 2006. We worked really hard with iBiquity (in those days, now DTS/Experi) and lots of the early HD Radio adopters (mostly public radio) to make the HD1/HD2/HD3 audio as best as possible. Our patented preconditioner uses applied psychoacoustical processes to minimize artifacts at the lowest HD Radio bitrates. We are on the fourth generation of preconditioning technology and users tell us that is giving them near 96 kbps audio at 32 kbps data rate.

RW: As you talk with broadcast engineers and other users, what's your sense of the health of HD Radio, and where do you think the technology is going?

Day: There is solid adoption from the broadcaster side, including a fair number of AM stations! We still have issues with time alignment, and the last time I took a

look at a market with one of our MAM3 monitors about 40 percent of the FM stations were well outside of being in good diversity delay time alignment. It's a real problem for the automotive industry with consumer complaints — the dealer fix is to lock the car HD Radios into "analog only" mode to resolve it, and that's bad for broadcasters.

RW: What else should we know?

Day: We are in a fight to maximize HD Radio's importance in the dashboard, and we need to make sure we have our "house" in order with proper diversity delay alignment and loudness at blend. I drive a small fleet of rental cars every year; and when I plug in my iPhone it takes over the system — and AM and FM radio goes away... That's a huge issue for our industry, one that I know the NAB is working on. But many broadcasters don't know that Apple's CarPlay and the equivalent Android software kill the ability to listen to AM and FM stations. This is not good for our industry, in the least. A couple of auto manufactures actually recently dropped AM support, probably due to RFI being generated in the vehicle hybrid drive system killing AM reception.

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SMART

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Ford Motor Co. President/CEO Jim Hackett addressed the topic in a keynote address at the January show. Ford is repositioning itself as a “mobility” company, and Hackett acknowledged that smart cars will most safely and efficiently operate in smart cities/towns that incorporate the Internet of Things.

Elements of smart cities and smart home technology were also represent-

was late to the game and was also notably absent from the 2018 CES, where Google made a strong showing and Amazon also had a memorable, if smaller, presence.

What does this mean for radio? Well, some broadcasters continue to float the idea that the smart speaker is the new in-home radio. Radio stations are getting savvy about creating “skills” and “apps” to reach listeners in this new streaming environment. One in six Americans already owns a smart speaker, according to a survey from NPR and Edison Research (<https://tinyurl.com/y743bz57>).

“Consumers are taking advantage of the ease and ubiquity of virtual assistants, smart speakers, set-top boxes and other connected devices, and in doing

The PyeongChang 2018 Winter Olympics showcased 5G wireless, part of a trend of commercialization in which the games become part World’s Fair as well as an athletic competition.

ed at the show through a marketplace and several sessions on the conference schedule.

Closely tied to IoT is the rollout of 5G, a standard much-anticipated by many a technologist and consumer. The PyeongChang 2018 Winter Olympics showcased 5G wireless, part of a trend of commercialization in which the games become part World’s Fair as well as an athletic competition.

However, deployment of 5G infrastructure is likely to be gradual and will certainly be expensive, so it remains in the world of potential and cannot yet be counted as a trend.

SMART SPEAKERS

Voice-controlled technology is improving, and smart speakers have begun to hit their stride after a year of rapid growth.

Apple’s HomePod hit shelves in February, offering dedicated Apple fanboys a high-fidelity, pricey alternative to the Amazon Echo and Google Home.

Early reviews of the HomePod indicate that the product was not the slam dunk the company must have hoped for when it threw its hat into the ring.

On the other hand, the speaker’s audio quality general got high marks, but the issues that plague smart assistant Siri on the iPhone are not remedied on the HomePod.

The company, long known as an innovator in the tech and audio space,

so, they’re proving that audio is an important part of their day-to-day life,” said iHeartRadio and iHeartMedia Networks Group President Darren Davis in a press release.

iHeartRadio is integrated with Samsung’s Bixby virtual voice assistant; the company also recently rolled out a new lineup of Flash Briefings for Amazon Alexa-equipped devices featuring iHeartRadio shows and personalities, several NBC News Radio category briefings and more.

On a more quirky note, iHeartRadio partnered with “social robot for the home” Jibo to launch Jibo Music, powered by iHeartRadio.

When activated by voice commands or through the touch screen, Jibo can stream an iHeartRadio Original station. (As a bonus, the robot will dance when Jibo Music launches or when a new song begins playing.)

Another, perhaps more practical, addition to the space is the iGV1 from iHome. The device is billed as a smart clock radio and integrates Google’s voice assistant with audio “casting” abilities and traditional alarm clock features. The company previously rolled out similar devices integrated with Amazon’s Alexa.

What consumer tech trends do you think will most affect our industry in 2018 and beyond? Email radioworld@nbmedia.com with “Letter to the Editor” in the subject line.

radio
Caroline 
radiocaroline.co.uk

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broadcasters and decided that some could be used for community radio services across parts of the country.

One such frequency was 648 kHz. This low frequency with excellent long-range propagation characteristics is cleared for U.K. use at power levels of just above 40 kW (omnidirectional) rising to over two megawatts in some directions toward northern Europe and the former Soviet Union.

Used by the BBC for many years, it was eventually taken out of use completely in May 2012. The BBC broadcast on 648 kHz from a transmission

between five and 10 kilometers. AM community radio stations are much less common, but do tend to cover a larger radius, usually of up to around 20 kilometers.

For Radio Caroline such limited coverage would be difficult to accept, primarily because much of its audience base could not be served. Fortunately for the station, the availability of 648 kHz with its international clearance for use at very high power levels provided Ofcom with the ability to accept its proposals to cover a somewhat larger geographical area.

Although it had planned to build new facilities from scratch, after the license was awarded discussions with the current owners of the Orfordness transmission facilities lead to a cost-effective change of plans and the use of the old BBC facilities instead.



Broadcaster Chris Pearson on air from the Ross Revenge.

base at Orfordness right on the East Coast of England, using the former military “Cobra Mist” transmitting station originally built in the late 1960s to house an experimental over-the-horizon radar system.

OLD SITE WELCOMES NEW USER

Although almost all the original broadcasting equipment was stripped out after the end of broadcasting in 2012, the antenna systems remained intact and available for use.

When in 2016, Ofcom invited applications for new AM community radio licenses, the problem for Radio Caroline was fitting its activities into a licensing regime that is primarily intended for very local, geographically-focused community broadcasting organizations.

By comparison, Radio Caroline has always been a music-based station broadcasting to a target audience that is not concentrated in any specific geographic location. Most U.K. community radio stations operate on FM with a typical coverage radius of

Under its new license, Radio Caroline is permitted to broadcast with a radiated power of 1 kW, not a particularly high-power service in terms of its earlier offshore activities. However, given the lack of incoming interference on the frequency, and its long-wavelength signals, the result is effective coverage that, in practice, for many listeners is larger than planning criteria might suggest.

In many ways, Radio Caroline has both kept up with the times in terms of the broadcasting technologies it uses and come full circle with its recent return to AM broadcasting.

The similarities between 1964 when the station began operations and today are even greater. When broadcasting from the high seas, the station had to be supplied by boat. In 2018 the station’s private Orfordness transmitter site is also accessed mainly by boat!

Dr. Lawrie Hallett lectures at the University of Bedfordshire and reports on the industry for Radio World from Norwich, England.

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LICENSING

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licensing intact. The NAB originally balked, saying several provisions in the bill “may unjustifiably increase costs for many music licensees, including radio and TV broadcasters, who otherwise receive no benefit from the legislation.”

However, the association in January reached agreement with ASCAP and BMI on what can be introduced as new evidence into the rate-setting process. A source familiar with the negotiations says the original legislation would have changed copyright law by allowing sound recording royalty evidence to be introduced in ASCAP/BMI rate court proceedings for all music licensees, including over-the-air terrestrial and digital streaming.

“The agreement between NAB, ASCAP and BMI would narrow that change in law. It would only allow the introduction of sound recording royalty evidence for digital music services, eliminating the risk that this evidence could raise rates paid by terrestrial broadcasters,” according to the source.

A joint announcement in January by NAB, ASCAP and BMI read: “This agreement resolves NAB’s concerns with the potential introduction of new evidence into the rate-setting process while preserving ASCAP’s and BMI’s ability to seek meaningful compensation from the growing digital music marketplace.”

The announcement continued: “Our three organizations have enjoyed a long, unique and successful relationship, and as a result, we were able to work together to find a path forward on this important legislation that is fair to all parties.”

BMI told Radio World that broadcasters who engage in digital music services that are interactive, subscription-based or customizable will be subject to the introduction of the sound recording royalty evidence.

Several observers described the Music Modernization Act as being favorable to copyright holders and especially financially punitive to “pure play” digital streams, such as Pandora, Spotify and iHeartMedia’s digital services. The latest version of the act on Capitol Hill would only affect royalties for online streaming.

An NAB insider said the agreement

Payment to performers for airing their works is but one part of this complex puzzle.



greatly increases the chance for passage of the legislation this year. Separately, Kevin Goldberg, partner with Fletcher, Heald & Hildreth PLC in Washington, says that in light of the NAB agreement he believes it is “50/50” that Congress could pass the Music Modernization Act in 2018.

Broadcasters are again behind a proposal of their own. The House of Representatives appears to have enough support to pass the Local Radio Freedom Act, a resolution opposed to any new performance fee, tax, royalty or other charges of local radio broadcasters. A companion resolution has been introduced in the Senate.

“The Local Radio Freedom Act is the resolution that opposes sound recording royalty fees for performances on terrestrial radio. If they can get enough votes for LRFA, then clearly there will be no performance rights paid for over-the-air broadcast of radio stations,” Goldberg said.

Congress has surveyed performance rights for OTA broadcasting before. The Fair Play, Fair Pay Act of 2015, introduced in the House, would have required terrestrial radio stations to join satellite and internet radio in making payments to performers for their broadcast over the air. The bill languished.

MOVING PARTS

There are myriad moving parts to music licensing developments. For example, new deals reached between the Radio Music License Committee, ASCAP and SESAC in 2017 seemed

to keep music licensing fees for broadcasters in line, observers said — even discounting them in the case of SESAC, when an arbitrator awarded RMLC-represented stations a more than 60 percent discount off the SESAC rate card through Dec. 31, 2018, according to a RMLC press release.

streaming fees higher in the case of some small commercial webcasters. That new higher rate structure squeezed small webcasters and partly contributed to the demise of the Internet hosting platform Live365, observers said.

In addition, the CRB issued final rules for rates and terms covering non-

Several lawsuits filed by music licensing groups appear poised for some sort of resolution, possibly by the end of this year.

The RMLC represents the interests of the commercial radio industry — some 10,000 commercial radio stations — on music licensing matters. The new ASCAP deal runs through 2021.

The Copyright Royalty Board, a three-judge U.S. administrative body, set current rates for online simulcasting of music in 2015, even though it has never been finalized due to an appeal by SoundExchange. The CRB rates set for radio broadcasters’ streams were seen as a win for radio at the time, cutting the rate for commercial nonsubscription services paid by radio stations by up to 30 percent, while stream-only firms like Pandora and Spotify saw their licensing fees go up. The “Web IV” proceedings set rates through 2020. The CRB holds webcast proceedings in five-year intervals.

The CRB rate ruling also reset music

commercial public broadcasters effective Jan. 19, 2018, through Dec. 31, 2022. Legal observers say the rate setting board nudged fees slightly higher with the new ruling.

Several lawsuits filed by music licensing groups appear poised for some sort of resolution, possibly by the end of this year barring earlier settlements, according to Karen Albin, a partner with Fletcher, Heald & Hildreth PLC.

An interim agreement is in place between GMR and RMLC, set to expire at the end of September 2018 though it could be extended again. It allows commercial broadcasters to play GMR musical works. The lack of a new agreement sparked lawsuits between the two groups centered on their inability to reach a long-term licensing deal, Albin said.

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LICENSING

(continued from page 8)

It is possible RMLC's anti-trust lawsuit against GMR in Pennsylvania could be moved to California — seen as more favorable to copyright owners — and combined with GMR's countersuit, Albin said, which is exactly what GMR asked for in January. GMR has a magistrate's recommendation on its side that said the "Pennsylvania federal court RMLC filed its suit in is not the proper venue."

The commercial radio licensing committee has had strong words for the Irving Azoff-led GMR, describing it as "an unlawful monopolist deploying a calculated scheme to extort the radio industry."

Albin said it's hard right now for radio broadcasters to avoid GMR music. "GMR has done a good job of getting just enough music that it is hard to avoid playing it," Albin said.

The music industry scored a significant win in December 2017 when the Second Circuit Court of Appeals in New York ruled against the U.S. Department of Justice and affirmed BMI's consent decree allowing the continued practice of fractionalized licensing. The court's decision, slammed by NAB, Albin said, ironically vastly increased GMR's market power since it "affirmed a BMI rate court decision green lighting fractionalized licensing of music," Albin said.

"By affirming the BMI decree going forward, it helps GMR. Now if upstart GMR owns a fractionalized share of publishing rights in a song also shared by BMI, you'll need to go get the GMR license as well," Albin said.

The DOJ could still appeal the Circuit Court's decision on fractionalized music licensing to the U.S. Supreme Court, according to observers, or bring an anti-trust enforcement action against BMI if DOJ believes fractionalized licensing is that bad, Albin added.

In fact, much of the unpredictability of 2018 is based on changes brought on by fractionalized licensing and the pain it could bring radio broadcasters. Fractionalized licensing requires broadcasters to license with multiple songwriters if more than one were credited on a composition. While not a new concept, fractionalized licensing could become more of a burden as broadcasters and their representatives are forced

to deal with additional performance rights organizations.

Melody Virtue, a principal with Garvey Schubert Barer in Washington, said, "With co-written music, authors of a single composition can belong to different PROs. Historically, one co-author could grant a license for the entire composition. With fractional licensing, broadcasters need to be sure they have each individual

on student enrollment. The new rates were published in the National Register in January 2018 and run through December 2022. CPB said the most recent agreement did not cover webcasting.

Student-run college radio stations are typically charged a licensing fee based on the school's enrollment, say those familiar with radio music royalties.

Low-power FM broadcasters face

sound recordings, contained in the podcast. It's really just the same as producing a TV show," Goldberg said.

In addition, most podcasts implicate the downloading/distribution rights rather than the public performance right, he said, particularly with respect to sound recordings included in podcasts, there "is no centrally established licensing mechanism from which to secure such rights," so podcasters need to negotiate with each individual record company whose recordings are incorporated into a podcast.

OLDER CONTENT

The pre-1972 music licensing flap, according to Albin, is in a "state of flux" while playing out in multiple courts in several states.

A merry-go-around of lawsuits targeting broadcasters for the pre-1972 music they play began in early 2015. There was no federal copyright protection for sound recordings until Feb. 15, 1972. Prior to that, sound recordings were protected under a patchwork of state laws. That prompted several groups to seek performance royalties for the libraries of songs they controlled.

"You have New York, Illinois and Florida courts that have said no to performance rights for pre-1972 music, so that's good for broadcasters. A bigger threat is a lower court in California that says there is a performance right and they have stronger state statutory language to back that up. It's been setting on certification to the high state court of California for awhile now with no decision," Albin said.

She continued, "If the California lower court decision is reaffirmed, then radio stations could conceivably owe a performance fee for the pre-1972 music they play over the air even though they do not pay a performance fee for the post-1972 music they play on air."

"It's complicated. So what else is new?"

co-author's permission from the writers' various PROs. In the future, it's possible some songwriters might decide not to belong to a PRO. Then we would have music licensing chaos trying to gather up all the rights."

Virtue recommends that her clients "budget some amount in 2018–19 for higher royalties for over the air broadcasts," if fractionalized licensing sticks.

The fear is that "fractionalized licensing catches on," Oxenford told Radio World, "and results in the formation of more PROs like GMR, which long term could encourage an even greater fractionalization of the music licensing world."

VARIATIONS ON A THEME

Meanwhile, National Public Radio stations broadcasting musical works pay a music licensing rate negotiated with ASCAP, SESAC, the Harry Fox Agency and BMI by the Corporation for Public Broadcasting last year. GMR was not a participant in those negotiations.

Non-commercial radio stations affiliated with an educational institution pay music licensing fees typically tiered based

their own challenges predicting music royalty rates in the years ahead, analysts said.

LPFMs typically pay lower rates than commercial broadcasters, observers said, with pay sometimes based on power level. An ASCAP spokesperson said low-power stations pay an annual fee based upon wattage. For example, a 15-watt LPFM pays less to BMI than a 100-watt LPFM station.

BMI's contract for LPFM broadcasters stipulates an annual license fee of \$352 in 2018, \$359 in 2019 and \$366 in 2020, according to a sample copy provided to Radio World. A LPFM must operate solely for religious, educational or governmental purposes and follow the guidelines set forth by the FCC, according to BMI.

Podcasting is easier to define but the environment is less favorable to broadcasters who want to podcast with music included, according to Goldberg of Fletcher, Heald & Hildreth.

"There's no blanket license applicable to podcasting, so the podcast producer must get permission to use all copyrighted material, including musical works and

IN CASE YOU MISSED IT

A sampling of stories making news recently in Radio World NewsBytes e-newsletter. Subscribe at [radioworld.com](#).

► **President's Budget Request Would Slash CPB, Trim FCC, BBG**

Funding for the Corporation for Public Broadcasting would be eliminated over a two-year period in proposed budget.

► **FCC Reauthorization Outlines FM Repack Funds**

FM stations affected by the TV repack process would get some financial relief in a bill that moved out of a House committee.

► **"Broadcast Radio Remains the King"**

A Nielsen report reminds us that

"each week, more Americans tune into radio than watch television, or use smartphones, tablets or computers."

► **HD Radio Pumps Up Rev for Xperi**

The parent of HD Radio cited the technology's growing penetration in new cars as the catalyst for an increase in its revenue in the fourth quarter of 2017.

► **Ad Agency to Pay \$2 Million to Settle Radio Ad Complaint**

The Federal Trade Commission said an ad agency agreed to settle a

complaint that it was distributing allegedly deceptive radio ads for weight-loss products.

► **New Report Shows Digital Revenue Totals \$700M for Radio**

The radio industry is doubling down on digital, according to research by trade association Radio Advertising Bureau and ad-tracking firm Borrell Associates.

► **Westwood One Ranks Best Super Bowl LII Commercials**

Sports Sound Awards recognize Motel 6 and Geico for "sonic branding."



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An Orange Drop Saves the Day

Also, fabulous Workbench readers respond to other recent tips with ideas of their own

WORKBENCH

by John Bisset

Email Workbench tips to johnpbisset@gmail.com

Dale Lamm is with WHBC(AM) in Canton, Ohio. Our recent column "When Components Fail, Use Your Ingenuity" reminded him of one of the first hacks he had to do several years ago, after taking his current engineering position, when he had to repair a failed FM exciter power amplifier board.

C-44, a 1.0 μ F surface mount capacitor on the PA board, shorted. The adjacent 15 amp SMT fuse also blew but not before the board was scorched, as seen in Fig. 1.

He removed all traces of the failed components and cleaned the board. Dale

found a 0.22 μ F Orange Drop capacitor, which he tacked on the board to replace the failed 1.0 μ F. An inline fuse holder with a 15 amp automotive fuse was installed in the wiring harness feeding the PA board. This replaced the destroyed surface mount fuse.

Dale noted in his logbook, "Operations back to normal on 12/28-inch." The exciter manufacturer quoted a new board at \$1,815, a replacement board with trade-in of the old board was \$464. Dale's cost to repair was under \$5.

As it turned out, this was not the last failure for this exciter. After two failures in the associ-

ated switching power supply board, Dale bit the bullet and traded in the board for a factory-rebuilt version. The replacement board has lasted since November 2013 without incident.

Plastics, not to mention lots of wiring. But his ingenuity saved the day.

Engineer Brad Johnson dropped a note saying our tip on the "automatic bypass for UPS AC power" was very useful. Glad to help, Brad!

If you have a mod or adaptation to

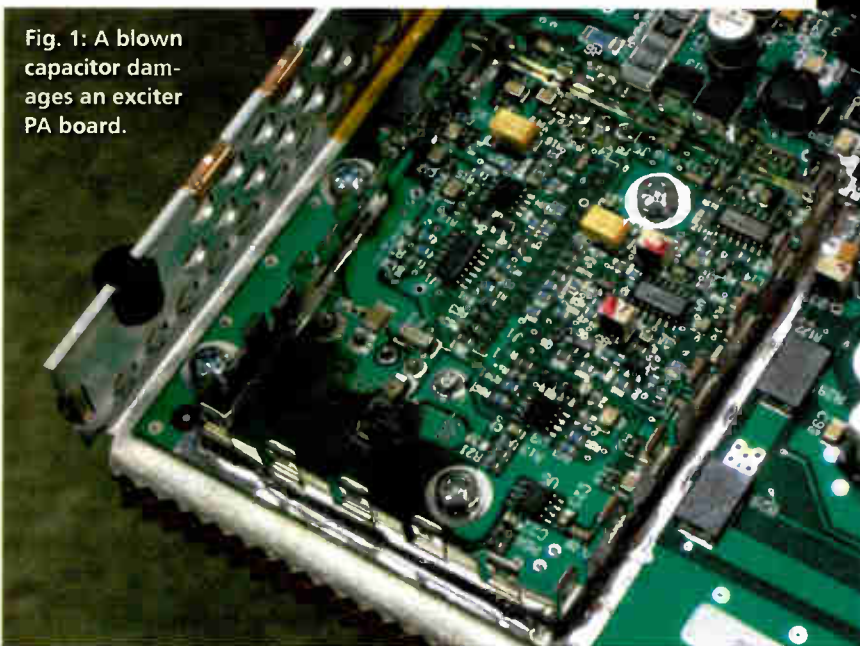


Fig. 1: A blown capacitor damages an exciter PA board.

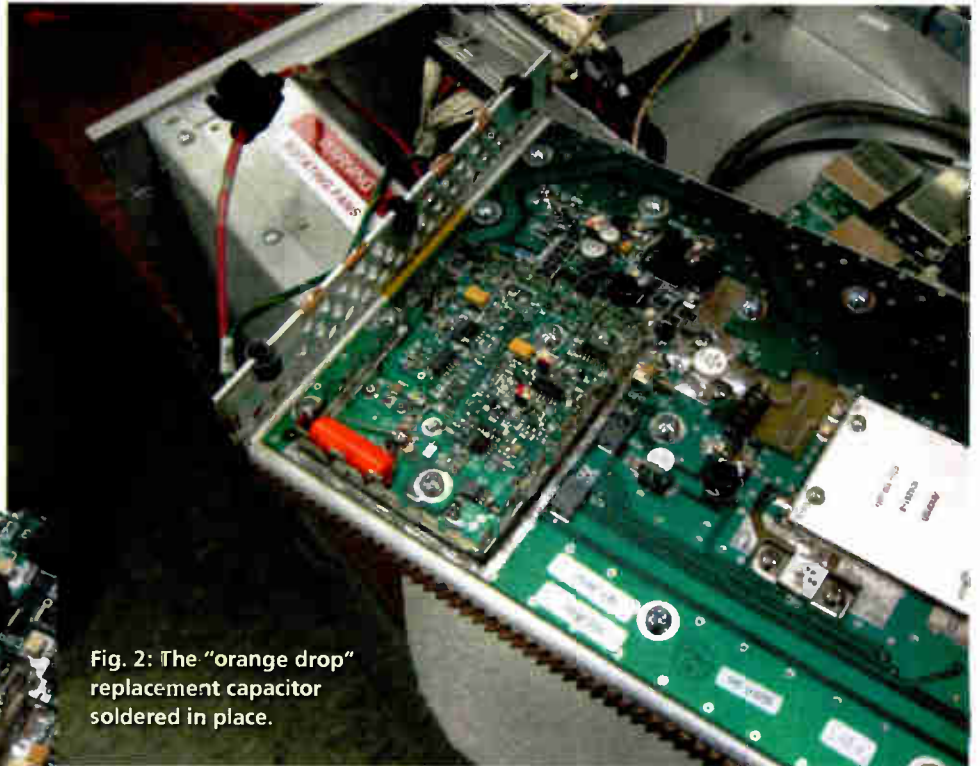


Fig. 2: The "orange drop" replacement capacitor soldered in place.

Responding to a photo of the distended ends of defective capacitors, engineer Duke Evans writes that he has repaired many a circuit board trace with bare wire.

Duke adds that some older electrolytics do not have the top crease in the aluminum, and when they explode, they explode downward through the rubber base. This then blows a hole in the circuit board! Not fun.

On one board Duke was able to fill the hole with E-6000 epoxy from Tap

improve your facility, share it with other engineers in the pages of Workbench.

I hear often that "Everyone knows that trick!" Not only is this not true, but best practices and fundamentals are becoming even more important given the number of younger IT folks involved in engineering who don't have years of troubleshooting and transmitter experience.

Email your submissions, along with high-resolution photos to johnpbisset@gmail.com. Published submissions qualify for SBE recertification credit.

Audio over IP brings a lot of features to the studio. One of the best, in my opinion, is the automatic mix-minuses that can be programmed for each channel. This foolproof feature eliminates the echo, feedback and general confusion caused by a phone hybrid feeding its audio onto itself when the wrong selector button is depressed.

Engineers still working with analog consoles have to depend on console labels to ensure the "right" bus pushbuttons are selected on the hybrid fader. Bill Frahm of Cumulus in Boise, Idaho, came up with a neat solution on his analog Arrakis consoles to prevent mix-minus foul-ups.

(continued on page 16)

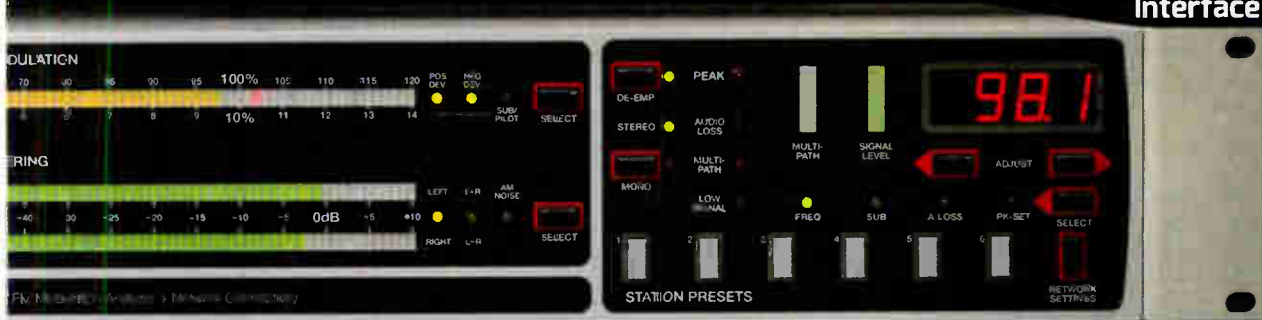
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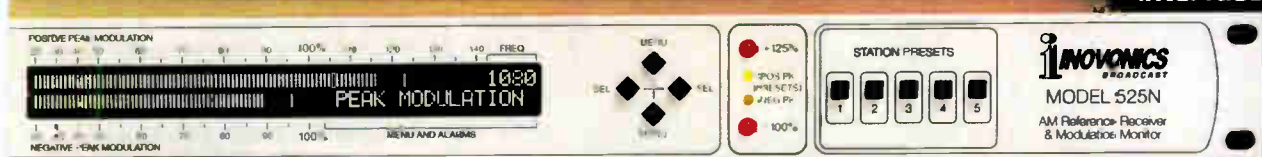
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WPFB and WNKN: Phoenix Rising

This station's story of renewal intersected several times with an engineer's career

FIRSTPERSON

BY JIM STITT

WPFB 910 AM, Middletown, Ohio, signed on the air in 1947, followed by the FM on 105.9 MHz in 1958.

For decades WPFB was a regional powerhouse dynasty in southwest Ohio, under the stewardship of founder Paul F. Braden, who pioneered many innovations in programming and engineering. These included developing the station's own Musiplex SCA background music service, as well as being one of the first FMs to utilize circular polarization.

The station became an institution and created a talent pool that spawned dozens of successful broadcasters for half a century.

In November of 1967, I landed my first broadcast

however, due to a lack of maintenance and reinvestment in the infrastructure, the building and technical plant had fallen into a state of significant disrepair.

For instance, a structural analysis revealed the 540-foot tower needed extensive repairs just to meet TIA-222-G, including new guy cables and insulators, addition of bracing to reinforce bent members resulting from tenant antenna overload, plus replacing deteriorated feedline and supports, the lighting system, and portions of the AM counterpoise system.

als and was no longer habitable. An extensive refurbishing project was long overdue.

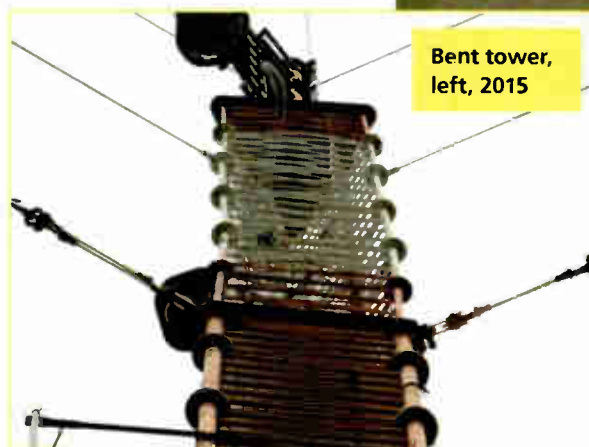
21ST CENTURY CHANGES

Since the stations were now programmed and operated from remote studios, I proposed a plan to renovate the tower and its ancillary systems, abandon the old farmhouse studio/transmitter building and its 600-foot feedline run to the tower, and build new transmission facilities at the base of the tower.

In order to fund the project, the university elected to sell the AM station but retain the site and lease the use of the



Studio front (2015)



Bent tower, left, 2015

tower and AM antenna system. The WPFB(AM) transmitter would be relocated to an existing concrete block building at the base of the tower, which also housed a tenant, WOXY(FM). A new prefab shelter

would be installed for WNKN, along with AC utility, telco and internet service.

After stabilizing the existing systems and applying for an STA, the next order of business was to design the facility, obtain quotes and secure permits from assorted governmental agencies and utility providers seemingly intent on making the simplest task as difficult as possible.

Other challenges of this project would be concurrently conducting the site work, tower repairs, counterpoise repairs and new prefab building installation while keeping all stations on the air.

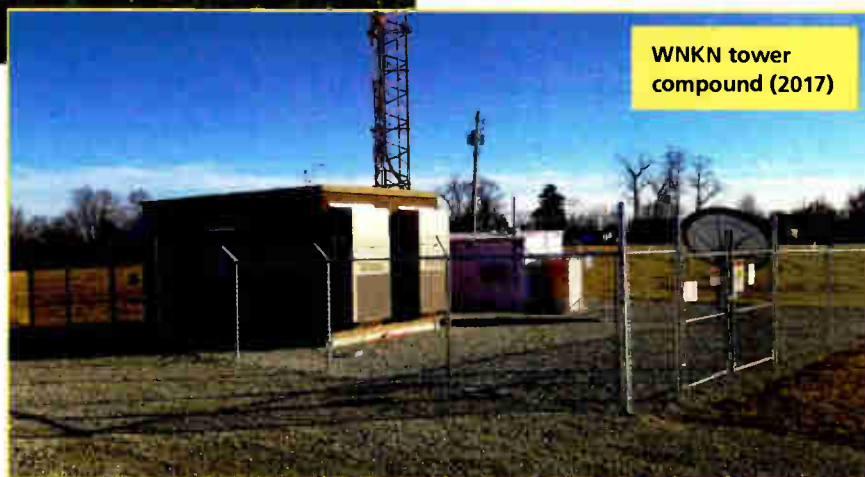
The tower is a hybrid of 360 feet structure manufactured by Dresser-Ideco



WNKN tower compound (2015)

The original RCA BTF-10C/D FM transmitters installed in 1958 were still in service, albeit intermittently, with all manner of "temporary" modifications but could no longer make full power reliably. The Ku Band STL downlink antenna mount was perched on an automobile tire.

Furthermore, the building that housed the transmitters and former studios (a 150-year-old farmhouse located 600 feet from the tower) had experienced flooding and structural damage, contained numerous hazardous materi-



WNKN tower compound (2017)



WPFB building (1970s)

engineering job working for Chief Engineer Cal Williams at WPFB(AM/FM) to pay my way through college and to serve as a future co-op position. A year later, I accepted a position at WLWD(TV), but a part of me always lingered at WPFB, with all its special memories. Little did I know the role I would play 50 years later in resurrecting this "phoenix from the ashes" in my own personal story.

My next experience with the stations came in 2015 when J.M. Stitt & Associates was retained by Northern Kentucky University to assume engineering responsibilities for their radio stations. These included WNKN, which I had built and put on the air for them in the mid '80s, as well as WPFB — now WNKN — which NKU acquired from Braden's son in 2011.

TIME TOOK ITS TOLL

The Middletown stations had been operating successfully for decades;



**Tower repairs,
aerial view (2017)**

which arced on modulation peaks. This required fabrication of custom insulated members and presented additional lightning protection challenges.

The tower repair bid was awarded to Worldwide Communications: We were on our way!

The existing block building that would house the AM transmitter and FM tower tenant's transmitter also required repairs.

The tower compound area was cluttered with abandoned wood utility sheds that had been used to house paging tenants and was overgrown with vegetation

and trees — some with trunks several inches in diameter. The site work included clearing and graveling the compound and guy anchors, underground utilities, and a new gravel access drive was laid to replace the dirt path from the old studios. The concrete foundation for the new prefab FM transmitter plant would also be located in the compound.

All this clearing and construction near the tower required an extensive revamp of the grounding and AM counterpoise system. For this unique project, I retained Kevin Kidd with AM Ground Systems to locate existing radials, tem-

porarily relocate them during construction and then reconstruct the counterpoise system within the compound area. The result was a marked improvement in the AM signal.

The new transmitter building is a 20-foot x 12-foot prefab concrete unit from VFP with redundant HVAC units plus emergency exhaust fan, pre-wired AC distribution with TVSS and accommodations for a future generator. A solid-state Nautel GV15 with dual exciters was selected as the new transmitter. This model can be increased to a GV20

(continued on page 16)

in 1967 extended with 120 feet of lattice tower sections and a 60-foot-pole manufactured by Utility Tower Co. in 1973.

I managed to locate some drawings from the Stainless LLC archives to compliment the foundation inspections by Kleingers Group and tower inspections conducted by the late Ernie Jones of CEI and Jim Ruedlinger of ERI to develop our plans for restoring the tower. The 5/8-wave tower required all lines be isolated up to the 1/4-wave point where all were bonded to a new buss bar welded to the tower, replacing the existing hose clamp connections

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**Grounding
trench**

WPFB*(continued from page 15)*

with just a software change, so it is operating conservatively. Furthermore, my associate Russ Hines and I installed a 1/4-wave stub to reduce any off channel energy, and we now utilize custom UPS units by Mesta Electronics for all clients' tower sites.

The main STL feed from the remote studios at Northern Kentucky University was via a Ku Band satellite leased from PRSS, so a new downlink earth station was installed. Backup STL is provided by a Tieline Bridge-IT codecs switched seamlessly with a Broadcast Tools Silence Sentinel feeding a Telos Omnia One processor and stereo gen-



Network; WNKE(FM) in Portsmouth, Ohio, was going to EMF/K-Love; and our beautifully restored WNKN — formerly WPFB — was up for sale.

As it turns out, selling WNKN set the stage for the final chapter in this circle of life story.

WNKN was ultimately sold to Grant County Broadcasters in October 2017, co-owned by one Jeff Ziesmann. It turns out Ziesmann's first job in broadcasting was working for me as a board operator at WGUC in 1976 and again later at WMLX.

Ziesmann was also one of those aforementioned successful broadcasters whose successful career included stints at WPFB and later was the architect of

a remarkable turnaround of WNKR in Dry Ridge, Ky., which laid the ground work for his acquisition of WNKN.

Since assuming ownership, we have built a new studio collocated with WNKR that includes a Wheatstone console and ENCO DAD automation system. The satellite STL was replaced with a GatesAir Intraplex IP Link 200 over a spectrum point-to-point fiber Ethernet link.

The format has returned to classic country, as formerly heard on WPFB(FM) "The Rebel," with both stations now reaching a combined audience of over 2.9 million.

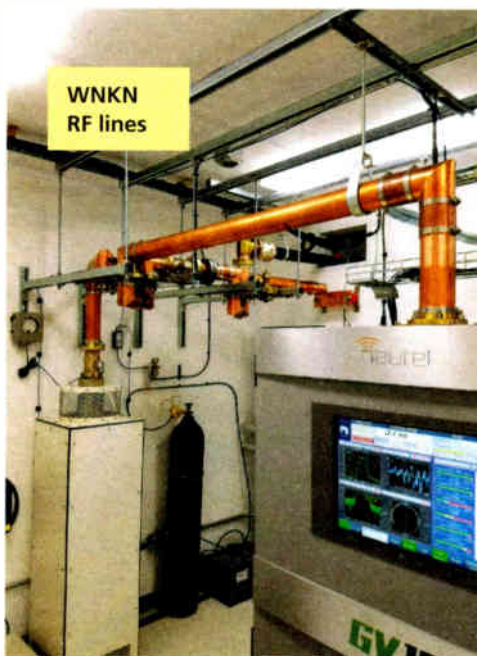
For both Jeff and me, this life adventure has come full circle with destiny



bringing us to this special place as custodians of Paul Braden's legacy and thankful for the opportunity to write yet another new chapter.

The author is president of JMS & Associates and chair of SBE Chapter 33 in southwestern Ohio.

RW welcomes your ideas for facility and project stories. Email radioworld@nbmedia.com.



erator. A Burk ARC Plus Touch handles the remote control functions via Internet or phone. Several Inovonics monitors and the 730 RDS encoder round out the major additions to the transmitter plant.

With remote operation requiring the Sage Alerting Systems EnDec EAS monitors to be at the transmitter site, another challenge became reception of the LP-1 WLW(AM) while isolating the extremely strong field from WPFB(AM) only a few feet away. That was solved with a directional Belar LP-1 shielded loop antenna feeding a Crown RFBA-1 EAS monitor.

The new WNKN facility went on the air in February 2017.

NEW OWNERSHIP

Just as this project was nearing completion, the university made a decision to end its 33-year run as a public broadcaster and sell all of its radio stations.

WPFB 910 had previously been sold to Sacred Heart. Now, flagship station WNKU(FM) in Highland Heights, Ky., was being sold to Bible Broadcasting

WORKBENCH*(continued from page 12)*

As you can see in Fig. 3, the UTIL (utility) bus is used for the mix-minus bus. The mix-minus is the mix of all the other faders on the console, minus the telephone hybrid audio.

To achieve this, the UTIL pushbutton on the "A PHONE" fader pictured in Fig. 3 cannot be depressed. Bill removed the module and inserted a plastic tie wrap around the UTIL pushbutton switch section, preventing it from latching on that channel. The mod is seen in Fig. 4, with the Philips screwdriver pointing to it.

Most mix-minus foul-ups occur when the operator inadvertently depresses the wrong button. With Bill's mod, operators can depress the UTIL button for that fader but it will not latch. What's nice about this modification is the module can be restored quickly to normal operation by removing the tie wrap; but in its present form, there's no way the operator can select that bus accidentally.

Workbench is your column. Share your ideas with fellow engineers and qualify for SBE recertification credit while you're at it. Send tips and high-resolution photos to



Fig. 3: In this Arrakis console, the UTIL bus is used for the mix-minus bus.



Fig. 4: Adding a tie wrap prevents the UTIL pushbutton from latching.

johnpbisset@gmail.com. Fax to (603) 472-4944.

John Bisset has spent 48 years in the broadcasting industry and is still learning. He handles western U.S. radio sales for the Telos Alliance.



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KISW's Live Day: No Safety Net Here!

This annual event is a call back to radio's origins

Bruiser Brody performs at Live Day during "BJ & Migs." From left: JT Phillips, Steve Migs, Travis Bract, Vicky B, Glenn Cannon.

Photos courtesy KISW

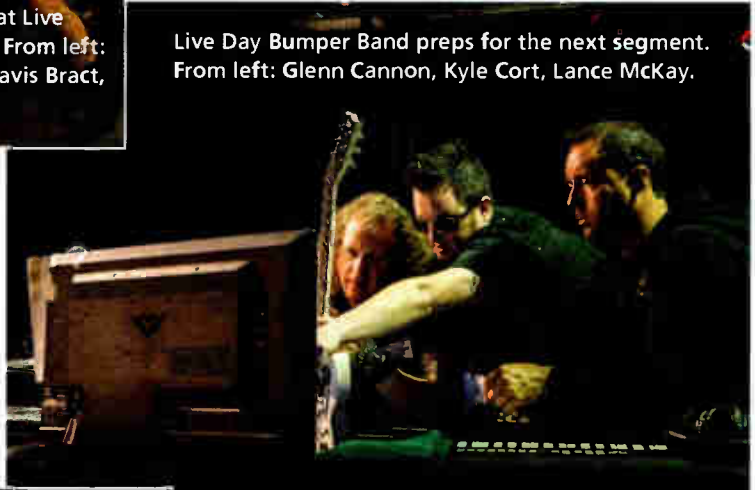
BY KEN DEUTSCH

In the earliest days of radio, every sound the listener heard was produced "live" including music, commercials, sound effects and the applause and laughter of a studio audience. In November, Entercom Seattle station KISW(FM) returned to those times but with a modern spin.

"We had rockaholics packed into the showroom of the Emerald Queen Casino in Tacoma," said Ryan Castle, assistant program director of KISW and operations coordinator for Entercom. "Jason Dildine, our director of production was our director for the day, and Taz, our creative director, managed all the voice-over talent and the Foley artists."

Wait. Foley artists? Those folks who normally walk in boxes of sand to simulate footsteps and slam doors and drop crates of broken glass to provide sound effects? Yes, those Foley artists were on hand for the entire day to add effects to live commercials and talk segments.

"They were great," said Castle. "Seattle has a big community of these people who provide effects for movies and video games, and they brought in a table of bells, whistles and buckets of wet towels. They ad libbed everything! We gave them free rein to inject whatever they thought was appropriate, but they did know in advance what commercials we were going to read, so they weren't going in completely cold."



Live Day Bumper Band preps for the next segment. From left: Glenn Cannon, Kyle Cort, Lance McKay.

LIVE DAY BEHIND THE SCENES

BY JASON DILDINE, Director of Production

The setup and load-in on Nov. 15 (the day prior to the event), took about five hours. That encompassed wiring, blocking, testing, loading in the back line for the bands and doing some modest sound checks. The team from the sound company was about 20 strong in setup.

On Thursday, Nov. 16, this was our plan: The front-of-house engineer handled stage monitors for the bands. We had a broadcast mix by the station engineer who was assisted by a live monitor engineer.

Here are some of the other categories of people we worked with: a lighting tech, a show/stage director, music director and a voice-over producer who kept voice talent on time and where they needed to be.

We used three producers who served as runners to get guests on and off the stage throughout the day and three stagehands to handle moving equipment to and from the stage seamlessly.

Taking a production like this offsite and putting it in front of a live audience



Live Day from Front House Mix.

And in keeping with the "live day" theme, all music was played by musicians live in the studio.

"We had musical show introductions that featured cover versions of songs by Collective Soul, Alice in Chains and Soundgarden," said Entercom Seattle Marketing Director Brian Thorpe. "These groups are what we normally play during the week, but for this event we used all local bands."

KISW was so committed to the concept that it flew in its station voice-imaging talent Malcolm Ryker, who is based in San Diego, to handle station sweepers.

"We spent months planning this thing," said Castle. "We figured if everything went as planned, that would be great, but if we crashed and burned it would still be great. That's the joy of this."

The station worked from a printed rundown that listed each event, minute by minute.

"We called it our bible," said Castle. "I would work with the musicians to fill in the holes, and we tried to stick to it. It was supposed to resemble a normal broadcast day for us, but with a live audience."

And did it all go as planned?

"I wouldn't say it went without a hitch," said Castle. "We had some hiccups, but if you were listening, you probably wouldn't notice. For example, we would have to change bands quickly. One group might be playing an intro for a feature, and then we'd have to stall to get the next group set up."

(continued on page 20)

is perilous. We anticipated roughly 30 audio inputs would be needed and so we worked with a 48-channel console. By the time the show rolled around, we went from 30 inputs to 43.

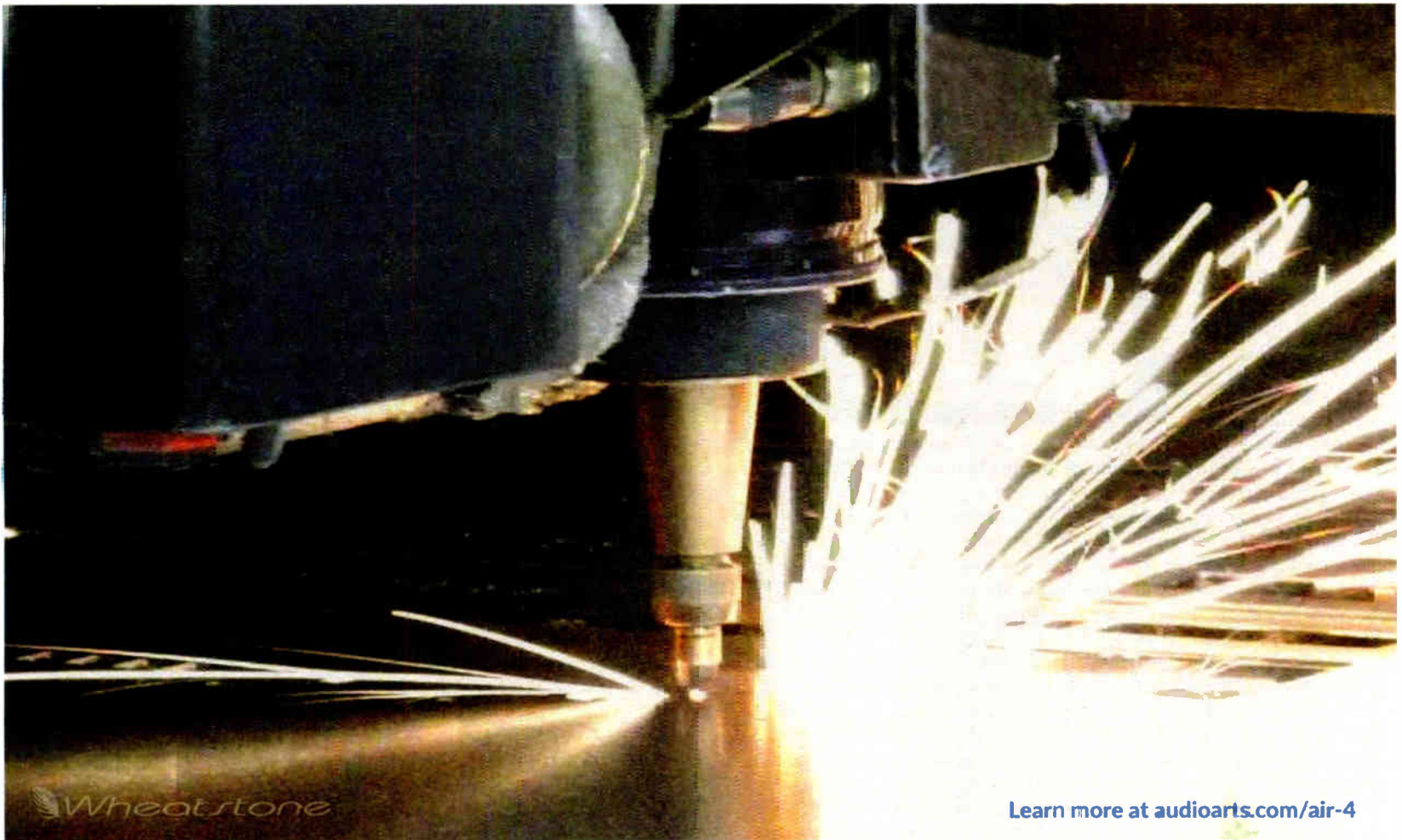
Here is a basic list of our equipment: six broadcast table mics, three Foley mics, four voice-over mics, three vocal mics for the cover bands, two vocal mics for the bumper band, five mics for amps, six mics on the drum kit and two condenser mics for room ambiance, which we didn't need. The room was very live.

The mix was the toughest thing to balance. We were mixing for a large room and audience and mixing for a broadcast while getting feedback from listeners, producers and managers throughout the day to refine what we were sending out to the masses. That's always the biggest challenge.

Keeping a lock on all those open channels was tough. We were constantly adjusting monitors for the bands. In hindsight, we needed to cage and baffle the drums. No matter what you do when you take something this massive off-site for the first time, you don't know what you don't know until you do it. It's safe to say we have reams of notes for improvements for the next time around. It was the ultimate high wire act, that's for sure. But fun? Without a doubt.

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Food Can Be Your Recipe for Success

The airwaves are facing a cuisine shortage, but you can fix that

"When he sold food, you salivated!"

That was Willard Scott talking about DJ Eddie Gallaher in a Washington Post piece.

Eddie graced the D.C. airwaves for 53 years, passing away just a few years after his last on-air gig at 88. I had the pleasure of working with him during his final stint, and lately I've been thinking about Eddie as I've gone down the rabbit hole listening to podcasts about food, restaurants and cooking.

A confirmed bachelor, Eddie loved going out to eat, and that hobby served him well in helping to bring business to the radio stations that employed him. When Eddie spoke about a dining experience — whether in pre-recorded endorsements, interviews with chefs or during extemporaneous rants — a listener couldn't help but pay attention.

While he didn't live long enough to do a food podcast, he would have been great at it because he was an amazing communicator in love with the subject matter.

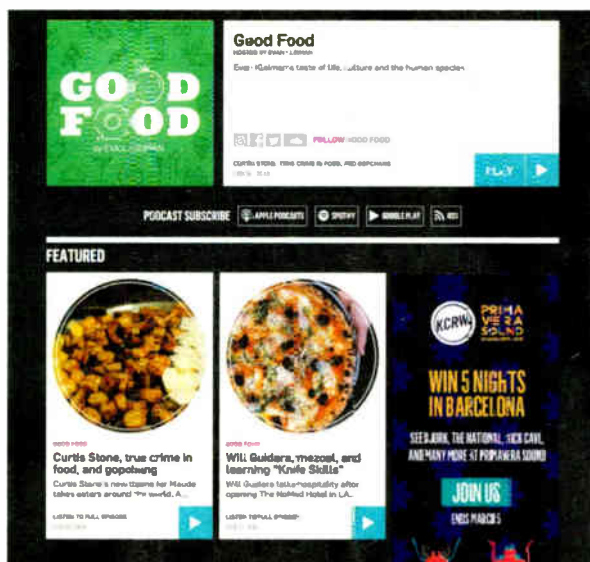
Why is this topic important? As different as we all are, we all gotta eat! Food, cooking and eating are themes relevant to every radio format, and — sales managers take note — this is subject matter that does generate revenue when executed with thought and planning.

Where to start? Is there someone on your staff who could become your on-air foodie? If not, maybe you can recruit one or two new cuisine communicators.

JOB DESCRIPTION

To be relevant, your foodie must be comfortable doing restaurant reviews, local farm and produce reports and delivering recipe suggestions. Your candidate must enjoy eating and be passionate, articulate, a good writer and a positive person. If you can find someone with those attributes who already has local food cred — fantastic!

Note that if you do decide to take a sales approach to this content, you'll



What's to eat in L.A.? Evan Kleiman presents a "taste of life, culture and the human species" on "Good Food."

want to focus on the positive — especially when it comes to restaurant reviews, always finding something good to say about a dining experience, even if it's just one item to dish about.

If you're able to bake your new foodie into the morning show a few times a week and establish her as a new personality, I highly recommend starting with that approach. Introducing a new food personality via your trusted morning show will jumpstart listeners' awareness and acceptance.

She can review one restaurant per segment, occasionally even bringing in samples the client may wish to provide. Other segments could feature things like

getting the morning team to make her favorite salad dressing. There's nothing like radio for describing how something tastes.

And if you do have any local hot chefs who have become semi-celebrities, it is cool to have them on live as well.

No live local morning show?

When it comes to food, there are so many topics, you will have difficulty finding enough airtime on your main channel to cover it all. This is where podcasting, social media, an HD channel and your website all come into play.

You can always insert pre-recorded segments.

When it comes to food, there are so many topics, you will have difficulty finding enough airtime on your main channel to cover it all. This is where podcasting, social media, an HD channel and your website all come into play. While the short on-air segments can give your foodie mass reach and frequency, the other platforms permit showcasing long-form chef and owner interviews; food photos; live streams of cooking exhibitions; lists of what's at the farmers' market this week; detailed recipes; and in-depth restaurant reviews.

Don't forget food contesting! Who

for poor results.

Need more ideas? Google "top food podcasts," and you'll be amazed at both the quantity and quality of many food-oriented shows. Aside from networks, you'll find very few radio broadcasters listed, which just verifies to me that this is a tasty opportunity for local stations.

After all, cooking shows, restaurant reviews and recipes were on local radio's menu for decades. It's only in recent years that the airwaves have had a food shortage.

Okay, I'll stop with the puns now (not because I want to, but because it's time for lunch). Eat and be merry, for tomorrow we broadcast.

LIVE

(continued from page 18)

"Everything was all done without a net, so it was unpredictable. If something was going wrong, we couldn't cut to a record. We had no major train wrecks, but even if we did, it would have been fine. If you go to NASCAR, the crashes are really cool!"

ATTENDANCE

Audience members paid \$99.99 at the premium level to attend, which entitled them to a front-row reserved seat, breakfast and lunch. Because the broadcast ran from 6 a.m. to 6 p.m., people could come and go as they pleased. That same entrance fee also got each listener a T-shirt.

A halftime show featured a question and answer session with the on-air casts of the morning and afternoon



The Men's Room Live! Steve "The Thrill" Hill, Miles Montgomery, Eric "The One Man Band" Haines, Thee Ted Smith, Sean Boyle, Robin Fox.

shows, "BJ & Migs" and "The Men's Room," respectively.

Lower-priced tickets were available at \$35, but a portion of all tickets sold went to hurricane relief efforts. The station raised \$880 for this cause.

A video company was brought in to record the entire event so that "Live Day" could be streamed on www.kisw.com/media/live-day, where the content is still available, as well as on Facebook.

Ken Deutsch describes himself as "a former air personality in the loosest sense of the term." He says his tenure in radio began sometime after the pot-palm era and ended when eight-track players in cars were something you would want to own.

PROMO POWER



Mark Lapidus

doesn't want to win lunch for the entire office or a romantic dinner for two?

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Does Facebook's New Algorithm Add Up for Radio?

Consider whether the friend-focused changes are bad news for broadcasters' social media efforts

21ST CENTURY PD

by Dave Beasing

Changes to Facebook's News Feed algorithm are getting mixed reviews from radio experts who use the social media site to interact with their audiences. On the one hand, reaching people on Facebook will now require more effort and better content. On the other — to get good results — didn't it always?

Just after the holidays, Facebook founder Mark Zuckerberg announced changes to the secret formula that prioritizes which posts reach more users. They're gradually giving more emphasis to posts from family and friends, and less to brand pages.

Zuckerberg posted that his goal in 2018 is "protecting our community from abuse and hate, defending against interference by nation states, [and] making sure that time spent on Facebook is time well spent."

So, is reading posts from your radio station "time well spent"?

"I have long advised brands to be more meaningful with Facebook audiences. The more meaningful we are, the more memorable," says Cumulus VP of Social Media Lori Lewis. "The more memorable we are, the more it means we resonate and are likely increasing tune-in's to our radio stations."

Facebook's precise formula for determining which content gets wider distribution isn't shared publicly, and it's constantly being adjusted — probably more often than we know. Although frustrating to content creators and publishers, that lack of specificity makes it virtually impossible to game the system. Facebook did reveal that they're no longer measuring their success by how much time people spend on the site but by engagement, how much people interact with posts and each



Engagement is now Facebook's primary metric, and it should be yours, too.

other. So if comments, conversations and shares are what Facebook measures, it should — logically — be your goal as a publisher, too.

VIDEO CONTENT

Watching video on Facebook is, by definition, a form of engagement.

"Videos where our talent are just being themselves tend to get the most



Lori Lewis



Ryan Hatch

eyeballs," says Tony Lorino, program director for Atlanta's WSTR(FM). Listeners can truly watch his radio station on Facebook. Producers for the "Jeff and Jenn" morning show are good at adding video components to what happens in the studio. (Check out their interview with pop star Nick Jonas, <https://tinyurl.com/yclwvlp9>.)

Other dayparts are seen on Facebook, too. "Heather Branch, our midday host, has a knack for speaking naturally to the camera, almost like a 'Real World' MTV confessional." Afternoon host Mike Marino really knows how to deliver a punchline on camera.

News radio is also using Facebook to deliver videos. At KTAR/Phoenix, Assistant News Director Martha Maurer hosts them, especially during break-

ing news events (<https://tinyurl.com/y7qur8d8>).

Improving the quality of your station's Facebook videos can stretch your reach. It's not that expensive to do, as I explained in a recent 21st Century PD col-

per day per station to about six to eight."

Lorino has noticed that his Facebook users in Atlanta love to post about themselves. "We've had two 'snowstorms' this winter — under 2 inches each, but we're in the south, y'all, so that qualifies as a 'storm' — and asked people to share pictures of snow in their yards.

That caused a lot of engagement ... and shivers."

Meanwhile, the increased priority on content from friends has caused some concern among advertisers who use Facebook.

Long before these changes, Bonneville/Phoenix VP/Business Development Jim Knapp observed, "The marketing theory pendulum is swinging from narrow targets back to mass marketing and an emphasis on creative that drives



Jim Knapp

Facebook never was free. There's always been an unwritten agreement: Your station adds to the Facebook user experience and, in return, they let you post there — using your brand name.



Max and Tony Lorino

umn (<https://tinyurl.com/y8cwfusq>).

For stations like KTAR, Facebook's changing priorities appear to be good news, judging by a Zuckerberg post on Jan. 29. "I hope that he follows through ... to reward those who deliver credible, important and local content," says Bonneville/Phoenix VP/Content & Operations Ryan Hatch.

As he studies their engagement stats, Hatch has come to believe that the quality of posts matters more than the quantity. At least for now, he says, "We've moved from an average of 10 or 12 posts

recall and favorability."

That being said, Knapp uses paid Facebook posts to help drive awareness of native advertising campaigns on *KTAR.com* and *ArizonaSports.com*. "We think that's a good use of client budget and fits in nicely with the fact that our audiences come to us for information, insights and opinion."

Cynics might say that requiring more spending by brands is exactly what Facebook has in mind, that radio's "free lunch" is over. But Facebook never was free. There's always been an unwritten agreement: Your station adds to the Facebook user experience and, in return, they let you post there — using your brand name.

Then again, even if Facebook wasn't prioritizing content from friends, having your listeners think of you as a friend has always been a good thing! Among the friends in your own life, you probably don't prefer to spend time with ones who are using your friendship just to ask for favors, but rather with friends who are always genuine and interesting, who listen to what you have to say, who are truly "engaging."

As Lewis says, "It's time we learn how to create conversation and become more of a moderator on Facebook." In other words, we need to post less about us, more about our audience.

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A B C
Gain Reduction: 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0
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TnT: AoIP Codecs for Remote Broadcasts

A look at several hardware and software options currently on the market

TRENDS IN TECHNOLOGY

BY DOUG IRWIN

The ability to generate unique content for your station has never been as important. A simple way to do it is by taking “live shots” from a news or sporting event. With the advent of hardware that uses the public internet for transmission, followed by software apps that emulate that hardware, “remotes” are easier than ever. In this article we’ll look at hardware and software solutions.

HARDWARE

Comrex is a long-established manufacturer of codecs, including portable units, along with other telephone-related products. It was an early developer of AoIP codecs. Opal is a recently developed device that enables remote guests to connect back to the studio by clicking on a link delivered in a message originating from the radio station.



Comrex Opal

Opal works by activating the Opus encoder built into commonly used browsers, including Chrome, Firefox and Opera. Support for Safari, on iPhones with iOS 11, along with newer versions of the Mac OS. As a result, the remote user can connect to Opal from any computer or mobile device with one of those browsers installed. Opus transmits high-fidelity, low-delay audio in both directions. All the remote guest needs to transmit audio is a browser and a microphone.



Telos Z/IP One

At the radio station, the half-rack width Opal device makes the actual send and receive connections to the studio facility via balanced XLR connectors (analog or AES). Aside from its Ethernet connector, it also has a nine-pin DIN connector for remote contact closures.

In order to use Opal you will need a static, public-facing IP address and a domain name associated with that IP. “In order to keep the web browsers from complaining, we need to provide SSL/TLS security. In order to have Opal provide this security, it needs a URL with a real domain name instead of an IP address,” according to the company.

The Telos Z/IP One is a 1 RU rackmount IP codec designed for remote broadcasting. It includes a range of codecs including AAC-ELD, AAC-HE, AAC-LD, MPEG 4 AAC, MPEG 2 AAC, MPEG Layer II, G.711, G.722 codecs, plus linear audio and optional aptX Enhanced coding. Z/IP One supports SIP 2.0 protocol and conforms to N/ACIP standards; it also works with VoIP devices and connects to compatible SIP PBXs. A complement of I/O, including Livewire AoIP, analog and AES/EBU, is standard. Other salient features:

- Works with wired and wireless IP connections including Wi-Fi, WLAN (with matching Wi-Fi stick);
- Telos’ AgileConnection Technology (ACT) automatically senses network conditions and adapts codec performance to provide the best possible audio;
- Dual Ethernet ports for separate streaming and control;
- Livewire, analog and AES/EBU I/O standard;
- Easy browser setup via built-in web server;
- “Push Mode” for one-way network transmission; “Multiple Push Mode” for audio distribution to multiple destinations;
- Distributed Z/IP Server directory service, with multiple geolocations, lets you connect to other Z/IP One devices without the need for an IP address and also provides NAT

traversal support;

- Transparent, time-aligned RS-232 channel for remote control or meta-data, e.g., RDS;
- Time-aligned 8-bit parallel GPIO port for signaling and control.



WorldCast Systems The IP Codec

Tieline’s ViA is a remote codec that supports IP, ISDN and POTS, plus data aggregation and redundant IP streaming. ViA can connect over IP with dual Ethernet LAN ports, or two USB modems, or an internal LTE module, or use built-in Wi-Fi. The user can insert an optional POTS or ISDN module to allow the codec to connect over alternative network transports, thus supporting the configuration of primary and backup connections over different network transports as required, or simply using them as an IFB circuit.

ViA integrates with Tieline’s Merlin and Merlin Plus audio codecs to transmit high-fidelity, full-duplex stereo program audio with a separate bidirectional IFB circuit. ViA’s features include:

- Three analog mic/line inputs (Input 1 supports stereo AES3 digital audio, or mono AES42 microphone) and a stereo analog line input and stereo digital in/out via micro-USB or S/PDIF;
- Touchscreen matrix editor routes any input to any output; customize headphone mixes via touchscreen



Tieline ViA

- for three headphone outputs
- EQ, compression and limiting on all inputs; output AGC available on all outputs;
- Bidirectional mono, stereo or dual mono connections;
- Uncompressed PCM audio plus the low-delay, cascade-resilient aptX Enhanced algorithm; LC-AAC, HE-AAC v1 and v2, AAC-LD, AAC-ELD v1 and v2, Opus, MPEG II, MPEG Layer III, Tieline Music and MusicPLUS, G.722 and G.711.

The IP Codec from WorldCast Systems codec developer APT is a single rack unit, stereo, full-duplex AoIP codec, featuring dual XLR inputs and outputs (analog and AES), with dual IP

ports (for configuration and management, or redundant streaming). Multiple coding algorithms are standard, including linear PCM 16-/24-bit, aptX Enhanced 16-/24-bit, MPEG1/2 Layer II, MPEG 1 Layer III (MP3 for decoding only), MPEG2/4 AAC-LC -LD -ELD, MPEG2/4 HE-AAC v1/2 and digital MPX@128/192FS (optional).

The IP Codec automatically detects the correct algorithm on the receive end. Some of its other features include WorldCast’s SureStream (which supports multiple redundant streams to one destination); network security features for firewall compatibility; four opto-coupled inputs and corresponding relay-isolated outputs for remote signaling as well as SNMP and VLAN support; NTP based content time alignment; Stream Forwarding; ScriptEasy application developer, and, configuration via a built-in web interface, along with alarm and event logging. The system has recently added support for directly connected 3G/4G modems to ensure easy connectivity.

SOFTWARE

Some common applications that work with both iPhones and Android phones are Linphone (www.linphone.org), Luci (www.luci.eu) and QGolive (<http://qgolive.com>). Remote talent can do live reports, cut-ins, or even good old-fashioned car dealer remotes, using nothing but their smartphone on the cellular telephone network. Let’s take a closer look at these applications.

Linphone is an open-source SIP Phone, available on these mobile plat-

(continued on page 26)

HIGH CAPACITY EVENT STUDIO TRANSMITTER LINKS



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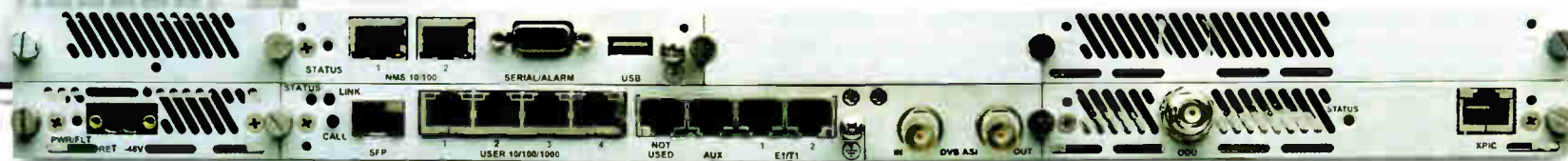
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indoor unit



INTELLIGENT SYSTEM DESIGN



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TNT: AOIP CODECS

(continued from page 24)

forms: Apple iOS 8 to 10 (ARM v7, ARM 64); Google Android 4.1 to 7 (ARM v5 to v7, x86); BlackBerry OS10 (ARM v7); and Windows 10 UWP: mobile and desktop (ARM v7).

Linphone will also work in a desktop environment (GNU/Linux, Mac OS X and Windows).

Among its features we have the following: audio (and HD video) calls; multiple calls management (pause and resume); call transfer; audio conferencing (merge calls into a conference); instant messaging; display of advanced call statistics; echo cancellation; call quality indicator; and, support for secure communications (zRTP, TLS, SRTP). Advanced features for Linphone include support for the following audio codecs: Opus, SILK, Speex, G.722, AMR-WB (G.722.2), AMR-NB, GSM 6.10, ILBC, G.729, ISAC, BV16, G.711, and Codec2; integration with push notification (requires compatible SIP server); ICE support (RFC5245) to allow peer to peer audio and video connections without media relay server; call handover across network access type change (start a call in Wi-Fi and continue in 3G); the ability to configure multiple proxy accounts with different transports (UDP, TCP, TLS); and finally, IP v6 (dual stack and v6-only support). LinPhone is available for free on Android and iTunes.

Luci will work on the following platforms: All iOS devices with iOS8 or newer; Apple MAC computer with Mac OS 10.7 minimum; PC/laptop/netbook



Luci

with Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10; Linux computers PC/laptop/netbook; and Android phones and tablets.

Among its features are use of RTP over UDP low-delay streaming, in a duplex fashion, so that it includes a return channel; N/ACIP compatibility, one-way Shoutcast/Icecast streaming; the ability to record while broadcasting; the ability to play prerecorded material while broadcasting; stream cloning — that is, sending redundant streams via 3G, Wi-Fi and Ethernet simultaneously; support for

codecs MP2, AAC, AAC-HE, AAC-LD, AAC-ELD, AAC-HE v2, G.711, G.722, ULCC, and linear, as well as a 24-bit ULCC audio codec, 44.1384 kHz sample rate; and, ASIO support on Windows.

Current Luci versions include Luci Live for iPhone and Android, priced around \$300. If you want to start out spending less money, consider Luci Live Lite — that version doesn't include the record, edit and FTP functions and limits the codec choice to G.722 or

“Live shots” from a news or sporting event make unique content for your station.

Luci's ULCC codec. Other than that, it retains the same functionality as the more expensive version. Cost of this version is around \$30.

QGoLive is a software-to-software solution that does not require the purchase of hardware at the studio (receive) end. The transmit app runs on iOS or Android devices; the receiver application runs on PC or Mac. An Android-based hardware receiver, with balanced XLR inputs and outputs, can be used on the receive end so that there is no need to tie up a computer.

The primary purpose of QGoLive is to replace the live shots that are typically broadcast in phone quality because the reporter has just arrived on the scene and has not had an opportunity to set

up equipment for a broadcast quality live shot.

QGoLive has three major functional aspects: live, playlist and scripts. The “live” mode allows the user to connect to the receiver at the radio station after logging in. To connect the user hits the “play” button in the center of the screen, which will send audio to the station receiver and send cue audio to the app. The app will run in the background so you can use other nonaudio apps while broadcasting with QGoLive.

The “playlist” function allows the user to play out cuts recorded and edited in external apps (such as the Twisted-Wave audio editor or any audio program that can open its output MP3) in another program (or a browser that can open downloaded files in another app).

QGoLive allows you to write or dictate scripts which the talent can read while live. The user can also insert edited audio directly into the script for playback during a live report. And, imported cuts can also be added to and played from the scripts tab.

“Live shots” from a news or sporting event make unique content for your station. Say what you will about the cellular telephone system, but it has made an enormous difference in the way we carry out remotes. The amount of time, expertise and certainly hardware costs are all greatly reduced when compared to what they were just a few years ago.

Doug Irwin, CPBE AMD DRB, is vice president of engineering at iHeart-Media in Los Angeles and a technical advisor to Radio World. His Trends in Technology columns will appear here regularly.

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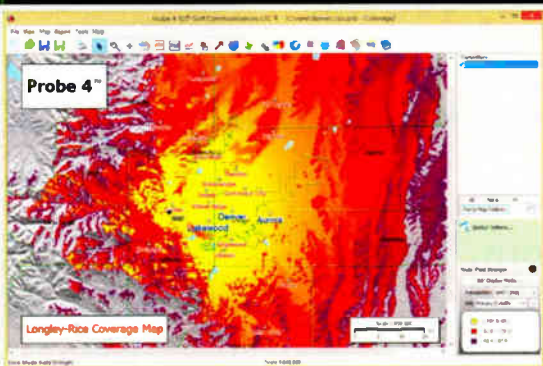
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Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST - 214 738-7873 or sixtiesradio@yahoo.com.

Wanted: real plate reverb. abgrun@gmail.com.

MICROPHONES/HEADPHONES/SPEAKERS/AMPS

WANT TO SELL
1934 RCA 77A double ribbon microphone, originally used by Arthur Godfrey at WFBR Baltimore. 100% perfect condition. Contact Bill Cook, 719-684-6010.

my phone number is 925-284-5428.

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

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

WANT TO BUY

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

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

Equipment Wanted: obsolete, or out of service broadcast and recording gear, amplifiers, processing, radio or mixing consoles, microphones, etc. Large lots preferred. Pickup or

shipping can be discussed. 443-854-0725 or ajkivi@gmail.com.

I'm looking for 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.

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

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSFX, KOBY, KCBS, KQW, KRE, KTIM, KYA, etc. I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@yahoo.com.

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

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

Looking for KSFY 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.

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Standard Short-tune series. Bill Cook, 719-684-6010.

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WANT TO SELL

(2) LPFM radio stations for sale, located in the NW part 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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Mark's Main Street and For More Cafés: a Rebuttal

Another "restaurant" owner responds to the earlier diner fable



Thinkstock/djha127

COMMENTARY

BY MARK E. BOHACH

I really enjoyed the story of Matt's Class A diner by Matthew Wesolowski in the Dec. 6 issue of Radio World ("Dear FCC: Please Help Us, the Mom & Pop Diners," *radioworld.com*, keywords "Dear FCC"). It sounds like Matt serves up hot and delicious menu offerings to his customers.

I do need to take exception to one assertion that Matt made regarding so-called "Abandoned Meal-server" restaurants. As the owner of one of those eateries — Mark's Main Street Café, proudly serving our town since 1948 — I have a slightly different perspective on recent events in the restaurant industry.

Here's the story:

Mark's Main Street Café serves some of the finest home cooking in town. In fact, over the past 20 years, Mark's Café has enjoyed a strong patronage, as local folks love his specialties, like High School Football with Noodles and Local News with Beef Gravy.

Mark's has also noticed a lot less competition in town, as the local Class A diners have all packed up their stoves and ovens and moved up the road 25 miles to Capital City. While these small diners couldn't possibly serve all the potential customers in Capital City (and indeed their share of those customers is usually dismally small), they seem to think the grass is greener in the big city.

Meanwhile, back in our good old hometown, the neighborhood where Mark's Main Street Café has made its home since 1948 has badly deteriorated. The loud hum of streetlights can be heard all around the café and gangs of other noise makers have infiltrated our quiet streets.

And our little restaurant is saddled with some antiquated laws that prevented us from serving more than a few customers after dark. I've even heard stories from other towns that some restaurants are actually forbidden to be open after dark.

THE SISTER RESTAURANT

So back in 2006, I along with a few other full-service restaurant owners decided to ask the Friendly City Commission for permission to open up a sister restaurant where we could locate high on a hill in town and attract more customers to our superior locally made products.

In 2009, the FCC said it would be OK — but only if we could locate an existing restaurant and make it fit in the tight parking lot we had available.

Mark's Café was fortunate and found a closed nearby restaurant that could be reopened in this town. As an experienced restaurant engineer, realized that with a tall location and lots of good solid architecture, the 250-seat restaurant could serve nearly as many hungry customers as those 6,000-seat places.

So in early 2010, we opened the Mark's For More Café; serving the exact same menu as our original location.

The customers were thrilled! They could get a delicious High School Sportsburger and Postgame Report Fries whenever they liked in a nice quiet neighborhood.

And we had made sure that our new For More restaurant wouldn't cause any heartburn with neighboring restaurants in distant communities.

Meanwhile, the original Mark's location continued to do well — especially with the older customers who had been dining there for many years. The new location quickly became a hangout for the younger crowd who had not even heard of Mark's Main Street Café. The two restaurants worked well together and ensured that

the town would have delicious food for years to come.

After Mark's For More Café had been open for a few years, other small-town diner owners around the country took notice of Mark's growing business and decided to ask their Friendly City Commissioners for the same opportunities. A friendly Pie Salesman on the Commission said "yes," and many other small nearly-Abandoned Meal servers were putting For More restaurants in their towns.

We have also begun to realize that our original location may not be around forever. The customers at the original Mark's Main Street Café are starting to die off, and the For More Café is capable of covering all the customers in town. I am now willing to voluntarily close the original restaurant and donate its operating permit to other restaurants who could increase their parking lot size and benefit. If enough small restaurants were permitted to close their doors, large restaurants in the metropolitan areas could really benefit.

Of course, the Friendly City Council would need to give Mark's For More Café the same protections as those larger Class A, B and C restaurants, but since Mark's For More Café has been operating as a good neighbor for nearly eight years, granting a primary operating permit should not be an issue.

After all, it's the customers who win in the end.

Mark E. Bohach is co-owner of WLOH Radio Company in Lancaster, Ohio.

READER'S FORUM

DEATH BY A THOUSAND CUTS

The commentary in the Dec. 6 issue about the travails of small radio was interesting ("Dear FCC: Please Help Us, the Mom & Pop Diners"). Shall we just stand back and watch it fall?

To point: NAB appoints iBiquity mover and shaker to top spot; and we read in the Jan 17 letters that digital and analog don't mix. Now anyone with a car can drive around and experience the lies of digital, regardless of what NPR Labs will say. But HD is the golden calf idol, and we are just one of the ignorant masses.

And more to point, Mom & Pop Diners now have to face just one more thing: the public file going online. Looks like the proverbial straw that broke the camel's back.

I've looked at the FCC website. All kinds of computer savvy I don't have nor can afford to buy. And to what real purpose?

It's been a good run for WAGS(AM), but at some point the hill we climb is just too steep. Like the rust belt of lost manufacturing, the individuality of small-town radio is cut down one station at a time. Death by a thousand cuts, and no one to mourn.

*Jim Jenkins
Owner/General Manager
WAGS Radio
Bishopville, S.C.*

READER'S FORUM

SIGNALS TURNED TO NOISE

I was intrigued by the Jan. 17 letter "Digital and Analog Do Not Mix" by Mr. Vela, and I would like to add my comments.

I am the chief engineer for a local AM station with an FM translator in my area. The ERP is 250 W, at a height above ground of 200 feet. The signal that the station encompasses sufficiently serves the area for the most part, with the exception to the south, where there is a first-adjacent station with a digital subcarrier above the translator frequency. Since this station has added their digital carrier, the translator's signal to the south has almost halved, despite the fact that this digital station is almost 72 miles from the translator antenna.

Upon listening to the interference, it appears that the translator is picket-fencing and appearing quite noisy; particularly noticeable when there is a band enhancement from the south. During those conditions, the translator became unlistenable as I approached within a mile of the edge of the translator primary contour, but equidistant in the opposite direction, the signal was perfectly listenable on a portable radio with the stock collapsible antenna.

Station management was concerned that their antenna system was defective and was willing to spend unnecessary funds to replace the antenna. They have both listeners and advertisers who complain about the signal to the south since the digital station has turned on their noise generator.

One day, when the digital station was off the air, the translator signal was equally well received in all directions, far past the edges of the translator primary contour. The digital station is rarely off the air, so this unfortunately was an interesting test comparison. The management said it was like someone "removed the blanket from their antenna that was causing their signal to be so noisy to the south."

After some inquisitiveness, I decided to put a portable spectrum analyzer in my vehicle, and look at the RF spectrum +/- 1 MHz from the translator frequency.

OPINION
Rage Against the Machines in 2018
 Radio needs to light fire with fire to compete in the modern marketplace
COMMENTARY
 BY THOM CALLAHAN
 The author is president of the Southern California Broadcasters Association.

READER'S FORUM
DIGITAL AND ANALOG DO NOT MIX
 Due to the way that HBCO technology works, stations that choose to use the tech essentially send out their original analog broadcast with two digital "sidebands" at the bottom and top of their allocated frequency.

JOIN THE CLIENT CONVERSATION
 Radio needs to be in "the next" where it happens when target marketing, same sales, market share, conversion rates, brand awareness, as if actual, documented audience drivers are discussed. Not at the board meeting and the account team meetings and preferably at the client meetings.

As I drove further south, I could clearly see the digital subcarrier ripping into the translator's spectrum.

Although the digital carrier was almost exactly 20 dB below their main carrier, it was obvious where the noise was originating from. Of course, legally, all the carrier levels are where they should be, but the obvious interference was being caused by the digital carrier.

I was able to show this to station management, who is still upset about the quality of signal (the AM signal actually does better to the south than the FM signal) but is glad to know that they don't have to spend money on equipment issues.

The FCC has an entire spectrum from 66–88 MHz that is not allocated. This would be a perfect experimental band to conduct digital testing on FM. Furthermore, more manufacturers could join in with the experiments and stop the monopolization of the technology. Radios could be easily modified to receive this range, and the analog band could be clear of these sources

of noise and interference on their signal. Station owners would no longer wonder why their signal has suddenly turned to noise when these digital interlopers invade their now unprotected listening areas.

*Jim Trapani
 Chief Engineer, WOCA
 Ocala, Fla.*

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SERVICE LITERATURE

Responding to "Why I Support the Right to Repair" (RW, April 26, 2017):

Increasingly, in recent years, companies have been unwilling to share basic service literature — even mere schematics — because they claim designs of their products are "proprietary." You can forget about these outfits providing the information free to owners; you can't even buy it!

Motorola Solutions is guilty of this also. Outdated power amps and power supply schematics are unavailable, just a block diagram.

Mitch Strauss

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