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FCC Weighs the Future of FM6 Stations

"Franken FM's" defend their existence; NPR calls them a misuse of public airwaves

BY RANDY J. STINE

FM spectrum is desirable. If you want proof, just look at the comments from those who operate so-called Franken FM stations, which are fighting to sustain their business operations and stretch out their life expectancy in the face of an FCC deadline.

There are two dozen or so low-power TV stations on analog Channel 6 that air limited visual programming but primarily target radio listeners with their audio content on 87.7 MHz, just below the standard FM band and receivable on consumer radios.

These operators believe that their "radio" stations are serving local audiences, and sometimes niche minority populations, with programming and lifesaving information.

Opponents to the dual-mode operation, including National Public Radio, say the stations have flouted FCC rules and are misusing the spectrum. In addition, NPR has voiced concerns about interference to stations in the adjacent reserved band.

Licenses of these LPTV6 stations are hoping to avoid their radio demise on July 13, 2021, the deadline the FCC has set for all LPTVs to terminate analog services. That termination effectively will silence those audio signals.

DEFENDING THE PRACTICE

The FCC in a public notice in December asked stakeholders and inter-



LPTV SPECTRUM RIGHTS COALITION

An LPTV coalition wants the FCC to allow dual digital LPTV and analog audio signals.

ested parties for additional feedback on whether LPTV stations should be allowed to operate in this way. The commission specifically asked whether (continued on page 6)

Avoid False IR Readings

Don't just "point and shoot"

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NRB Show Seeks 2020 Vision

Christian media convention returns to Nashville



The National Religious Broadcasters will convene this month in Nashville for NRB 2020, the annual Christian media convention and exhibition.

This year's theme is "Look Forward." According to the event website, NRB 2020 offers networking opportunities, workshops, keynotes, panels and an exhibit hall.

The schedule emphasizes practical skills for the digital age, tailored to religious communicators. Advice and insights will be offered by industry speakers such as Fletcher, Heald & Hildreth partner Karyn Ablin, Borrell Associates CEO Gordon Borrell, Moody Radio Direc-

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IF YOU GO

Who: Christian media and ministry professionals
When: Feb. 25–28
Where: Gaylord Opryland Resort and Convention Center, Nashville, Tenn.
How: <https://nrbconvention.org/>
How much: Full convention pass — \$750 or \$550 for NRB members; Expo Plus pass — \$600 or \$350; Expo only pass — \$50



SAMPLE SESSIONS

Find the full schedule online at <https://tinyurl.com/nrb2020schedule>. It's searchable by registration type and includes information on session locations.

Feb. 25 7–9 p.m.	Opening Session	Feb. 27 12–12:30 p.m.	NRB Talks — Creating the Right Content for the Right Audience
Feb. 26 7–8:30 a.m.	NRB Breakfast to Honor Israel	12–12:30 pm	Workshop — From College to Career: Breaking into Christian Media
9:30–10:45 a.m.	Morning Forum — Policy featuring U.S. Secretary of Education Betsy DeVos and American Center for Law and Justice Chief Counsel Jay Sekulow	1–3 p.m.	iNRB Student Feedback & Standing Committee Meeting
12–12:30 p.m.	NRB Talks — Music Licensing: Keeping Up with Key Developments in the Ever-Changing World	3–3:30 p.m.	NRB Talks — Bringing Young Talent into the Industry
12–12:30 p.m.	Workshop — Demystifying Facebook Audiences	4–4:30 p.m.	Afternoon Forum — Public Policy Update from NRB General Counsel Craig Parshall
12:45–1:15 p.m.	NRB Talks — Podcasting	5:30–7 p.m.	Digital Media Advisory & Standing Committee Meetings
1:30–2 p.m.	NRB Talks — Emerging Trends for Digital Fundraising Growth	7–8:30 p.m.	Radio Advisory & Standing Committee Meetings
1:30–2 p.m.	Workshop — Music Royalties — Broadcast and Digital	Feb. 28 9:30–10:45 a.m.	Morning Forum featuring Mike Huckabee and Sen. Marsha Blackburn of Tennessee
3–3:30 pm	NRB Talks — Five Fresh Digital Fundraising Approaches	11:15–11:45 a.m.	NRB Talks — A 2020 Vision For Christian Radio
4–5:30 p.m.	Afternoon Forum featuring U.S. Attorney General William P. Barr	12–12:30 p.m.	NRB Talks — Video Did Not Kill the Radio Star: Moving Forward in a Digital World
		6–9 p.m.	Closing Gala Dinner with Special Service Awards (ticket required)



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Reflections on Trends in Audio Consoles

A veteran engineer muses about AoIP, routing capacity, video bling and virtual mixers

BY MICHAEL LECLAIR

The author is chief engineer of WBUR Boston and was founding technical editor of Radio World Engineering Extra.



provide that router core, although it may physically be distributed amongst many rooms or consist of interconnected segments in one giant technical center.

STRENGTH IN TRANSPORT

At the same time, other pro users can be roughly divided into the "professional sound" community (where Dante is just taking over everything not already subsumed by MADI) and the "prosumer" group.

The pro sound people are every bit as concerned about high reliability/high performance as the broadcasters traditionally have been. But it is actually quite a huge difference that they are not as likely to benefit from a high-capacity central router (say, 200 x 200 or larger). For live sound you need the ability to get many signals from the stage to multiple mix points, such as

front-of-house and/or an independent monitor mix location. This needs to be done efficiently and over increasingly long distances. Dante or MADI over fiber from stage boxes to a couple of mix positions fills this need quite nicely with 64 independent signals combined on one digital Category 5 cable.

What live sound doesn't need is a lot of common sources to be shared amongst multiple stages. Even at festivals it's unlikely that anyone would attempt to mix multiple stages in a centralized location. Not a good idea.

So now we find these great AoIP transport systems (like Dante and MADI) being brought over and adapted to broadcast consoles. The top-tier broadcast manufacturers are then building out router controllers in software that allow the core to be distributed into as many locations as needed. Broadcasters require the ability to restrict sources to certain mixer surfaces, so that we can control visibilities and access for easier, less error-prone operation by non-technical people. The key difference is that any and all of these mixers can access any and all of the sources and destinations as they need or want to.

This article is from Radio World's ebook "Trends in Consoles." We've now published more than 65 ebooks on a wide range of topics that are of interest to the broadcast technologist or manager including AoIP, next-gen codecs, cloud technology, digital radio, RDS, DRM, translators and more. All are free to read. Find recent editions by clicking the ebooks section under the Resources tab at radioworld.com.

SIMPLE SYSTEMS

In the third area, prosumer users resemble the old two-room studio sites where a single radio station would have a main and a backup production mixer. In the past, any cross-connections might be handled by an inexpensive router or brute-force wiring of analog/digital pairs. This is also a valid approach for small sound reinforcement systems or home studios. The specific niche for broadcasters is basically the stereo fader and the lack of complicated equalization knobs, which cause a combo announcer more problems than they are worth. There is still a fairly large market for this kind of equipment in the small to medium-size markets or at small public

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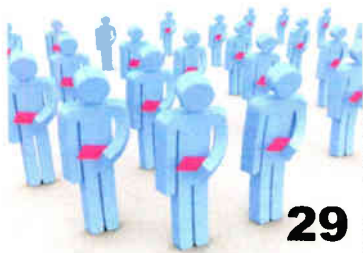
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NRB 2020

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tor of Digital Strategy and UX Yvonne Carlson, Edison Research VP of Music & Research Sean Ross, Finney Media President Chuck Finney, Salem Media Group Senior Vice President Russell R. Hauth and others.

Additionally, several NRB 2020 policy sessions will be headlined by names familiar to news junkies and politicians. U.S. Secretary of Education Betsy DeVos and Attorney General Bill Barr are slated to speak at the event, as are Sen. Marsha Blackburn, R-Tenn., and TBN host and former Arkansas Gov. Mike Huckabee, who have each addressed prior NRB conventions.



The show will convene in Nashville this month.

EXHIBITORS

A sampling of companies that will be represented on the show floor. The full list can be found at <https://tinyurl.com/nrb2020exhibitors>.

- [twelve:thirty] media
- Aberdeen Broadcast Services
- American Amplifier Technologies, LLC
- AMS Agency
- B&H B2B
- Broadcast Concepts
- Broadcast Depot
- Broadcast Software International
- Broadcasters General Store
- Buoyancy Public Relations
- Cars Inc.
- CASTUS
- CDR Communications

- Christian Television Network
- CNLTV
- COICOM
- Comrex
- ComunicadoresUS
- CrossMedia/Lightcast
- CSN International
- DJB Software Inc dba DJBRadio (Digital JukeBox)
- DonorDirect
- Encompass Digital Media
- ENCO Systems
- Faith Radio - WLBF/WSTF/WDYF
- Galcom International
- Grace And Truth Radio
- Haivision
- LBG Marketing Inc.
- Libsyn Pro
- LinkUp Communications
- Live365
- LUMO Project

- MegaVoice
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- Quad Tape Transfer
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- SCMS Inc.
- Shively Labs
- Soliton Systems, Inc.
- Stream Station
- SuperChannel WACX-TV
- Teradek
- Trinet Internet Solutions, Inc.
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- WATC-TV
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FM6

(continued from page 1)

digital LPTVs should be allowed to operate analog radio services as ancillary or supplementary services.

The intent of the ancillary service rule is to permit DTV stations, including LPTVs, to use a portion of their bandwidth to provide ancillary services on a supplemental basis. When a TV station provides such services and charges the consumer for the specialized service, they pay a regulatory fee of 5% of ancillary revenues made to the FCC.

This is not the first time the commission has taken input about FM6 stations;

"Specifically, the FCC can amend its rules to allow currently operating analog TV6 LPTV stations to: (1) continue their analog TV transmissions after the digital transition on a authorized basis; and (2) utilize independent aural and visual transmitters, all subject to the existing requirement that they adhere to existing FCC rules which require they transmit a digital video signal that can be received by an ATSC receiver. Further, the FCC can carefully tailor these rules so they only apply to stations currently operating on analog Channel 6."

The coalition wants the FCC to allow a dual digital LPTV and analog audio signal. "The FCC should authorize

"The 87.7 FM programmers and their LPTV licensee owner are providing the signal free to the public, and should not be charged any fee for doing what is allowable [under] existing rulemaking. Whether a programming service is paying the station licensee a fee to air their programming is irrelevant, and all that matters is that the 87.7 FM signal is free to the public."

"VITAL" COMPONENT

In essence, operators of FM6 stations are asking for an "analog carve-out" for their 87.7 MHz signal as the TV digital transition continues.

La Invasora produces a format that uses the WTBS(LP) 87.7 FM signal to reach a Spanish-language audience in Atlanta. The ancillary audio service is positioned as the "musical mix channel of Mexican Regional and Pop music for Atlanta."

Prism Broadcasting Network, licensee of WTBS(LP), supports grandfathering analog 87.7 FM LPTV stations so that they may continue their "valuable and unique" local programming.

"It is only fair that these ongoing successful programming ventures be allowed to continue to serve their local communities with their local programming," Prism stated in comments.

El Sabor Lazer Radio is a service of Delta Media Corp., broadcasting its Spanish-language programming in Lafayette, La., where it says it is the only commercial Hispanic radio station.

Similarly, AlmaVision Hispanic Network, licensee of TV station WEYS(LP)



El Sabor Lazer Radio is run by Delta Media Corp., broadcasting Spanish-language programming in Lafayette, La.

in Miami, operates AlmaVision Radio on 87.7. It told the FCC that WEYS provides ethnic programming using the FM signal to reach a potential audience of 2.2 million Spanish speakers.

"AlmaVision Hispanic Network supports the grandfathering of analog 87.7 FM LPTV stations such as WEYS(LP) so that they may continue to provide their valuable and unique local programming. It is unquestionably in the public interest that the FCC permit these ongoing successful programming ventures to continue to serve their communities with their local programming," according to the broadcaster.

In addition to providing Spanish programming and music, the Miami broadcaster said it provides emergency alerts in Spanish and has considerable local support from sponsors of content and local events, as well as advertisers.

"The station is a vital religious, educational and civic component of the Spanish-speaking community in the Miami metro area," according to AlmaVision Hispanic Network.

Meanwhile, Lovcom Inc. is the

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The station is a vital religious, educational and civic component of the Spanish-speaking community in the Miami metro area.

— AlmaVision Hispanic Network

it asked these questions back in 2014 without taking subsequent action, and it is now "refreshing" its record.

(More than a decade ago, radio engineers in online discussions began calling such stations "Franken FMs," referring to an unholy mashup reminiscent of Frankenstein's monster; the term was picked up by Radio World and subsequently has found broader use, including among the latest filed comments. Some operators consider the term pejorative.)

The LPTV Spectrum Rights Coalition is a defender of the practice. In fact, the group says it was instrumental in obtaining a five-year extension of the analog sunset.

"There are no legal or technical barriers to extending the authorization of currently operating analog Channel 6 LPTV stations to offer an analog 87.7 FM audio service after the LPTV digital transition," it told the FCC in its comments. It said the commission just needs to modify two rules.

currently operating analog Channel 6 LPTV stations to continue using a portion of their spectrum to provide an analog aural service on 87.7 FM following the digital transition."

The coalition said it doesn't believe the FM6 stations should be charged the 5% ancillary fee for airing the FM signal.

REMEMBERING A TRUE GENTLEMAN, KWENTIN KEENAN

Radio World mourns our colleague Kwentin Keenan, who passed away unexpectedly in January.

He had been associated with our parent company Future U.S. and predecessors IMAS Publishing and NewBay Media since 1998, and was part of our "northern Virginia office family" for many years.

Most recently he managed controlled circulation, production/postal workflows and fulfillment management for Future's business-to-business brands; and he had an earlier indirect connection to Future's history, because years ago he was circulation manager at Broadcasting & Cable, also now a sibling to RW.

Colleagues recalled Kwentin's incredible knowledge about magazine distribution and described him as a real "go-to person." But it was his quiet personal warmth that we particularly mourn, his country-bred humor, his love of baseball, his obvious love for his family. The word that comes up repeatedly is gentleman.

"It would be hard to imagine that Kwentin had any enemies. He was such a gentle soul," expressed Brett Moss. Emily Reigart said, "To work with him was to earn a friend as well as a colleague."



The late Kwentin Keenan is at far left in this 2013 photo with colleagues from Radio World and our sister publications.

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CONSOLES

(continued from page 4)

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HOW LARGE CAN YOU GO?

Getting back to the high-end console manufacturers, the goal is to see how many channels you can move on a segment within the limits of network congestion.

For example, with the WheatNet gear operating at 1 Gbps, you can get about 637 mono streams at 784 kbps (48 kHz sampling, 16-bit depth) to play with, staying below the 50% utilization rate of the transport medium. Paired as audio channels that works out to 318 stereo streams. That's a pretty good-sized router for what it's worth. But if you couple in stream management, physical segmentation and QoS, you can handle routers with hundreds more sources and destinations.

Right now that's about the limit. TDM can't really handle more than that unless you go through some serious hoops. And this is at a very low transport delay number (typically less than 1 msec).

Do broadcasters need 2000 x 2000 routers? I suppose that might happen someday as ownership consolidation combines studios for large number of stations into one location at the national level, using the public internet as an enabler. But that seems to be just a gleam at the moment — although it's quite interesting to think about what one could do with 10 Gbps links everywhere ...

EXTRAS

The addition of video bling to high-end console systems is an "about time" kind of development, finally moving us beyond the simple VU meter bars. Using video screens to look at LUFS level, true peak metering and mix-minus busses to your heart's content is really flashy and at the same time it's very powerful for complex productions. Engineers and operators love this stuff, but don't really have the time to do it all on their own using DIY components and software. Giving us the VGA or HDMI outputs and a way to build touch screens is a huge plus.

Speaking of building screens, the "virtual audio mixer" on a PC is great for all kinds of communications purposes. I'm not a fan of using a laptop virtual mixer in place of a dedicated mix surface, but the ability to custom build a talkback system on a touch screen Surface or iPad is hugely powerful. Include drivers to allow the surface to access its internal speakers and you have a very customizable intercom system built off a portion of the router core.

One other feature that is a recent

offering for broadcast mixers originally comes from what is probably the smallest niche of the audio industry: recording studios. Motorized faders, which have been around forever, are being offered for inclusion on digital boards with event/scene recall. I'm a big fan of this for live mixing. Interestingly, it would also work for those live assist systems that run automation via the mixer. It would certainly be cool to watch it on the overnight shift, if nothing else (you could run programmed color changes on the faders at the top of the hour, just for the delight of mak-

ing this a new engineering art form). Wheatstone's LXE is on top of this if anyone else is intrigued by the idea. For anyone that has mixed live (music mostly but I can certainly see this for a high-energy talk/commentary show), motorized faders and scene recalls are fantastic things.

I wouldn't mind seeing advanced processing (like a six-band compressor/limiter, reverb and sophisticated clipping) built into these things too in the near future. It's just a question of dedicating more DSP to more complex audio functions.

BEST OF ALL WORLDS

Although these three different markets or applications have been the main drivers in console development, it is clear there has been a cross-pollination of ideas between these different branches. In particular, broadcast mixers have been able to take on some of the characteristics of their cousins in Live Sound, and also to adopt some ideas from the recording studio world, such as greatly improved metering and visual monitoring of signals.

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FM6

(continued from page 6)

licensee of KSHW(LP) television in Sheridan, Wyo., broadcasting sports news and commentary for audio listeners over 87.7 FM. The station is listed as a radio affiliate on the websites of Westwood One and the Colorado Rockies Radio Network.

KSHW(LP) wrote: "The station has a loyal following of listeners who would be harmed should the commission move forward with the elimination of analog LPTV service and not provide Lovcom with the ability to distribute its signal on an ancillary or supplemental basis after the digital transition.

"The impending LPTV digital transition does not have to lead to KSHW(LP)'s existing listeners losing access to programming that they listen to on a daily basis. Allowing LPTV stations to continue to operate an analog FM radio-type service on an ancillary or supplementary basis would be a permissible and efficient use of the spectrum," it stated, in comments filed by communications attorney John Garziglia of Womble Bond Dickinson on behalf of Lovcom.

The public was never given notice or a fair opportunity to apply for Channel 6 LPTV stations with the understanding that those stations could fill a dual role as a television and radio station.

— *Multicultural Radio Broadcasting*

Educational Media Foundation is a notable name among those supporting the FM6 stations. EMF is a Christian noncommercial broadcaster that holds licenses for some 300 full-power non-commercial educational broadcast radio stations, many of which operate in the reserved band. But in addition to its full-power stations, EMF airs programming on the analog audio channel of KBKF(LP), San Jose, Calif.

EMF said it sees "no technological or policy reason for ending FM-on-LPTV

service and encourages the commission to allow 87.7 MHz San Jose — and stations like it — to continue using Channel 6 to deliver an audio signal after July 13, 2021."

It concluded: "FM-on-LPTV stations are already operating and not causing interference at the lowest end of the FM band, with the closest NCE channels at 88.1 MHz being second-adjacent and sufficiently protected from interference."

NPR WEIGHS IN

National Public Radio has taken a strong stance against FM6 stations.

NPR said that authorizing low-power Channel 6 TV stations to operate analog FM radio services after the final digital television conversion deadline would be misguided. It calls Franken FM stations "a misuse of public airwaves."

NPR and the public radio community believe they have significant stake in this; they believe these stations pose an ongoing threat of harmful interference to the adjacent FM band reserved for NCE stations.

"So-called Franken FM stations exploit regulatory gaps to transmit a silent video signal for TV receivers and an unrelated audio service for reception

by FM radios tuned to 87.7, with each Franken FM occupying 30 times the spectrum a traditional FM station uses."

If the FCC does not kill off these stations outright, NPR says, it must develop new rules to make sure they don't interfere with noncom signals as well as ensuring that their primary video signal can be received by DTV receiver.

But the LPTV Spectrum Rights Coalition downplayed the issue of interference that has been raised by opponents.

"These concerns are both highly exaggerated within these proceedings and are easily managed in real-world field engineering work. There currently over 20 LPTV stations transmitting analog audio carriers available on 87.7 FM, yet the coalition is not aware of any outstanding complaints about actual interference between the audio signal transmitted by these analog LPTV stations and nearby FM stations on Channels 201 or 202."

So-called Franken FM stations exploit regulatory gaps to transmit a silent video signal for TV receivers and an unrelated audio service for reception by FM radios tuned to 87.7, with each Franken FM occupying 30 times the spectrum a traditional FM station uses.

— *National Public Radio*

QUESTION OF FAIRNESS

Multicultural Radio Broadcasting Inc. operates radio stations in Los Angeles and New York City. It wrote: "At the heart of this matter are issues of basic fairness. The public was never given notice or a fair opportunity to apply for Channel 6 LPTV stations with the understanding that those stations could fill a dual role as a television and radio station.

"Likewise, AM and FM stations in communities where Franken FM stations operate are forced to compete with Channel 6 radio stations that were not authorized to provide FM service. Moreover, these Channel 6 radio stations compete directly with radio stations on an uneven playing field because Franken FMs are not subject to the same regulatory and financial obligations as other full service stations."

Effectively, Franken FMs operate with the same power as a Class A full-service FM station, according to Multicultural.

Other detractors say FM6 stations are not EAS-compliant and that they pay lower fees to copyright agencies, such as BMI and ASCAP, creating an

unlevel competitive situation for other FMs that do.

Common Frequency Inc., a non-profit that promotes community and college radio, wrote: "The commission writes, 'Historically, some analog LPTV stations licensed on Channel 6 have operated with very limited visual programming and an audio signal that is programmed like a radio station.' This is a polite way of stating that these LPTV facilities have ignored Section 73.682 of the commission's rules and have been broadcasting at 300% of the allowable audio modulation to market itself as a radio station at 87.7 MHz on the FM dial instead of a television station.

"The issue here is continuing this service ... would require an aberrant special carve-out of new rules to fit within the commission's current rules if operated as an FM station."

The National Association of Broadcasters has never established a position on the FM6 issue, according to a spokesman.

Reply comments in MB Docket No. 03-185 were due to the FCC in early February.

NEWSROUNDUP

C-BAND: FCC Chairman Ajit Pai laid out a proposal to auction 280 MHz of C-Band spectrum for 5G services. His plan includes reimbursement of incumbent fixed satellite companies for costs caused by the resulting repack. The NAB called it "an important step towards ensuring a stable C-Band ecosystem following reallocation."

Provisions are expected to reimburse incumbent radio stations with C-Band earth stations that must be adapted. "There has been extensive discussion of the work and costs that could be incurred by incumbent earth stations, those who were properly registered with the commission, and the possible costs they'll be reimbursed for such as new filters, potentially labor costs to repaint antennas or installing of new antennas," according to a senior FCC official. Details were not available in early February.

The C-Band is used by satellite companies to distribute audio and video to broadcasters and others. They are expected to be repacked to the upper 200 megahertz of the band (4.0–4.2 GHz). Pai's plan would make the lower 280 megahertz of the C-Band (3.7–3.98 GHz) available for flexible use, including 5G, through public auction, which the chairman wants to begin in December.



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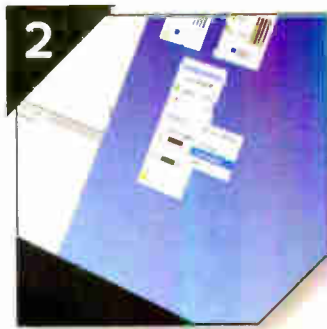
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IR: Don't Just "Point and Shoot"

Here are a few tips to prevent false hot spot readings

WORKBENCH

by John Bisset

Email Workbench tips to johnbisset@gmail.com

Dan Grimes handles radio broadcast maintenance for the Southwest Region of Faith Communications Corp.

Dan recently took advantage of a Telos-sponsored tips webinar provided

by the Society of Broadcast Engineers. He picked up on one of the tips provided by Richard Wood, an independent consultant and principal of Resonant Results Ltd. Richard performs infrared camera inspections for all types of facilities, among other services.

In the SBE presentation, I share some of Richard's photos, showing "hot spots" detected by his inspections.

Many of these are at rigid line junctions, or elbows, where a bullet is overheating and ready to fail.

Richard's service becomes an insurance of sorts for stations that do not want to endure the catastrophic failure of a bullet and transmission line — potentially costing the station tens of thousands of dollars in repairs and lost revenue.

Dan has been performing this



Fig. 1: Dan's IR SEEK Camera, available from Amazon, Grainger and Allied Electronics.

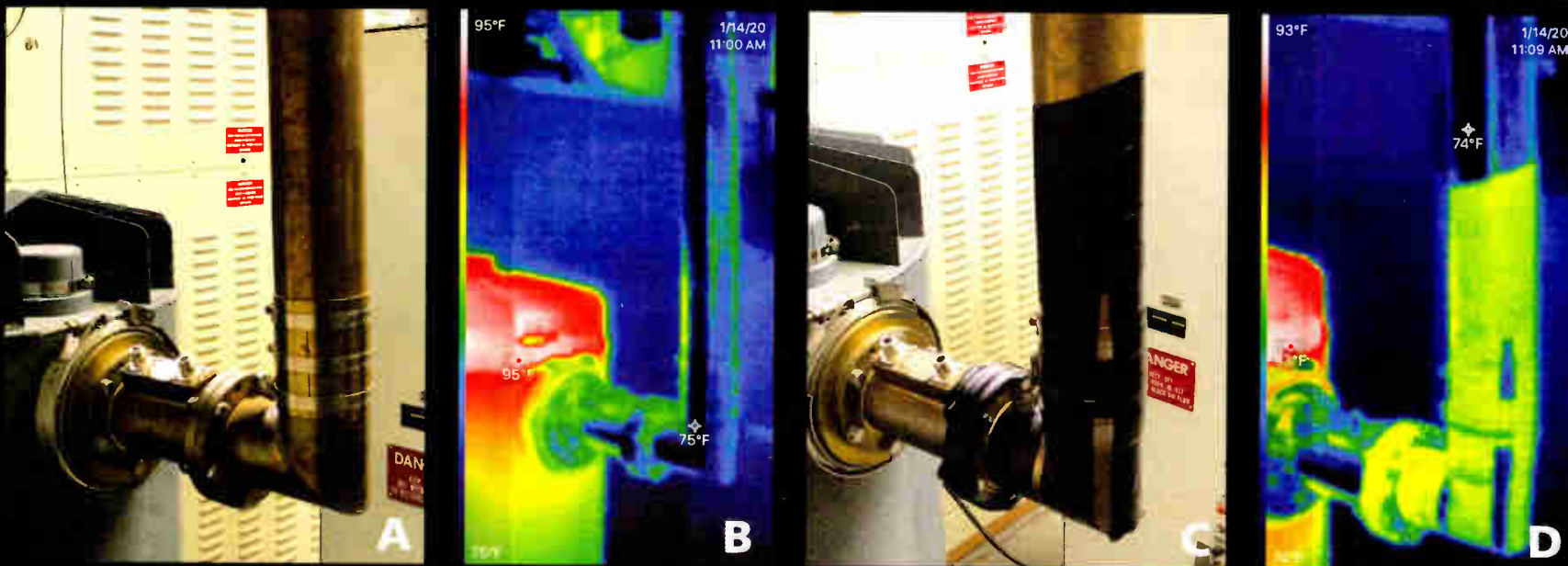


Fig. 2: (A) Rigid Line Elbow – Angle 1 at filter; (B) the IR image with no tape covering the line; (C) black tape covering the suspect right angle, reducing reflections; (D) the IR image with black tape covering the elbow.

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maintenance inspection for the Faith Communications Corp. stations for some time. Dan uses both the Seek IR camera (www.thermal.com/compact-series.html) and an Etekcity IR gun (www.etekcity.com/product/100245). His warning is that both instruments can give false results when looking at a brass rigid transmission line.

The brass is simply an IR reflector, so the reading turns out to be whatever the brass is reflecting. If a cold door is opposite the line, it reads cold. Turn over to the other side where there is a warm transmitter, and it reads hot.

When you have a dilemma, you turn to an expert. In this case, I contacted Richard Wood, who said that false readings are actually common in IR work. The key word is emissivity.

Richard provided a site that discusses the different reflected versus transmitted values of thermal energy from an object: www.thermoworks.com/emissivity-table.

Richard added that when he took IR

(continued on page 12)

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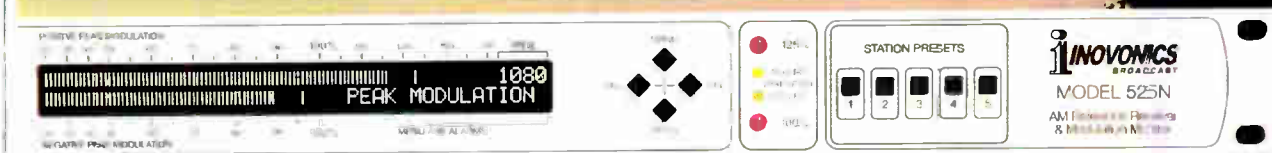
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WORKBENCH

(continued from page 10)

training, they showed how to make a highly reflective object easier to “read.” The trick was — yep, you guessed it — Scotch 33 Tape. You cover the area to be measured with the black tape, and then you measure the object, not the reflected IR value.



Fig. 3: Elbow number 2, measured with the IR temperature gun.

Higher-end cameras allow the operator to adjust the emissivity level of the measurement, but I think you’ll find the black tape is less expensive!

Richard also typically moves around to different angles when testing new transmission lines or highly polished

brass and aluminum.

Richard pointed out another key feature in any measurement device — the spot size ratio. This is the pattern measurement area at a given distance. Even though there may be a “laser” pointer, that does not mean that that is the only point measured.

So Richard’s suggestion is not to just “point and shoot.” Instead, put Scotch 33 tape on the elbows you want to measure. Then use the thermal gun at the same physical distance point each time. The result will be repeatable values that can be put in a log. An easy way to accomplish this is to tape the line and an X on the floor for the measurement target and send points.

Dan provided several images to demonstrate this effect “with and without black tape.” The results are seen in Figs. 2, 4 and 5.

Richard Wood and Resonant Results can be reached at 1-608-839-3930.

The SBE membership drive is underway. If you opt for SBE MemberPlus membership, you’ll have access to the library of all SBE webinars — including the Workbench Tips Webinar.

These webinars are an excellent resource for engineering education — whether you’re new to the industry or an old salt like me, but still learning!

Head to the website www.sbe.org for more information.

John Bisset has spent 50 years in the broadcasting industry and is still learning. He handles western U.S. radio sales for the Telos Alliance. He holds CPBE certification with the Society of Broadcast Engineers and is a past recipient of the SBE’s Educator of the Year Award.

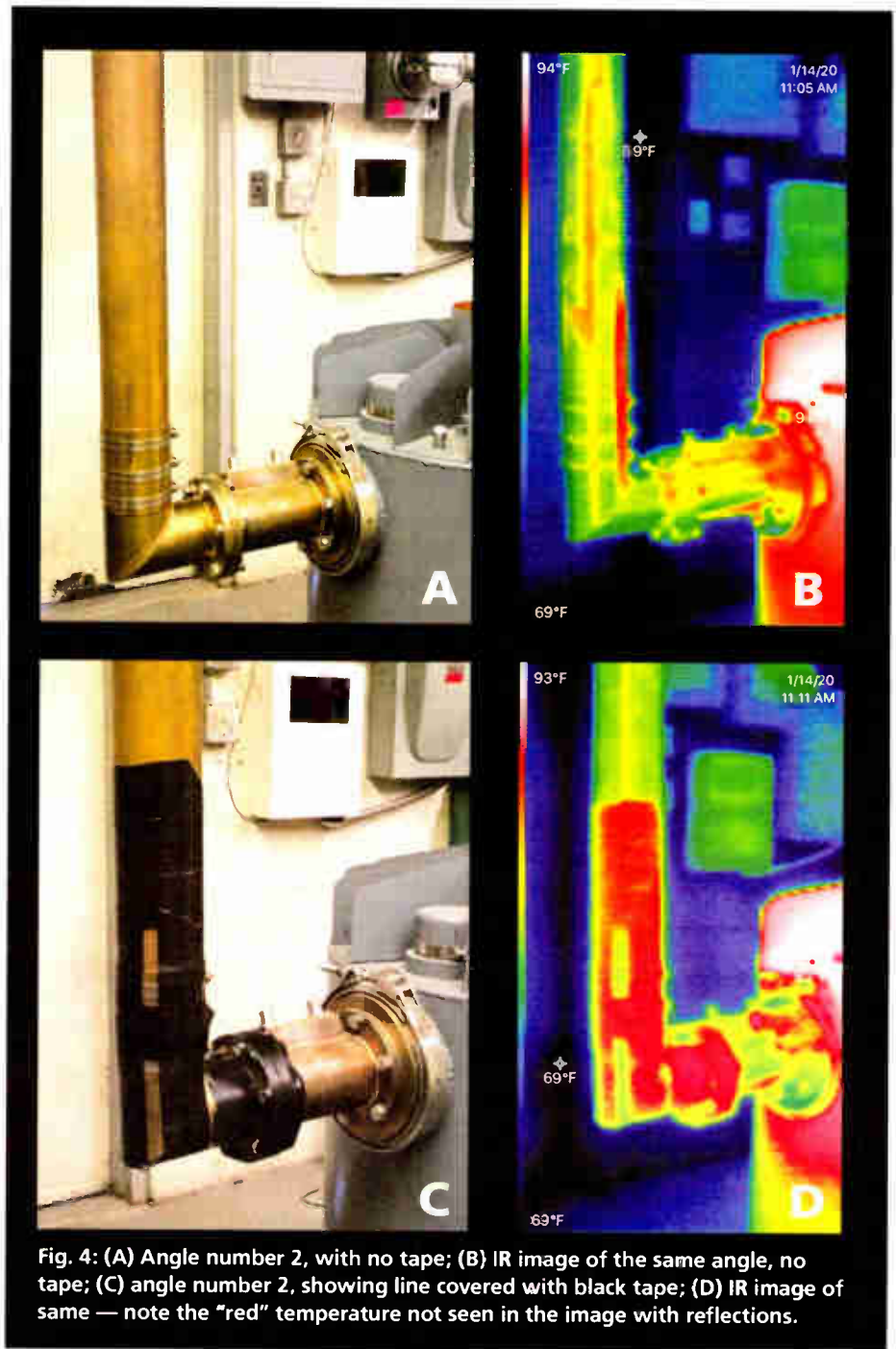


Fig. 4: (A) Angle number 2, with no tape; (B) IR image of the same angle, no tape; (C) angle number 2, showing line covered with black tape; (D) IR image of same — note the “red” temperature not seen in the image with reflections.

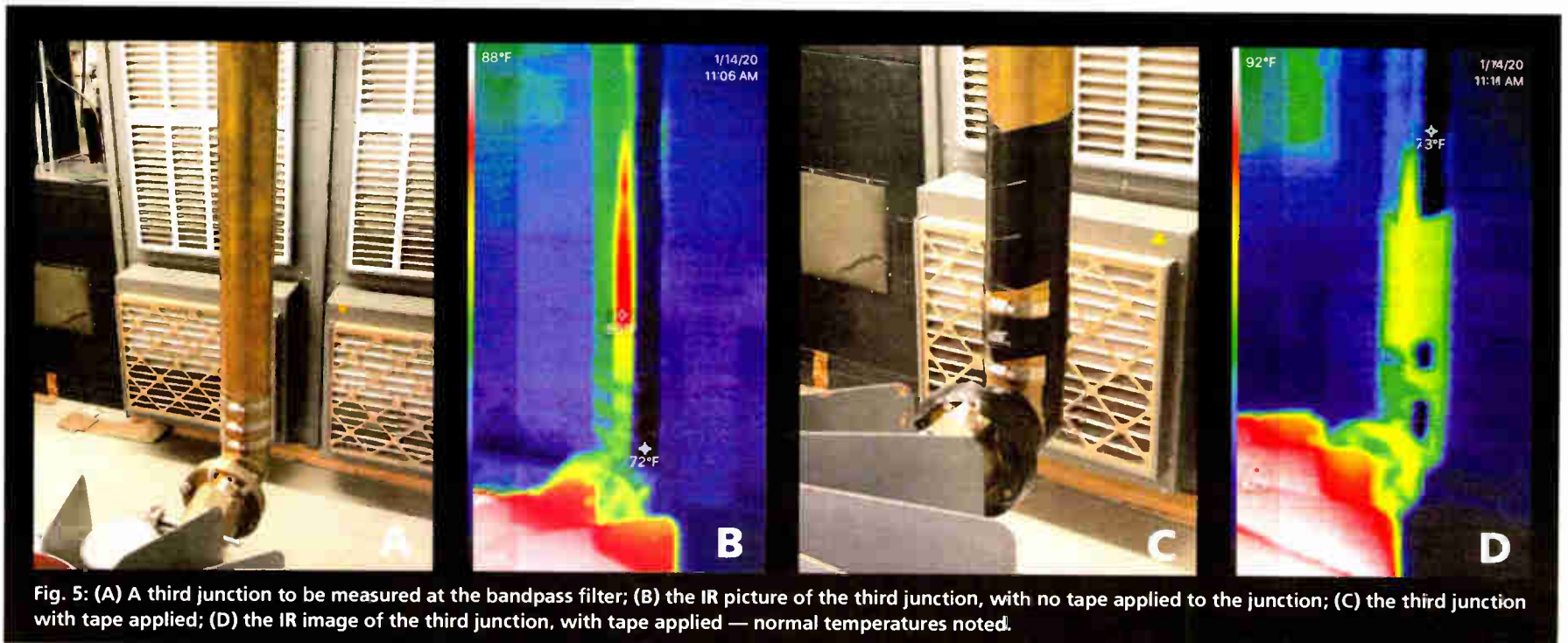
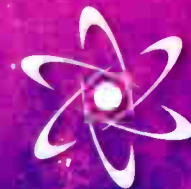


Fig. 5: (A) A third junction to be measured at the bandpass filter; (B) the IR picture of the third junction, with no tape applied to the junction; (C) the third junction with tape applied; (D) the IR image of the third junction, with tape applied — normal temperatures noted.

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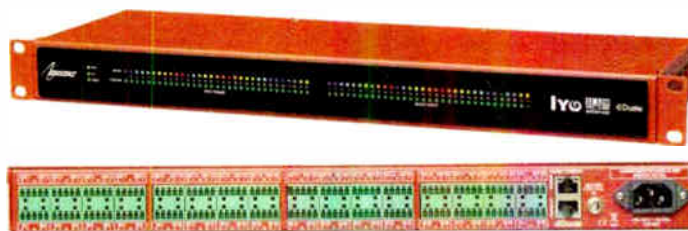
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MARKETPLACE

Inner Circle of Audio: Audio interface developer AudioScience has announced that its Iyo Dante line of interfaces now supports the Livewire+ AES67 audio over IP protocol.

Most Livewire+ AES67 devices can stream audio to and from an Iyo Dante interface including Axia Livewire+-enabled consoles and mix engines using the Livewire low-latency streaming format.

Because it supports the Livewire+ AES67 discovery and routing protocols the Iyo Dante and its Livewire+ AES67-compatible streams can be discovered and connected using Telos Pathfinder Core Pro VM/appliance or the legacy PathfinderPro software.



cost-effective and superior density solution in a 1RU.”

AudioScience has prepared instructions for making the best of the new feature, available on the website.

Info: www.audioscience.com



Audio in the Palm: The Adam Hall Group has unveiled its Palmer brand's new active studio monitor, the Studimon 5.

The Studimon 5 comes in compact bass reflex housing with wooden side-walls. It has a 5-inch ferrite custom subwoofer, 0.75-inch neodymium silk diaphragm tweeter, and a frequency response of 70 Hz to 20 kHz.

The two-way monitor, with an output power of two 30 W (RMS) amplifiers is intended for home studios as well as professional audio environments. The back of the Studimon 5 features a 1/4-inch jack and XLR inputs, and a volume controller for tuning stereo balance.

The Studiomon 5 is priced at \$269 each.

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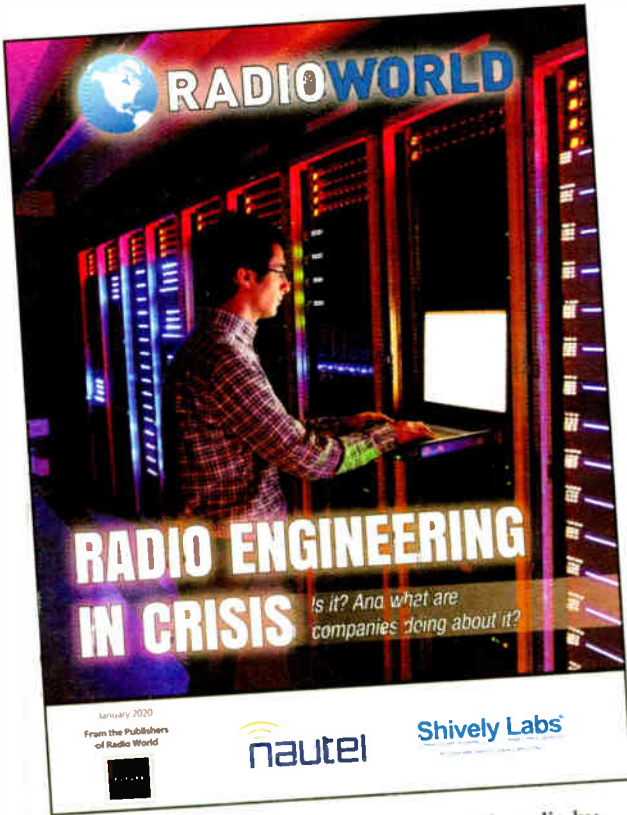
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Workbench
by John Bisset

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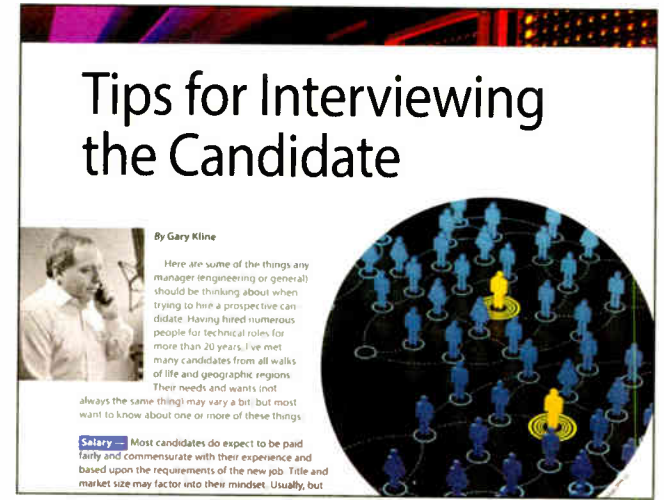
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“It Will Take a Change of Mindset”

A sampling of comments from social media about RW’s ebook “Radio Engineering in Crisis”

“That’s a good read. I like Gary Kline’s contribution around interviewing new engineers, specifically around site and equipment condition. As an engineer the condition of equipment is usually high on my priority list, especially if I am being called in to fix something urgently.”



The comments here were posted to social media by readers of the Radio World ebook “Radio Engineering in Crisis.” Read it at www.radioworld.com/ebooks.

“This has been a serious problem for a while. It is getting worse as more technologists retire. Employers need to increase pay and incentives to turn this around.”

(continued on page 18)

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(continued on page 18)



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ENGINEERING IN CRISIS

(continued from page 16)

“One must continue to listen, learn and love their chosen professional calling. This requires licensing certification and continuing education to stay on top of their game.”

“Ditching the high-power RF may be possible around urban areas, but rural areas will get the shaft. Due to terrain shielding, DSL is the only option with 800k download and 300k upload ... using remnants of the old Ma Bell co-ax system. Executives at the top still get their big raises and perks annually, but rural areas are ignored. Cellular service ... I essentially live in a cellular 'white area' ... and the FCC doesn't care about serving rural areas ... the FCC talks loud and says and does nothing.”

“The status quo is in serious danger, but radio will adapt to the engineering shortage. I can foresee entire stations moving into the cloud, and a greater reliance on manufacturers' field service. The broadcast engineer of the future will likely become a data center technician or a frequent flier, and there will be many fewer of us.”

“The other challenge is senior broadcast techs who are tired and can't really be bothered passing the baton to new engineers. I was involved in a short-term project where I saw many of the broadcast techs were 60+ years old. There's nothing wrong with that; however ... their energy levels were fading, they were no longer excited to be at the forefront ... Meanwhile company management had no succession ideas because to them it wasn't a problem. To me, it's all about the seven traits of a good engineer, including continuous learning, serving as mentors, good tech and listening skills — these are key to empowering the next generation of people who will need to be both IT techs and broadcast engineers for a sustainable future.”

“You can't get engineers or engineering groups involved in changing the mindset of management. That has to come from other management groups, otherwise it looks like a self-serving exercise. It will take a change of mindset at the local, regional and corporate management levels. This is a problem that has been warned about for decades and it is currently on the cusp of crisis. In 10 years, it will be too late.”

“I was working for an AM/FM combo when in college and fully expected to stay in the business. Then industry came calling with a 50% premium to go with them. Never looked back and it appears things headed down hill after that day. I still have my license but that doesn't seem to be important anymore. As industry has done, most maintenance is contracted out to manufacturers now, so if I were to be in the business, I'd look at the OEM for work. MBAs have decided it doesn't cost as much to do that.”

“There's much more RF work in mobile networks, home/metro internet and emergency communications, automotive systems, industrial IoT, military and even space systems. In practice, it may or may not require a degree, depending on level of design or debug or deep sales activity vs just installing.”

“To attract broadcast radio engineers, the industry needs to respect the job position and compensate accordingly. Turn to the cell industry for your compensation and benefit template, then sweeten the deal a bit more.”

“I learned about RF as a teenager with ham radio. That helped me with my first phone and AM/FM transmitters. After college I drifted into TV post. But I still have a love for RF. Is there a future for young RF inclined engineers? Does it take an IEEE degree and will it pay above scale?”

“Broadcast engineers are an endangered species, there is no doubt. I'm grateful to have worked in a time when at least some management respected and valued their tech staff. The thought of being tied to a pager and having a dozen sites to worry over is not appealing to anyone with 'a life.' I loved working on transmitters (in well-cared-for sites) and designing user-friendly broadcast studios, but that was 'back in the day' when such settings weren't uncommon (at least in this market). Seeing the neglected TX sites owned by venture capitalists, I'm glad to be retired.”

To comment on this or any other story, email radioworld@futurenet.com with "Letter to the Editor" in the subject field.

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USERREPORT

BY KEVIN COLLINS
Independent Engineer

BOSTON — For approximately 10 years, I worked for the New England Patriots football team. I didn't have any radio skills when I began, but over the course of my first five years, I learned how to be an engineer and how to produce great radio. About a year ago, I decided to venture out on my own as an independent engineer, working with radio and podcasting clients.

I now work with several organizations, and much of my time is spent working with Boston College. I oversee their football, basketball and hockey programming in a chief engineering role. Additionally, I do color commentary for their away basketball games. I played basketball all through college and studied journalism, so working as a color commentator is a natural fit.

Recently, I purchased an Access NX (and finally retired my old Access 2USB, which I had owned for seven years). To broadcast college sports games, we connect with IMG Learfield, which owns over 100 Access units. When it's time to connect, I get in touch with my guy, find out which studio he's working from, select his Access unit from a dropdown menu and hit connect. It's that simple.

The beauty of Access is once we set up connection presets with IMG, we can now see all the different units they have online. So when it's time to connect, I can see the status of all their Access units, and I don't need to enter additional information at any point.

When I was introduced to Access,

I was really intimidated. I was originally taught to use ISDN, and I wasn't sure what to do when IP codecs started

to take over. I didn't want to let go of my ISDN, but after getting some pretty simple instructions and diving into the



user manual, I discovered that IP codecs are even easier to use than ISDN.

CONNECTIONS

Not to mention, IP codecs are much more convenient to travel with. IP connections don't take up a ton of bandwidth, so as long as you're not sharing your connection with anything, you're all set. Most arenas these days have a dedicated network for handling home and visiting radio, so when I'm traveling around the country, there's usually reliable high-speed internet. Because networks are solid, it's very rare that I get a lot of dropped packets or struggle to connect. IP networks are everywhere now, which makes IP codecs very easy to use.

When I began buying equipment to start working independently, I ultimately chose to buy a Comrex Access because I preferred the user interface. I also like having the portable Access mixer available.

I usually travel with a large Mackie audio mixer, and rarely use the Access mixer, but if I ever need a very bare-bones set up, it's a great solution. I also regularly send it out with talent if they won't have access to an engineer. It's plug-and-play and takes no real tech experience to set up; all they need is the Access, mixer, microphones and some headsets.

In my opinion, Access is the best IP codec I've worked with, and arguably the best one in the market. In the eight years I've been using one, I've never had a major problem. If I have anything minor, I know that I can call the support team and get dedicated, knowledgeable experts who will be able to answer my questions.

Comrex loaner units are also a lifesaver. I once had one for three weeks, when my unit was acting up right before the Super Bowl. Comrex took my Access in for repair and gave me a lovely portable travel unit as a loan, free of charge, no questions asked. There are very few places in this line of work, or in any line of work, that give you that level of attention to detail and customer service.

For information, contact Chris Crump at Comrex in Massachusetts at 1-978-784-1776 or visit www.comrex.com.

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SONIFEX PUTS DANTE INTO COMMENTATOR UNITS

The AVN-CU2-Dante is a portable commentator unit using Dante AoIP. The AVN-CU2-Dante provides two mic/line inputs with a wide, adjustable gain range and has two stereo headphone outputs with lockable jack sockets, suitable for operation by two commentators.

It's powered using power over Ethernet (PoE), using Neutrik EtherCON connectors, with primary and secondary ports for power and data redundancy. There's an additional four-pin XLR 12V DC input.

The unit supports up to 16 input and output AoIP channels and up to 16 simultaneous input and output AoIP streams. The six push button rotary encoders and 12 key-cap buttons are fully configurable, to control input and output levels and panning.

Each rotary encoder has a separate color-coded meter section showing the channel name, detailed

level metering, left/right panning and a limiter indication, on a bright daylight reading display. Colors can be programmed per encoder to quickly identify particular source groups, so headphone source selection becomes intuitive.

Metering is available per input/output, with output metering configurable as pre- or post-level adjustment. The top of the display shows output metering, a limiter indication and the name of the output, a predefined logo or nothing. A limiter is available on every output.

Four wire I/O on rear panel RJ45 connectors provide

an AES3 or analog input and output that can be assigned as mic outputs (line level), talkback outputs, program inputs or talkback inputs as desired. In addition, the AES/analog connections can be used as an insert or exit point into/out from the AoIP network.

The AVN-CU4-Dante is a dual version of the AVN-CU2-Dante providing four mic/line inputs with a wide, adjustable gain range and four stereo headphone outputs with lockable jack sockets, suitable for operation by three or four commentators.

For information, contact Sonifex in England at +44-1933-650700 or visit www.sonifex.co.uk.



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

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USERREPORT

BY SEAN FAHEY
Senior Broadcast Radio Engineer
BYU Broadcasting

PROVO, UTAH — In the fall of 2016, as a senior broadcast engineer, I was given the engineering responsibility for studio and transmission functions for the radio stations at BYU Broadcasting, which is located on the Brigham Young University campus in Provo, Utah. The radio stations consist of KBYU(FM) 89.1 MHz HD, BYU Radio HD2, and KUMT(FM) 107.9 KHz.

At the broadcast center, BYU Radio, in concert with the BYU Athletics department, produce and provide play-by-play and game analysis, for football, basketball, soccer and baseball games live over air, including webstreams. In 2018, we also assumed responsibility for the distribution of our live sporting events to our radio affiliates.

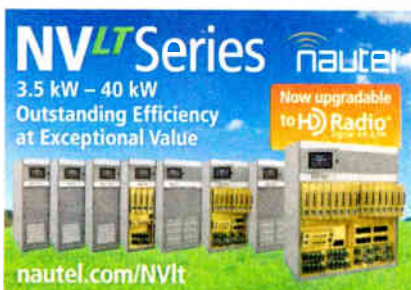
With this new responsibility added to the mix of our radio sports operation, there was a separate request to increase the number of live sporting events. This means we can air two, occasionally three, different sporting events simultaneously. However, we can't hire four or five remote engineers and send them jet setting across the USA — that cost was not an option for us. But there was another way.

With the exception of football, our sports announcers are required to travel with the remote mixing gear, and then mix/engineer their own shows.

Of course, that is a double-edged sword! Doing this reduces the amount of engineers needed to travel, but then you are relying on your talent to have at least some basic audio mixing skills.

SOLUTION

To perform this miracle, I needed to find a magical box. A remote unit that would be ridiculously easy to use, insanely versatile and, last of all, be intrinsically redundant like never before.



Play-by-play announcer Greg Wrubell, pregame and postgame show host Ben Bagley and color analyst Riley Nelson team up with the Tieline ViA.

When I attended the NAB Show last year, I visited the Tieline booth. I had previously purchased a Tieline product called Merlin. What a great name for a product that comes from a company that I consider to be the wizards of remote connectivity.

I was so impressed with this unit, I wanted to give Tieline the first crack at this unknown magic box I had conjured up, a Swiss Army Knife of radio remote codec units. I was not expecting to get all of the requirements on my list checked off. Well, to my amazement Tieline did have one such unit in its arsenal of remote weaponry: the ViA.

I have no idea why it's called the ViA, but after my demo, ViA stands for

Very Intelligent Apparatus. My magic box was a reality.

ViA is a compact unit that can handle a three-headset mix, plus one aux bus that can have analog, digital, or USB sources routed to it. It features a beautiful touchscreen display that makes navigating menus a breeze and is equipped with a good size rechargeable battery, which will keep you on the air and running when the power goes out. (Trust me I know.) It includes AGC, compression, gating, filters, EQ on each channel. Also, there's a built-in SD card stereo/mono recorder and playback device with full library recall, custom playlist option, mixing ability and a full blown matrix and cue routing control.

There are more features on this box that I could write about, but consider this: A person can take this little unit, add the new dual LTE module and three headsets on the road, set up in the middle of nowhere with no power, connect up with dual bonded LTE SIM cards and broadcast for two hours without a hitch. You'll quickly become a believer in Tieline. ViA is the real deal.

CCC

Let me finish by commenting on a Tieline product that works with their remote gear line, which of course includes the ViA. This product is the Cloud Codec Controller.

No matter where the ViA is located in the U.S., as long as it is turned on with an internet connection (LAN, LTE or wireless) and assigned an IP address, I will be able to connect to the unit via the CCC software and have complete control of it. And I really mean *complete* control, just as if I were standing right in front of the unit itself.

That was the feature that won my full allegiance to the Tieline company. It gave me the peace of mind and confidence that sending the ViA on the road with no engineer, is not only doable, but is now the active protocol. In reality, there really is an engineer with the unit: he just happens to be sitting at his desk computer back at the station, making any necessary adjustments.

The Tieline ViA was a golden find. As for Tieline, they are the Swiss Army Knife of remote radio broadcasting.

For information, contact Dawn Shewmaker at Tieline US in Indiana at 1-888-211-6989 or visit www.tieline.com.

TECHUPDATE

AETA OFFERS SPORTS REPORTING SOLUTIONS

AETA Audio System says it has customized the ScoopTeam commentary unit for use at major sporting events.

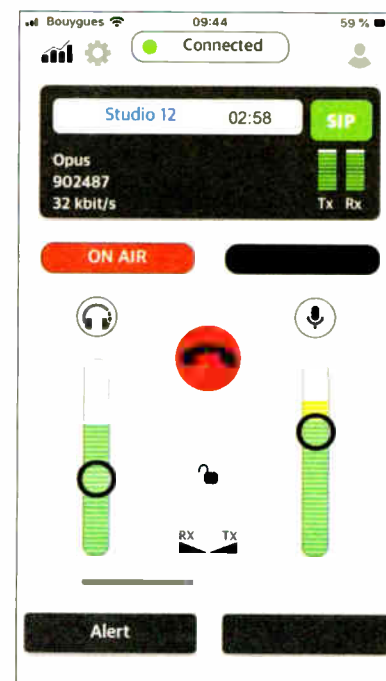
To do so, the company has added Dante technology to the commentary unit, which it says allows ScoopTeam to be integrated into any event configuration. In addition, AETA can also downgrade ScoopTeam, depending on clients' needs.

AETA has also strengthened its ScoopTeam's IP link with bonding capability in case broadcasters don't use AES67/ Ravenna/Dante. The device already featured redundant dual-streaming that enables backup in case of network failure, but with added bonding capability the company explains that the IP link will go through even where little bandwidth is available.

"These characteristics, in addition to the unit's HD Voice feature, means that ScoopTeam, as well as other AETA devices can efficiently stream from sporting events," said the firm.

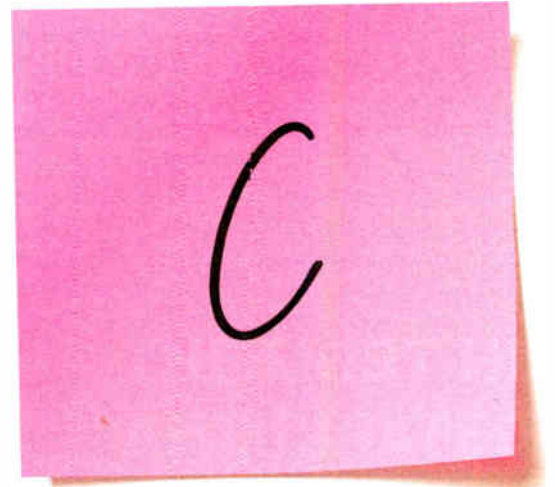
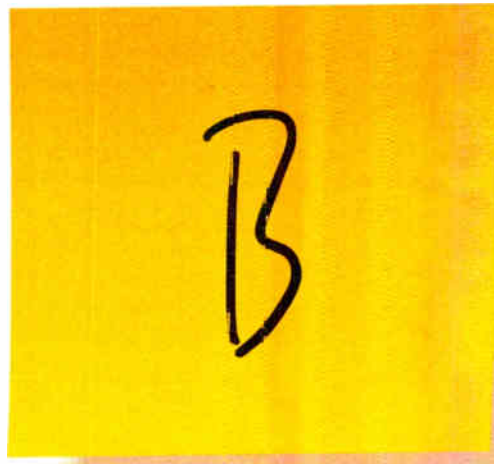
AETA also offers the new eScoopfone for smaller broadcasters who want to offer their audience live sports coverage with a single reporter. eScoopfone runs on the AETA SIP server and is downloadable free of charge from the Apple Store.

For information, contact AETA Audio Systems in France at +33-1-41-36-12-00 or visit www.aeta-audio.com.





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Sports Pods Are Ideal for Play-by-Play

Another Henry Engineering blue box that does the simple things right

USERREPORT

BY TOM WHITE
Digital Media Instructor/Athletics
Video Producer
Morgan County High School

MADISON, GA. — Prior to teaching, I was in radio. During that time products from Henry Engineering were everywhere. We used a ton of different tools depending on what we needed and they all seemed to be Henry Engineering. From analog to digital conversion to cough boxes, we used them all.

We are able to have professional-level communication and a simple user interface for our broadcasts.

During a basketball broadcast, my play-by-play guy got choked up a bit and started to cough. Before I could mute his mic (I was producing that game), he snatched his headphones off and started coughing. As you know, there are very few things as startling and amateur sounding as someone taking off a hot headset but when you have to cough, you have no choice. I started researching inexpensive solutions and found more than I bargained for.

Henry Engineering Sports Pod is the solution I needed. The Sports Pod is an "announcer's mini-console" that gives each announcer control of his (or her) mic and headphones. Each announcer can turn the mic on or off; talk-back to the producer; and custom-mix their



headphone audio. Now my talent can not only turn their own microphone on and off but they can communicate with me off air anytime they need do.

Our previous setup required me to turn their microphone off and on as well as mute it to use back channels on the mixer for off-air communication. This is OK 90% of the time but if the talent wants something from the producer, they have to give a visual sign or some other means of communicating. Using

the Sports Pod allows my air talent to simply hit the talkback button and ask for a stat or whatever else they may need.

The unit is about the size of a small book and can sit flat or be placed on an angle with the optional desk-mount. The front panel is simple — three buttons (mic on, cough, talkback), two knobs (local and return level controls for headphone mix) and two switches that allow you to choose left, right, or

center headphone channels for local and return audio.

The rear of the unit is a bit more complex but still simple enough to wire correctly in no time. There are two 1/4-inch TRS inputs and two 1/4-inch TRS outputs. The inputs are local headphone audio (main mix from the board) and return feed (IFB for producer audio). The outputs are talkback (off-air communication with producer) and headphones for the talent. There are two XLR connections (input from talent microphone/output to audio mixer). There is also a 12 V power connection on the back.

The Sports Pod as a standalone unit is an incredible asset to our broadcast plan. We are able to have professional-level communication and a simple user interface for our broadcasts. For even more convenience and total audio control, we also use Henry's SportsCaster, which combines all mixing, headphone audio distribution, and intercom functions into one comprehensive and compact 1-RU system.

The system is easy to set up. There are no problems at all getting it up and running in minutes. Henry now offers a retractable desk stand that can be folded-down for easy transport and storage.

For information, contact Hank Landsberg at Henry Engineering in California at 1-562-493-3589 or visit www.henryeng.com.

TECHUPDATE

NEW SPORTSCASTER DIGITAL AUDIO NETWORK INTERFACE FROM GLENSOUND

GlenSound's new MinFerno is a sportscaster audio interface for Dante/AES67 networks. The single mic/line 48 V input includes GlenSound's Referee compressor/limiter ensuring the input virtually never clips. The high headroom and design of the mic preamp provides a clear and consistent studio grade signal that does not require further processing. There are 1/8-inch and 1/4-inch jack sockets for headphone connections, and a single three-pin XLR input. The MinFerno is very small and compact.

Different versions are available giving up to three talkback outputs and inputs. There are large and bright multicolored keys (between one to four) that can be configured as cough buttons, push to talk or latching keys that route (or mute) the mic to the relevant Dante outputs. There are one-four inputs for headphone monitoring, that each have their own level pot to get the desired headphone mix. Each input can be routed to the left ear, right ear or both in the headphones.

There is also a level control that adjusts the sportscasters own voice level in their headphones.

There is a web browser interface across the network that allows remote control of the input levels, input type and push button configuration.

For reliability there are redundant copper and fiber network interfaces and redundant power supplies.

For information, contact GlenSound in England at +44 (0)1622 753662 or visit www.glenSound.co.uk





WORLDCAST APT MOBILE SURESTREAMER BRINGS LOW LATENCY TO REMOTES

WorldCast Systems says its APT Mobile SureStreamer (MSSr) mobile network access solution "significantly improves" the performance of live remotes and outside broadcasts.

The company explains that the system, which is compatible with most IP codecs, is easy to use and that it offers zero dropouts, jitter and lowest latency.

The core technology behind the solution is SureStream, which Worldcast says promises redundant audio/video distribution between the field and the studio. In addition to redundant streaming over 3G/4G/5G public internet links, SureStream employs proprietary techniques to optimize the delivery of all streams throughout the network. It also implements a resequencing engine that produces one reconstructed stream from the multiple streams received.

In addition, APT Mobile SureStreamer's TCP-free signal chain ensures a latency of less than one second, allowing content providers to broadcast simultaneously from multiple locations for applications such as split-location radio shows or multi-arena sports coverage.

The APT Mobile SureStreamer is suitable for a variety of remote applications from desktop remotes, sports casting, OB vans and any on-the-field news reporting.

For information, contact APT/WorldCast in Florida 1-305-249-3110 or visit www.worldcastsys.com.

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TECHUPDATES

DIGIGRAM IQOYA TALK
TARGETS SPORTS REPORTING

Digigram says its Iqoya Talk is built for live remote-broadcast operations. The portable codec is suitable for sports commentary, music festivals and small and large outside broadcasts.

Iqoya Talk has two independent SIP connections for mono or stereo program and two talkbacks. It also features an audio recorder.

In addition, with three mic/line inputs and four headphone outputs that can be individually mixed, Iqoya Talk enables up to four journalists and guests to participate in the field report.

The company explains that Iqoya Talk is designed like a smartphone and is easy to use. Commands are accessible through a five-inch LCD touchscreen. It also has a rotary-knob in the middle of the device, which enables quick access to relevant on-field settings.

Users can configure the Iqoya Talk with predefined scenarios in the studio, and then stream audio content through a large number of wired or wireless "last-mile" connections.

It features two independent and hot-swappable Li-ion batteries and, according to the company, can be used for up to 12 hours without interruption.

For information, contact Digigram/Synthax in Florida at 1-754-206-4220 or visit www.digigram.com or www.synthax.com.

TELOS IPORT AUGMENTS
REMOTE OPTIONS

Rack space is a precious commodity, especially for remote broadcasts. The Telos Alliance says that's why its engineers designed the Telos iPort Plus with up to 16 broadcast-quality stereo codecs in one 2 RU device.

The Telos iPort Plus is intended for sending and receiving multiple channels of audio over IP connections. iPort Plus works over different IP connections such as VPNs, satellite links, Ethernet radio systems and telco or ISP-provided QoS-controlled IP connections.

The recent iPort software release V2.2.2 adds to the powerful Livewire AoIP connectivity with support for AES67 in vMode.

iPort can be used for studio-transmitter links, network audio distribution systems or multichannel links to remote studios. Create links between two or more remote studios by putting an iPort Plus at each end, and pass audio and GPIO between locations easily.

Paired with an appropriate streaming server, users can have Telos iPort Plus generate multiple channels of MP3 or AAC-coded audio for internet streaming, broadcasting to mobile phones and audio distribution systems. If AoIP studios are unavailable, pair with Telos Alliance xNodes to make a standalone high-density audio codec package.

For information, contact The Telos Alliance in Ohio at 1-216-241-7225 or visit www.telosalliance.com.

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AEQ Phoenix Alio Helps Antenna Hungária

Features and sturdy design make IP codec useful for visiting international broadcasters

USERREPORT

BY TIBOR ORBAN
General Manager
Ringnet

BUDAPEST — Budapest is a city involved in European sports events.

Antenna Hungária is a member of the European Broadcast Union and one of the largest audiovisual service companies in Hungary. It has extensive facilities and highly qualified personnel to provide production services in Hungary for customers in radio, television and telecommunications.

Antenna Hungária has a large fleet of OB vans and recently it was the designated host broadcaster for the European Men's and Women's Water Polo Championships. This competition was held in Budapest's Duna Arena from Jan. 14 to 26 with the participation of 16 countries: Germany, Croatia, Slovenia, Spain, France, Georgia, Greece, Hungary, Italy, Malta, Montenegro, Netherlands, Romania, Russia, Serbia and Turkey.

To be able to offer the highest broadcast quality audio for the unilateral commentary signals from the event, Antenna Hungária chose AEQ's Phoenix Alio portable IP audio codecs. Hungarian Integrator systems' integrator Ringnet (www.ringnet.hu) supplied five units to service fully equipped commentary positions for the Rights-Holding Broadcasters at this edition of the championship.



The commentary service includes technical support to the RHBs, provided by Antenna Hungária in its role as host broadcaster. Such services usually involve operational and communication issues. AEQ, in turn, supported Antenna Hungária whenever required.

SPORTS BROADCASTING

Several top-level broadcasters from Serbia, Croatia, Malta and Greece have taken up this practice. The links are mostly done by RTP protocol, and some broadcasters register the codecs on their own SIP server as an additional means of ensuring the link.

Antenna Hungária said the AEQ Phoenix Alio was effective in simple and flexible use and operation for the sports coverage. It is also able to cover other types of events such as concerts thanks to its stereo signal transmission capability. The broadcaster also uses it to broadcast political and social events.

Alio can be controlled remotely from an app, which allows it to be handled by inexperienced users. It is sometimes given to journalists for remote reporting and guest appearances in programs via public internet connections. The Alio is controlled from the station. It has

a "help" button for requesting remote technical support.

Alio is ideal for sports broadcasting. First, it can work with two independent full-duplex circuits, one for program and one for coordination. Also, because it has equalization for the microphones, it can mix the international stereo sound. Furthermore, its compact and solid design optimizes it for use outdoors with users and equipment renters, who might not always be careful with the equipment.

To interface with broadcasters in other countries, Alio can connect to other codecs from most manufacturers thanks to the SIP communications protocol (N/ACIP Tech 3326 EBU standard). This avoids requiring visiting broadcasters having to send their own equipment to events.

When connecting Alio to another AEQ codec, users can take advantage of an exclusive set of tools that makes the establishment of communication and the control of the unit a simple task, including SIP and IP (RTP) connectivity, with a simplified connection tool called Smart RTP.

For information, contact AEQ in Spain at +34-91-686-1300 or visit www.aeq.eu.

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

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MISCELLANEOUS

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

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

Looking for KSFJ radio shows, Disco 104 FM, 1975-1978. R Tamm, 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 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, KSFJ, KOBY,

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KCBS, KQW, KRE, KTIM, KYA, etc, I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@yahoo.com.

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

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

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(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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Several Optimod 8100As available for sale. In working condition when removed with little or no cosmetic blemishes. \$500 or best offer. May require recapping and alignment. Steve Tuzeneu 704-973-0438 (9 a.m. to 4 p.m. Eastern, Monday-Friday) or stuzeneu@bbnmedia.org

QE1 FMQ 3000B. Working when removed. Make an offer. Steve Tuzeneu 704-973-0438 (9 a.m. to 4 p.m. Eastern, Monday-Friday) or stuzeneu@bbnmedia.org

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Have Layoffs Done Collateral Damage to Radio?

Broadcasters seeking to save money may find cuts don't help their bottom line

COMMENTARY

BY FRED JACOBS

This article was originally posted on the JacobLog from Jacobs Media Strategies.

Politics and radio are strange bedfellows, indeed.

We start with a senator from Ohio, Sherrod Brown and an odd mashup with radio. Aside from considering a run for president this year (he wisely decided against it), Brown made some headlines of his own in January.

It seems that in the middle of only the third impeachment hearing in the history of this 240 year-old republic, the senator from the Buckeye State felt it was important enough to write a letter to Bob Pittman.

Many of you no doubt saw his missive in the industry trades. Pointing directly to the mass layoffs in radio, Brown asked iHeartMedia's CEO to explain the downsizing of so many stations — especially in his home state. Among other concerns — including executive compensation and bonuses — Brown asked Pittman to respond to these questions by Feb. 14. I've abbreviated them below:

1. How many workers were fired (and how many from Ohio)?
2. What type of severance and health care benefits did they receive and for how long?
3. Will these employees be given priority for open positioning in the future?
4. Will these terminated employees receive training to help them qualify for new jobs?

Good questions all.

But the strange part is why a U.S. senator embroiled in one of the most controversial events in American history is even bothering to swoop in and ask questions about what is going on in broadcast radio.

Sherrod Brown is not the only one, nor is iHeartMedia the only company involved in layoffs these past few months. For an industry that has trouble agreeing on what belongs in the dashboard and how Nielsen should conduct the ratings, the radio industry has sadly

come together on the issue of downsizing, terminations, layoffs, reductions in force, "dislocations" and whatever else you call them.

And the world is taking notice.

It's an understatement, of course, but this is a challenging time for radio, perhaps the most trying since the medium became part of the American culture. Capitalism isn't always pretty, and we're watching its scary side at work here, as companies duke it out to survive in this roiling, highly charged environment.

Every industry — including tech — has been on the hot seat, balancing growth and sustainability, trying to figure out how to carve out a meaningful future, while maintaining quarter by quarter performance that sates investors and stakeholders.

In the commercial radio world, the pain is coursing through the hallways, conference rooms, cubicles and jock lounges. There are well more than 1,000 people and their families impacted by this latest round of cuts.

MAKING THE NEWS

There have been tough times in broadcast radio here in the U.S. before, but now it's experiencing all sorts of blowback — just the type of bad PR it doesn't need.

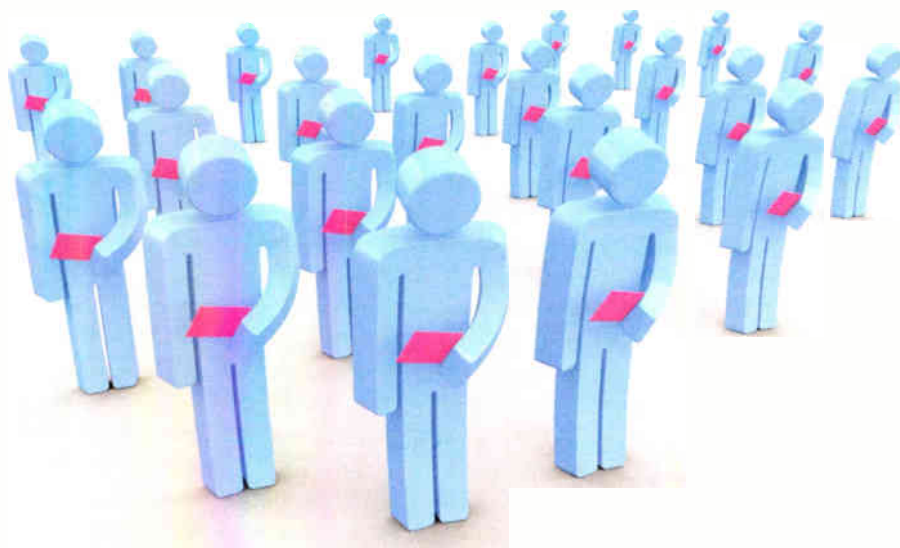
Especially now.

For an industry that rightfully prides itself on its good deeds during times of disaster — national and otherwise — as well as year-round fundraising and charitable pursuits, this negative coverage of broadcast radio at the beginning of a tenuous new year isn't just unfortunate; it's disturbing and troublesome.

If you search "radio layoffs" under Google News, you can now see the torrent of results that pop up — all 150,000+ of them.

This top group of search results all involve iHeart, but the more you scroll, the more stories you see — from Rolling Stone, the Washington Post and Robert Feder's well-read blog, "Robservations," to stories in smaller town publications like the Arkansas Business Journal, the Post and Courier (Charleston, S.C.) and the Daily Voice (White Plains, N.Y).

Then there was this blaring headline



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from *Syracuse.com*, an online news site published by the Post-Standard: "Does iHeartMedia have more radio stations than local DJs in Syracuse now?"

Ouch.

And the main message of these stories has been consistent, despite the widely varying markets and communities: Most lament the loss of air personalities, many of whom have commented or whose social media feeds have been clogged with outraged, aghast fans.

Interestingly, most of these DJs, shows and hosts haven't expressed anger toward their former employers. In fact, many feel bad their voice is no longer being heard, often addressing the outpouring of emotion from fans.

Many also are partial commentaries on the state of the commercial radio business in the U.S. — or in their communities. Some wonder why some of the industry's biggest companies are in the forefront of these layoffs. Others question the validity of claims like "live & local" in the face of these cutbacks.

Even the story of those six Des Moines DJs who got their jobs back after a pressure campaign from advertisers and listeners got coverage — by Rolling Stone no less — was no salve on the wounds. In fact, it only served

to reinforce perceptions that big, bad companies are inexplicably and arbitrarily firing some of their most popular people.

RADIO'S PR BATTLE

P.T. Barnum, one of the greatest showmen of all time, once observed, "There's no such thing as bad publicity." But that's a myth. These days, bad news travels faster than ever before, thanks to the power, efficiency and economy of the internet in general and social media specifically.

There's no question radio — and all traditional media — have been under the gun financially. All the hyperbole in the world from the industry's captains doesn't mitigate the damage caused by the bad press that has accompanied this newest round of firings. Radio wasn't exactly being treated as a media darling before this newest wave of axings went into effect, and newspapers have historically enjoyed dancing on radio's grave — a key competitor for local revenue.

And while the companies in the forefront of these layoffs were all hoping to achieve economic savings, pay down debt and transition their efforts, you have to wonder if the collateral

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LAYOFFS

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damage inflicted by these policies might not backfire on many fronts — sales, listenership and even the attractiveness of broadcast radio to younger generations.

We have often discussed the need for the radio industry to tell its story, but its story is now being told by media outlets with no qualms about throwing broadcasters under the bus. Radio can ill afford a wave of negative PR, questioning its efficacy as a local medium, as the coverage spins out of control.

Yes, these cuts are painful. But most radio companies have a strategic purpose behind these moves. Investment in digital personnel and services is part of the narrative. This may not make legacy workers feel any more comfortable, but it's a reality of what the radio broadcasting industry is enduring. These new hires may not offset the losses, but they show that companies are not standing pat while they face competitive headwinds.

There's a term in business — customer-facing. It refers to businesses that

deal directly with consumers. And there are customer-facing employees — the barista who prepares your latte every morning, the receptionist at your dentist's office who helps you set appointments, the knowledgeable geek at the electronics store who helps you make the best decisions.

And in the case of radio stations, the people on the air who cheerily wake us up every morning, who deliver the news and traffic information, who turn us on to new music and local concerts, who energize and anger us with their controversial views, who send us off to bed each night are the "listener-facing employees."

When they disappear from the airwaves, the audience knows. They're the people who are often the faces of their stations.

The role of on-air talent shouldn't be underestimated, even for companies that have run their analyses, their reports and their forecasts about who's expendable, who's making too much money, who isn't pulling their weight. While Wall Street may (temporarily) applaud these efforts, the audience doesn't care about these

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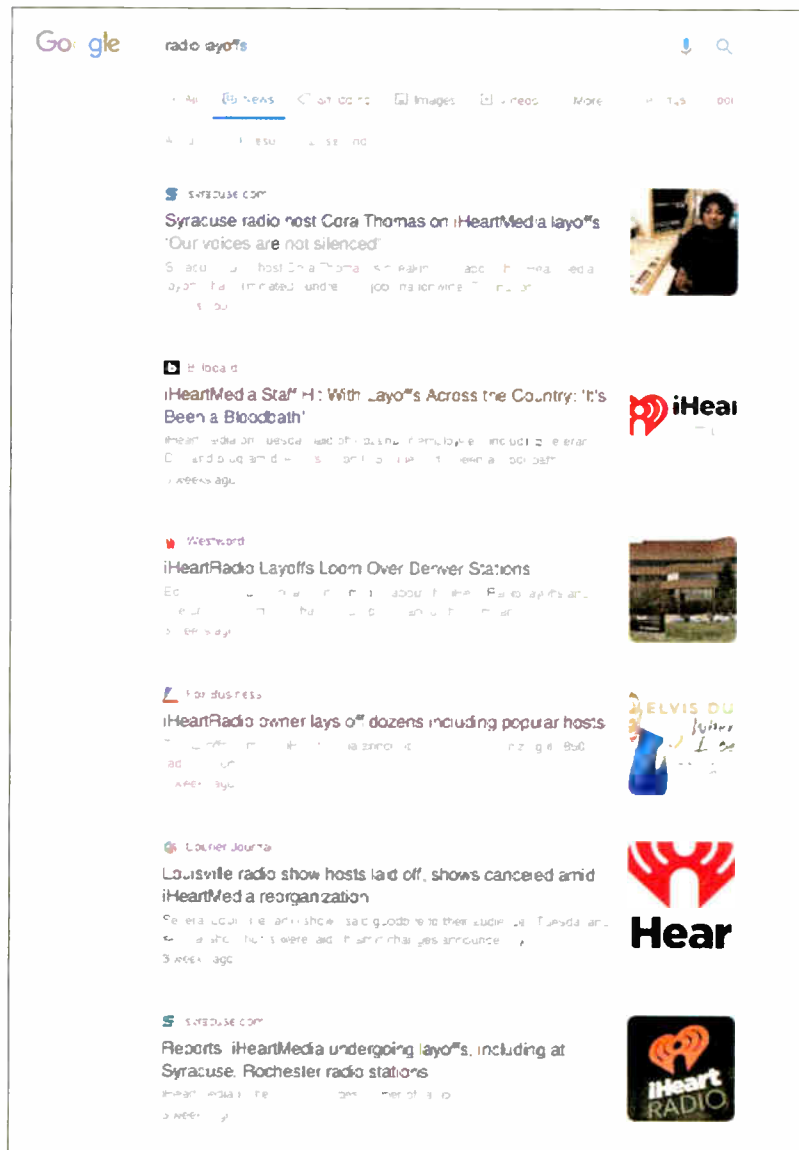
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A quick Google search shows how iHeart news dominated the narrative, but it's far from the only broadcaster making these types of decisions.

factors nor should they be expected to.

Think about it — what's the first thing people say to you once they find out you're in the radio business? "Oh, are you on the air? Have I heard you on the radio?"

Paul Jacobs spends an amazing amount of time with local radio sales teams. And he reports that stations without a viable morning show often feel they have a distinct disadvantage, preventing them from garnering premium rates.

Far be it for me to offer advice to radio broadcasters about whether to slash and who should get pink-slipped. As you might expect, these cutbacks have impacted our business as well.

But the effects of radio's staff reductions are more apparent when they're focused on denizens of the air studio. Few actually notice if a sales manager, a production director, an office assistant or a consultant gets the ax. (And that's not to say people in those job categories don't contribute, because, of course, they do. But the noise is always louder when an on-air radio companion is given her walking papers.)

I've blogged about the often intangible value of air personalities here before — a lot. And that's because in the big

scheme of things, it's the people on the radio that move the needle, that make us laugh, tick us off, and move us to visit a phone store or a car dealership. There's more to planning cuts on a spreadsheet than simply looking at the hard numbers.

In fact, the ROI cliché might be better expressed on ROR — or return on reductions. How much money was truly saved this time around? And what is the collateral damage that's been inflicted on radio as a result?

It remains to be seen whether Bob Pittman will respond to Sen. Brown. And if so, how will he frame his answers to those questions?

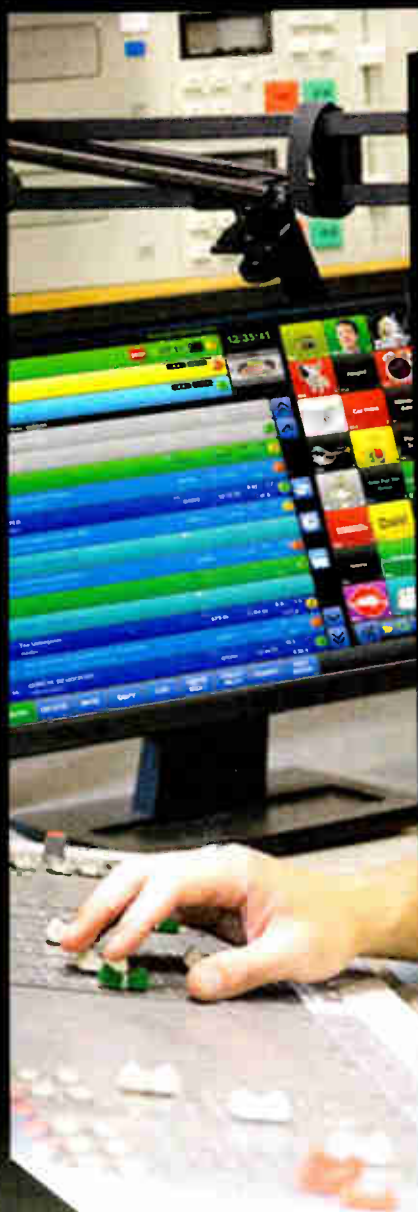
We're only two months into 2020, so it's too early to know what — if any — impact the industry might experience from this event.

The affect on how stations sound, and their appearance to audiences and advertisers may not be known or felt for a long time. But there is a cost to savings, and radio is more than a spreadsheet.

For another insight, let's turn to another P.T. Barnum quote: "Nobody ever lost a dollar by underestimating the taste of the American public."

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