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What could be better?

A question for you

Paul McLane
Editor in chief

How can Radio World do better?

It's my goal to make our content as helpful and interesting to you as possible. Today I'm asking you to tell me how we can improve it.

I want RW stories to help you with your career. Do they?

I want our articles to help you understand changes in technology and how they might affect you or the organization you work for. Do they?

I aim to meet Radio World's goal of bringing buyers and sellers together, to promote a vigorous marketplace for radio and audio technology. How are we doing?

I love to celebrate the history and personalities of radio, especially radio technology, while balancing that with an embrace of today's tools and tomorrow's important trends. Do we meet that goal?

Do our print and digital editions meet your needs? Do you read Radio World's daily SmartBrief newsletter? Are we reaching you on the right social media platforms like LinkedIn, Facebook and Twitter? Should we be using different outlets instead?

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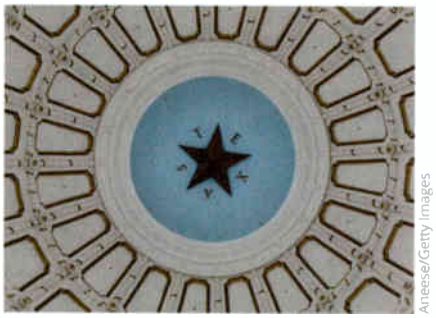

Aneese/Getty Images

The Texas Association of Broadcasters is among those against a proposal that would require broadcasters to submit status reports after hurricanes and other disasters.

The FCC is weighing participation in its web-based Disaster Information Reporting System, which currently is voluntary.

TAB encouraged the FCC to "remain flexible," to ensure broadcasters are not forced to neglect audiences and operations during ongoing emergencies. It said mandating that stations file merely to confirm that they are still on the air would distract from filings by stations seeking FCC assistance in obtaining fuel for generators or access for employees to studios and transmitters.

"The FCC should instead focus its efforts on promoting broadcast station resilience in emergencies by working with state, local and other federal agencies prior to a disaster to ensure procedures and resources are in place so that a DIRS filing requesting fuel or help with employee access to a disaster area will lead to rapid governmental assistance to keep stations operating," it wrote.

The NAB also is on record opposing the move.

Saurer Named Media Bureau Chief

FCC Chairwoman Jessica Rosenworcel named Holly Saurer to head the Media Bureau.

Saurer has held several positions including deputy bureau chief, associate bureau chief, senior legal advisor and attorney-advisor with the Media Bureau's Policy Division. She also has experience working in the offices of individual commissioners.

For the past year, she was legal advisor of media for Rosenworcel. Before that, she served as an acting media advisor for Rosenworcel and for former Commissioner Mignon Clyburn. She was an international and consumer affairs legal advisor for former Chairman Tom Wheeler.

Prior to joining the commission, Saurer worked at the Washington, D.C., offices of Drinker Biddle & Reath and Miller & Van Eaton.

Saurer replaces Michelle Carey, who had served as chief of the Media Bureau since May 2017. Carey stays on as a deputy chief in that bureau.

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Visual component growing in importance

Koenig says visual elements will play a bigger role in audio and radio products

Writer

Randy J. Stine

Radio World's lead news contributor interviewed Commissioner Nathan Simington in the Jan. 19 issue.

A top Consumer Technology Association executive says the global technology market remains stout and that consumers are adopting new tech at an accelerated pace — all of which has implications for radio and audio companies.

Steve Koenig, vice president of research, says the future of tech innovation is healthy and fueled by demand from consumers for breakthroughs that add convenience and simplicity to their everyday lives.

He spoke after the conclusion of the Consumer Electronics Show in Las Vegas in January.

Among the announcements and debuts at the convention, the biggest headline was probably the simple fact that the convention was held in person.

But key trends showcased at CES included artificial intelligence and 5G, which Koenig believes will serve as the "connective tissue" for innovation and as the building blocks of the metaverse, this year's buzzword.

Koenig said there's plenty happening in audio.

"There was a lot of innovation [at CES] across the audio spectrum — featuring listening products, but also a variety of innovations that will impact the future opportunity of audio and, by extension, broadcast radio," he said.

"A lot of innovation in personal audio, what we're seeing in true wireless ear buds, for example, and in home theater and home audio. Smart speakers have populated and in some ways democratized listening around the house, since people tend to have several of them in dens, kitchens and bedrooms."

Koenig also says the "visual element" is fast becoming a focus for audio products.

"In a lot of the vehicles shown at CES, there was a premium on monitors. For instance, Togg [a Turkish automaker] had a dashboard that was one giant screen, similar to the Mercedes-Benz Hyperscreen we have seen before," he said.

He calls this the "screenification" of the automobile, and those bigger and additional video screens for both the front and rear seats have crucial import.

"Radio broadcasters need to utilize that space, because a lot of others are. Streaming audio and other connected services coming into connected vehicles utilize that screen real estate for drivers and occupants." He said this

Above
Steve Koenig is seen on-screen during a live-streamed event at the CES show.

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development spotlights the importance of the metadata carried by many broadcast and streaming signals.

He sees the role of radio evolving as it adds various dimensions. "It is similar to what has happened to Next-Gen TV. It could be shopping, maps or other services that accompany the traditional broadcast service. I see this happening for radio broadcasters, which will increase opportunities for sponsorship and advertising deals. In the end, it's a deeper engagement with the consumer."

Broadcast radio's familiarity to consumers is a strength, he said, but radio faces does face challenges as entertainment becomes more immersive.

"Broadcast radio is a very accessible and familiar medium, of course. We don't track engagement, but what I can say is that consumers enjoy a mosaic of audio sources. Obviously podcasts and streaming music collections are growing in popularity; but still I think a lot of people enjoy radio."

He declined to say whether he thinks broadcasters are doing enough strategically to adapt to increased competition, specifically in the dashboard. But he believes radio has a lot of options to amplify its business model and enhance the media experience for consumers.

"They have to engage with a variety of different partners, whether it is automakers or other possibilities. But there is a chance to remake radio and align it with a more visual element and add appeal to consumers."

The mobility sector at CES had more than 200 companies in the new West Hall of the Las Vegas Convention Center, including automakers with self-driving cars and electric vehicles. Many vehicle exhibits exploited interior technology touting audio and video with additional media displays, Koenig said.

Broadcast radio was represented in the transportation section by Xperi's exhibit of DTS AutoStage, its hybrid radio platform that merges IP connectivity and broadcast reception, promising a richer user experience similar to the offerings of digital pure-play services and satellite radio.

DTS AutoStage "is one of these market plays that is trying to deliver what consumers are asking for," Koenig said. "Consumers endorse options and abhor complexity. So a platform or system to allow them to partake in a variety radio and audio streams across their interest areas will resonate."

Consumer behavior

Supply chain issues and computer chip shortages were topics of conversation at CES, Koenig said, but much of the focus was on artificial intelligence, including how it can learn the behaviors of consumers across the audio ecosystem. He said companies are leveraging AI in more applications and every economic sector, from manufacturing to entertainment.

"AI is getting better so it can do more things. There are a lot of flavors of AI for consumers across different devices, from smart speakers and your phone to your new car. AI will learn behavior and knows what a person likes to listen to and it gets to a point where it is predictive. AI can learn patterns and help tech goods anticipate what the consumer expects."

CES Videos
Watch several show videos including keynotes at *www.ces.tech*.

Autonomous automobiles open up a new world for media entertainment and productivity, Koenig said. The extension of that is the range of opportunities via screens through internet connectivity in the car cabin.

"When you consider how these technologies will allow consumers access to entertainment and content via the cloud, things will really start to get interesting," he said. "Cloud computing and online gaming [in the car] will also be possible."

CTA believes consumers maintain their appetite for new technology thanks in part to the "season of the pandemic," Koenig said.

"We have seen historically high demand for consumer technology the past two years. By spending more time at home and needing to bolster work productivity, school and education and entertainment, consumers are leveling up their tec — smart home devices and smart phones. Smart doorbells. You can also include services like connected fitness and online ordering for groceries and even telemedicine. The level of adoption of new technology by households has been at an all-time high."

> **"We have seen historically high demand for consumer technology the past two years."**

Koenig projects that consumer spending on hardware, software and services in the United States will reach $505 billion, a 2.8% growth over 2021.

"Once consumers get a taste for these things, they tend to spend more on them. Why? Because it is delivering value and convenience and making life better."

And then there's the metaverse.

"The metaverse isn't something we build and then we have it," Koenig said. "To me it's the next generation of the internet, with enhanced connectivity that will deliver increasingly immersive digital experiences through virtual reality. And these next-generation experiences will over time become inextricably linked to our physical reality."

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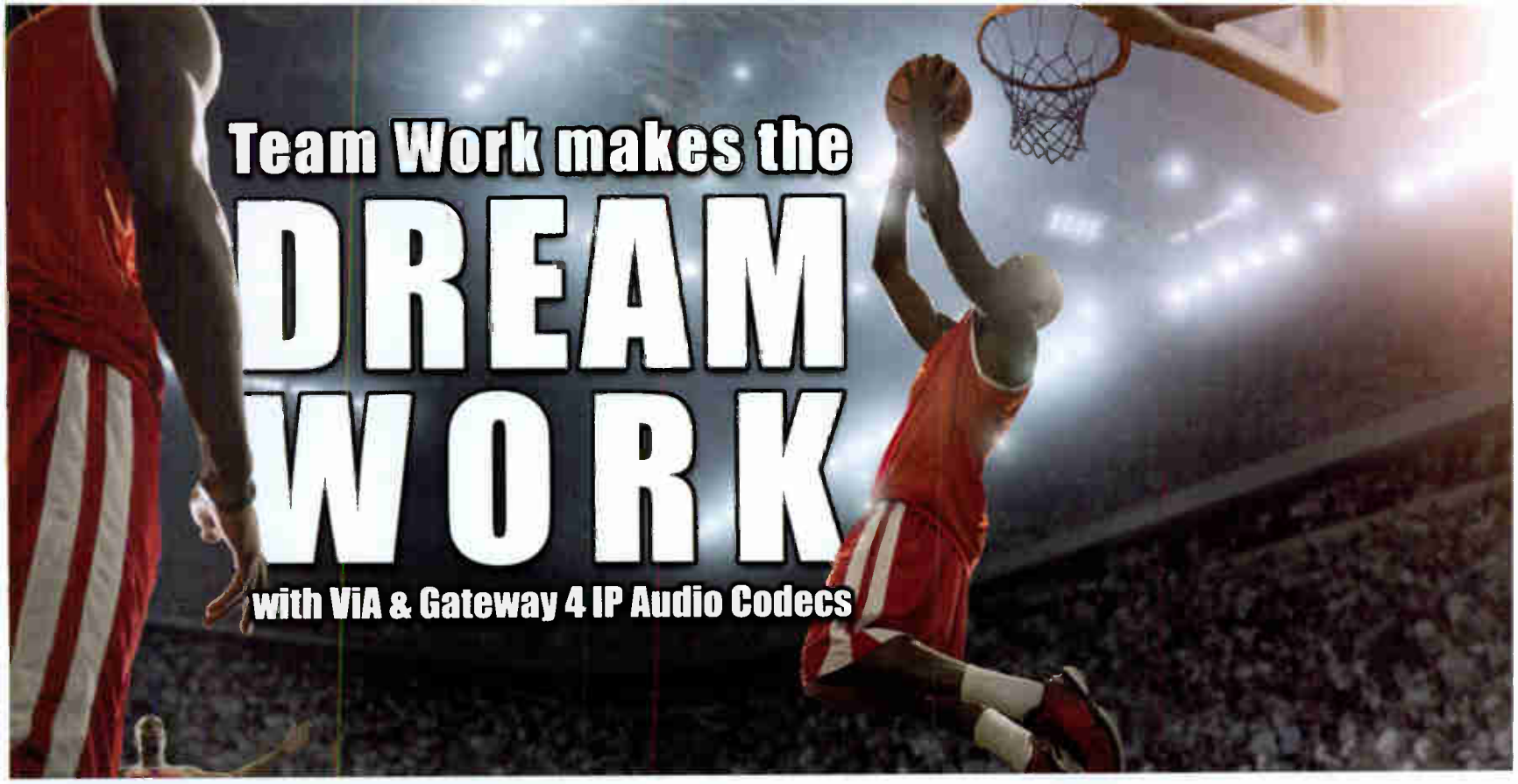

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Writer
Paul McLane
Editor in Chief

WABC lobby offers a nod to history

Visitors know where they are right away

This photo shows the lobby of facilities built in 2020 by Red Apple Media to serve iconic New York City station 77 WABC as well as wabcradio.TV, 107.1 WLIR Riverhead and Red Apple Audio Networks.

Dan Hirschl, vice president of engineering for Red Apple Media, shared this picture for Radio World's new ebook about recent studio projects, but we thought the lobby photo was interesting on its own as well.

"The goal was to capture WABC through the years through traditional printed signage and video presentation," said Hirschl.

"Visitors to our floor need to know where they are from the moment they step off the elevator."

Among people and events celebrated are iconic broadcasters Lowell Thomas and "Cousin Brucie" Morrow; the change in call letters from WJZ to WABC in 1953; the station's dominance of the AM dial in the 1960s ("More people listen to WABC than to any other radio station in North America"); and its acquisition from Cumulus by businessman John Catsimatidis, finalized in 2020.

"The build included three news desks, two talk studios with associated control rooms, two production rooms, video control room and a TV studio/live performance area," Hirschl said. "WABC needed to move from our legacy studios at 2 Penn Plaza not only because of the sale, but because of building-wide renovations and lease complications."

The ebook "Spectacular Radio Studios" includes projects by other leading broadcasters including Educational Media Foundation, Audacy, Cumulus, Nashville Public Radio, Hubbard Media, CBC/Radio-Canada and numerous others. You can access it free at radioworld.com/ebooks.

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John Bisset
CPBE

With more than 50 years in broadcasting, the author is in his 31st year writing Workbench. He handles western U.S. radio sales for the Telos Alliance and is a past recipient of the SBE's Educator of the Year Award.

Tips please
Workbench submissions are encouraged and qualify for SBE recertification credit. Email *johnpbisset@gmail.com*.

Above
A simple fixture to lift grounds and swap conductors as you correct for Pin 1 problems.

Adaptors help solve pesky Pin 1 problems

Also, some options for lubricating locks when things get cold

San Francisco Projects Engineer Bill Ruck and I have been conversing via email about the Pin 1 grounding issue discussed in Workbench in December and January, especially the problem encountered when interfacing gear to an outside source, such as an event sound contractor.

Bill built up a variety of XLR adaptors that he keeps organized in one of those black cotton bags found at Harbor Freight. The first photo shows his male and female XLRs brought out to a barrier strip.

This adaptor makes lifting grounds or switching "HOT" pins on the XLR easier than disassembling and resoldering connector pins. Now Bill can try different configurations with only a screwdriver and see what works best. He can also change from balanced to unbalanced by moving the lugs on the barrier strip.

The rig in the second photo (see page 14) can be used in a similar fashion, as it brings the terminals out to alligator clips. Bill made up two other adaptors, seen in the third image. On the left, this jumper has Pins 2 and 3 reversed. The assembly on the right lifts the ground, Pin 1.

You'll note that Bill took advantage of his labeling machine to identify all the adaptors and to include his name — less of a chance of something "walking off."

Bill also provided a link to an interesting series of papers about the "Pin 1 problem" should you want further information. The URL, appropriately enough, is *www.pin1problem.com*.

Gotta run for shade

Alan Peterson, national production director and weekend program coordinator for the Radio America Network in Arlington, Va., and former Radio World columnist, has been following our Pin 1 discussion too. He offered a simple mnemonic to remember the order of XLR connections: "2 is Hot, 3 is Not."

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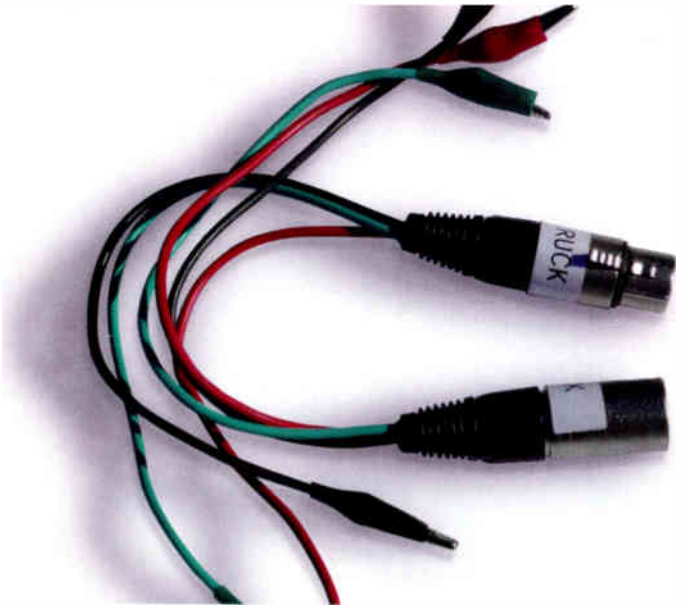

Left
The same idea, but bringing the conductors out to alligator clips.

Right
Additional adaptors that reverse Pins 2 and 3, and lift the Pin 1 ground.

Likewise, Alan reminded me that Kool & The Gang permanently cemented the standard in 1979 when they rolled out the song, "Too (2) Hot." Hum that to yourself and you will never forget!

He adds that he wished XLR plug manufacturers would emboss larger numbers on those connectors. Yes, Alan, my eyesight is failing, too.

Alan then surprised me with news that he'll be retiring in March from Radio America. Congratulations!

Man Cave

I've gotten a number of great comments about our description of Harry Simons' living room studio, which he built in retirement. More than one engineer wanted to know what Harry's wife had to say about turning the living room into a studio. No problem there, Harry's single!

Slippery when cold

When it snows and sleets down in the Carolinas and Georgia like it did recently, you know it's winter. And that means keeping something handy to keep your locks working.

We've written about the many great applications of WD-40 Multi-Use Product. Educational Media Foundation Field Tech Scott Todd writes that when it comes to spray lubricants, especially for locks, you may also want to try a couple of other options, both available from Amazon.

The reviews for PB B'laster Penetrant note that it stinks. Also that it's a great penetrating oil but not a silicon lubricant. PB B'laster Silicon Lubricant, on the other hand, contains a higher concentration of silicone than other brands, which means longer-lasting lubrication. It's formulated with a Teflon polymer. This compound is a clear, non-evaporating formula that can lubricate and protect not only metal, but also plastic, wood, rubber, vinyl and leather products.

Scott says that in his opinion, the gold standard in lock lubricants, bar none, is Kano Laboratories' Penephite Graphited Penetrating Oil. On Amazon, this spray has a 78% five-star review. It consists of a combination of oils, solvents and micron-sized graphite in a suspension. The oils and solvents carry the graphite into infinitely small spaces to loosen frozen parts. Once deposited, the graphite provides long-lasting lubrication.

> **"Bill took advantage of his labeling machine to identify all the adaptors and to include his name — less of a chance of something 'walking off.'"**

Strong not silent

Back in September of 2019, we published a Workbench tip from EMF's Ken Beckwith about constructing an EAS Loop antenna out of PVC. Carroll Broadcasting's Lance Coon wrote in recently to say he was looking to build this antenna for his stations but needed clarification on one point.

In the article, we mentioned improving the "strength" of the loop by adding a piece of conduit down its middle.

Lance wanted to confirm that be "strength," we meant the rigidity of the loop, not the strength of the signal.

Lance, you are right. To increase the signal strength or sensitivity, you'd add more turns of wire to the loop. Mounting shouldn't be critical, just be sure the edge of the loop is pointing toward the EAS signal you want to receive. Be sure to send us a picture of your completed project, Lance!

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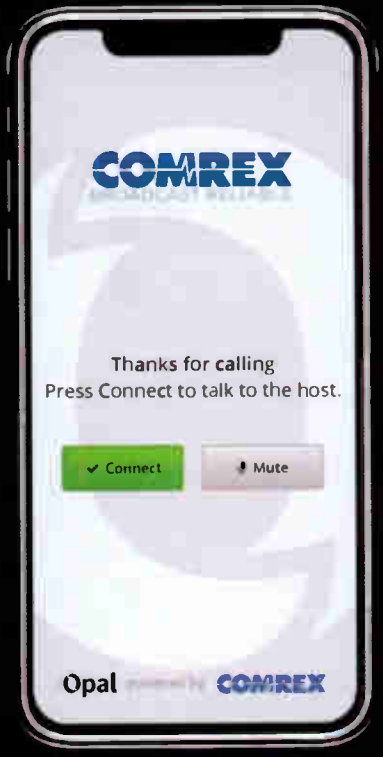

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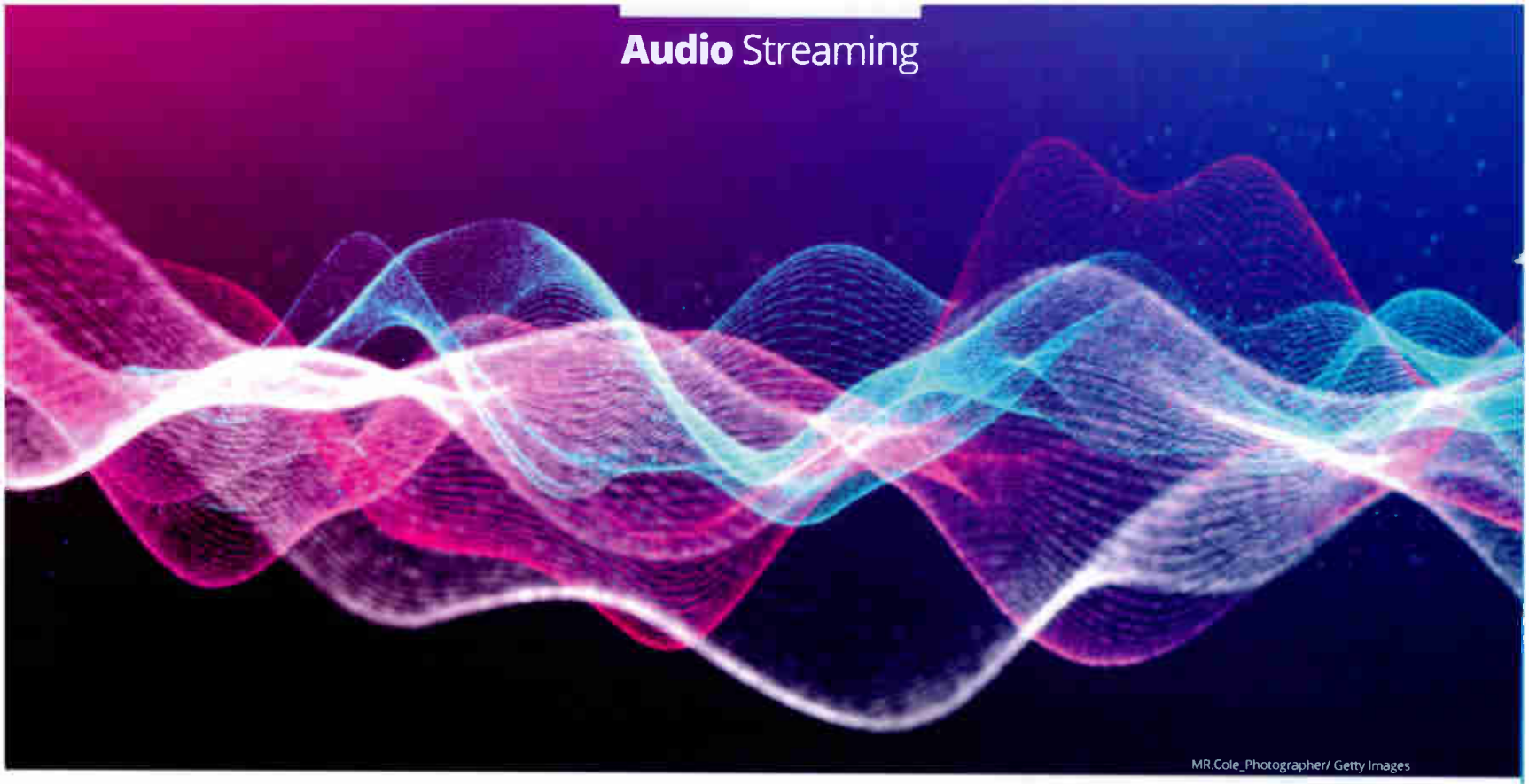

MR.Cole_Photographer/ Getty Images

A simple streaming glossary

The meaning of some common terms you'll hear

Writer

David Bialik

Consultant; co-chair of the AES Technical Committee for Broadcast and Online Delivery; and chair of the Metadata Usage Working Group at the NRSC. He is former director of stream operations for CBS Radio and Entercom.

A recent Radio World ebook explores the world of streaming for radio. In this excerpt David Bialik lays out some commonly heard terms.

The following may help you navigate the language around streaming. It is not intended to be comprehensive but to give you a head start in this growing medium with new technology emerging daily.

AAC — Advanced Audio Coding, an audio coding format for lossy digital audio compression. Usually preferred over MP3, it promises comparable or better quality at lower bitrates. AAC has been standardized by ISO and IEC as part of the MPEG-2 and MPEG-4 specifications.

Ad Delivery Network — An on-demand file serving network that can deliver commercial content for the streamer.

Ad Replacement — When ads broadcast over the air are replaced with different content on the stream.

AES TD1004 — The Audio Engineering Society's Recommendation for Loudness of Audio Streaming and Network File Playback. These recommendations primarily are intended for "radio-like" mono and stereo streams.

Bitrate — Bitrate = Sample rate X bits per sample used to encode the music. The number of bits per sample also depends on the number of audio channels.

CDN — Content Delivery Network, a scalable distributer of streams.

Client-Side Ad Insertion (CSAI) — Advertising that only happens within the website or app streaming your content. Banners, video pre-rolls, other items specific to a player or page.

CMAF — A container format (see below).

Codec — Digital audio compression algorithm used.

Container Format – Otherwise known as a wrapper, this may contain the audio and video plus all the associated metadata (i,e. MP4, CMAF). The container carries the payload (audio, video, or data files).

Cuepoint — A marker residing in the metadata, triggering a new action.

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Above
Find this and other ebooks at the Radio World website under the Resources tab.

Decoder — A component that is part of the player, used to reassemble the content.

Direct Ad Insertion (DAI) — Personalized ad replacement that is unique to the listener. This can be based on listener location, browsing preferences, etc.

Encoder — The system used to take the content and send it to the stream, usually by compressing your linear audio into an MP3 or AAC stream.

Encoding Format — The method of converting to a digital format (i.e. AAC, MP3)

FLAC — Free Lossless Audio Codec, a compressed audio format with no loss of quality.

FLV - Flash Video Format, a container file format used to deliver digital video content over the internet via Adobe Flash Player.

HE-AAC / HE-AAC v2 / AAC+ — "High-Efficiency AAC," a lossy audio codec for low bit rate streaming, expanding on the quality vs. size gains made by standard AAC.

HLS — HTML Live Streaming, a high-quality transport format used by Apple.

Icecast — A streaming media project released as free software, maintained by the Xiph.org Foundation.

ID3 or ID3 tag — A metadata format that stores information (Title, Artist, etc.). This may be called the data container.

Injected content — Content from another source, usually replacing other content.

Interstitial — One or more recorded elements used in stream production (i.e. bumpers, jingles, promos, etc.)

LKFS — "Loudness, K-weighted, relative to full scale." A standard loudness measurement. Sometimes referred as LUFS.

Lossless Streams — A high-bitrate non-compressed stream.

Lossy Streams — Digitally compressed sampled streams (i.e. MP3/AAC).

LUFS — "Loudness units relative to full scale," synonymous with LKFS.

Metadata — The data stream that accompanies the media content. This can hold the "Now Playing" information, commercial cues, time code or any other information needed to play the stream.

MP3 — An audio coding format for lossy digital audio compression developed by Fraunhofer and Bell Labs. This supports very low bit rates.

MP4 — One of the earliest digital video file formats. Can be used for high-quality video or audio while maintaining relatively small file sizes.

MPEG-DASH — Dynamic Adaptive Streaming over HTTP, an adaptive bitrate streaming technique that allows for high quality of content. This is comparable to HLS.

Now Playing Information — "What the stream is playing" can be displayed, usually sent by metadata.

Ogg — A container format.

Ogg Vorbis — An audio coding format with lossy audio compression.

Player — The program used on the audience side to play the content; it could be an app.

Podcast — A digital audio file that can be downloaded to a personal device and/or player.

RTMP — Real Time Messaging Protocol, a TCP-based protocol that maintains persistent connections and also allows communication with low latency. This allows for a stream to be delivered correctly.

Server-Side Ad Insertion (SSAI) — Advertising added to audio as it is streamed or delivered, rather than from the studio playout. Ads become part of the audio itself.

Shoutcast — A software application that allows anyone to stream audio over the internet.

Total Line Reporting — When the stream and over-the-air product are the same and no segments are substituted.

Transport Format — How the stream is delivered (e.g. HLS, Icecast, rtmp)

xHE-AAC — A lossy audio codec for low bit rate streaming. It also is used by Digital Radio Mondiale (DRM).

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About Buyer's Guide
The Buyer's Guide section appears in every other issue, focusing on a particular category of equipment and services. It is intended to help buyers know what's on the market and gain insight into how their peers are using such products.

ViA brings wireless freedom to Eastern Shore Radio

Tieline codec is put to use for sports, graduations and other local events

Program Director Will Russell has been with Eastern Shore Radio in Virginia for 12 years. His first experience with Tieline was using a Report-IT app for sports coverage.

"We realized the superiority of the audio quality, but the phone app had its limitations." The Tieline ViA remote codec turned out to be the solution.

"Tieline's SmartStream Plus redundant streaming technology is crucial for us," he said. "Wireless technology is improving, but it still has its issues on the Eastern Shore. Knowing we have two signals and one can replace packets if required, really makes live remotes less stressful."

Eastern Shore covers a lot of high school sports, and it also has aired graduations during COVID, with parents listening in their cars on the radio.

"Recently, we covered a political debate on the radio and provided video with Facebook Live."

Russell said they normally employ SmartStream Plus using an iPhone hotspot connection over Verizon, along with a Verizon Jetpack tethered hotspot.

"Rural cellular connectivity is always the challenge. Sometimes you'll have enough signal for sound, but not for video. Video is nice, but at the end of the day we are a radio station."

For sports, Russell uses one or two headsets for the play-by-play and color commentator, and adds a third mic for crowd effects. For video he'll use a mini-USB cable to send line-level audio from the ViA into a dongle for an iPhone video stream.

"We connect to a Bridge-IT codec at the studio. After one of the graduations a member of the local school board came up to me and said the sound was just as good as being there in person. I think this is the best compliment a radio person can get on the technical side of things."

Russell said redundant streaming is simple to configure and that Wi-Fi works well too. "The ViA remembers hotspot connections, which is nice. We have broadcast in stereo, but with internet connectivity sometimes an issue, we went back to mono to reduce bandwidth without sacrificing audio quality. Studio-based audio is streamed back to the Tieline ViA from our studio console for remote site monitoring."

Recently, a friend and client wanted to make a big announcement about the entertainment for a fundraiser he was holding.

"He had a two-day window to announce it, but unfortunately he came down with COVID and couldn't come to the studio. He didn't want to make such a big announcement on the air with a regular telephone call. So I went to the venue and set up the ViA, ran a 10-foot cable for his mic to ensure social distancing, and we made the announcement live on location. This remote was made on battery power and was cool all the way around."

Above
Tieline ViA was used for coverage of this forum of the Eastern Shore of Virginia Chamber of Commerce.

More Info
http://tieline.com or call +1-317-845-8000

World Radio History

Tech Update

MaxxKonnect Adds StreamMaxx Plans

MaxxKonnect Wireless, a provider of prioritized LTE internet services for broadcast, audio and video, is now offering their StreamMaxx plans, a new line of guaranteed speed, high-consumption plans.

"StreamMaxx plans use the AT&T network, and feature guaranteed upload and download speeds, starting at 8Mbps, and significantly higher monthly data plans than the standard MaxxKonnect Wireless offerings," the company said.

"The StreamMaxx plans are great for video and audio streaming, STL transport, sports broadcasting and other high data transfer applications such as automation backups and disaster recovery."

The MaxxKonnect Group has also launched its own in-house line of branded LTE routers.

The MK-RUT series, powered by Teltonika, includes the RUT240 and RUT950 models. They are 4G LTE routers with cloud-based Remote Management included in the MaxxKonnect Wireless subscription.

Both feature CAT4 LTE modems, Wi-Fi, wired LAN and WAN ports, remote I/O, a robust firewall and ruggedized case. The RUT950 also has a built-in four-port network switch. More MK-RUT models are planned. Support for the MaxxKonnect RUT series routers is U.S.-based and provided by The MaxxKonnect Group.

Info: Joe Myers at *jmyers@maxxkonnect.com* or (205) 598-1200

World Radio History

SIP codecs exploit compatibility

In:Quality grows its lineup of offerings for remote audio

In:Quality is a U.K.-based company that specializes in remote broadcast products and services. It recently introduced the USB SIP Codec, calling it a simple low-cost IP device for use with USB microphones.

Founding Director Kevin Leach is a former radio host and BBC sound engineer.

What are the advantages of a SIP codec over other platforms?

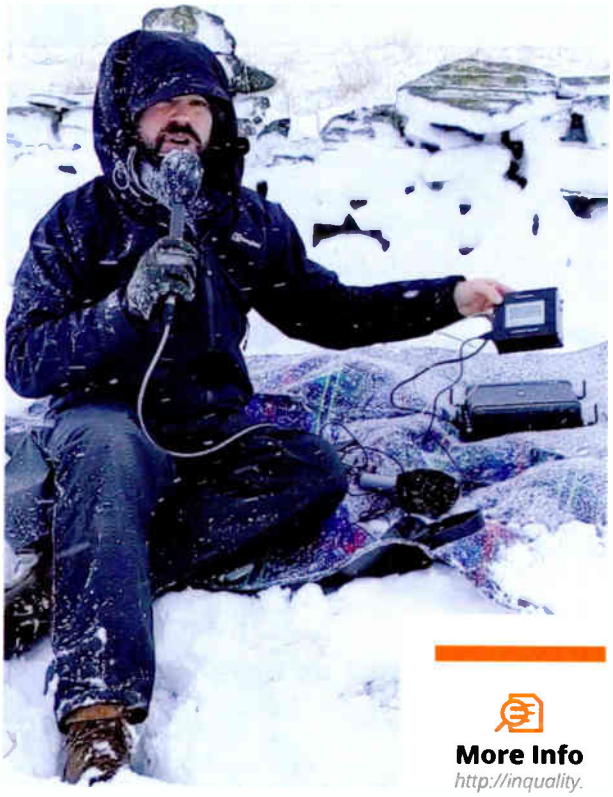
Kevin Leach: The beauty of SIP is compatibility, now that so many devices support both SIP and the Opus audio format.

The person making a call from one compatible device doesn't need to know anything about the equipment at the other end. They just dial its SIP address, and the call parameters are negotiated automatically.

Can you give examples how your clients are using it creatively?

Leach: Sure. The touchscreen version of our USB SIP Codec has been extremely popular in parts of the BBC, and for Radio France. Both had to respond quickly to the first COVID lockdowns and were able to deploy our devices to their hosts and pundits, to allow them to connect to the studios from home.

The low cost and immediate availability of our devices allowed both broadcasters to purchase in bulk and at short notice. Meanwhile, the simplicity of the setup and on-screen controls allowed the hosts to install the codecs, without the help of an engineer.



More Info
http://inquality.com

Above
Kevin Leach is on location in the Yorkshire Pennines in the United Kingdom, using a USB SIP Codec and Mediaport Sonja router.

Are there misconceptions you'd like to dispel about the product or SIP in general?

Leach: I think some radio producers are still skeptical about SIP, and IP in general, because they have had bad experiences in the early days, especially when using bad WiFi or 3G connections.

Consumer broadband has become much more robust in recent years, especially when WiFi is eliminated. For that reason, our devices do not support WiFi, and instead are hard-wired to the router using Ethernet.

Because SIP is a telephony standard, many users are also surprised at just how clean the audio sounds with Opus, and how stable the calls are with our codecs, despite the lack of a delay.

What else should we know?

Leach: Since the success of the USB SIP Codec, we've released a version that has built-in analog XLR connectors. These units are really versatile when hooked up to an analog board in a studio. You can send a link to guests who can connect in from a web browser, and you can even make and receive phone calls, if you subscribe to the extra functionality.

So in total our SIP codecs come in four flavors: USB SIP Codec Zero, a small device with no screen; USB SIP Codec Touch, with a 7-inch screen for use with USB mics; and the XLR versions of Zero and Touch. Separately, our ipDTL works similarly but runs in a web browser on a computer, while hybrIP is a version of ipDTL designed for talk show calls.

> **"Consumer broadband has become much more robust in recent years. For that reason our devices do not support WiFi."**

World Radio History

Tech Update

TASCAM DR-10L Streamlines Newsgathering

The TASCAM DR-10L is a micro-sized PCM recorder designed to be inserted into a pocket while its lavalier microphone with windscreen clips to a shirt or collar.

The company says its linear PCM recording capability at 16/24-bit WAV and BWF formats ensures pristine audio quality in addition to MP3 (128k/192k bps) audio.

"The ability to use microSD and micro SDHC cards as its recording media makes it easy to edit content on a DAW," it said. "These features make the DR-10L ideal for anyone needing to conduct interviews or capture presentations, with the flexibility to edit content prior to going on-air."

Dual-recording function enables the operator to set recording level as high as possible while simultaneously recording a backup track at a lower level. The unit has five gain levels in addition to automatic gain control and a limiter function.

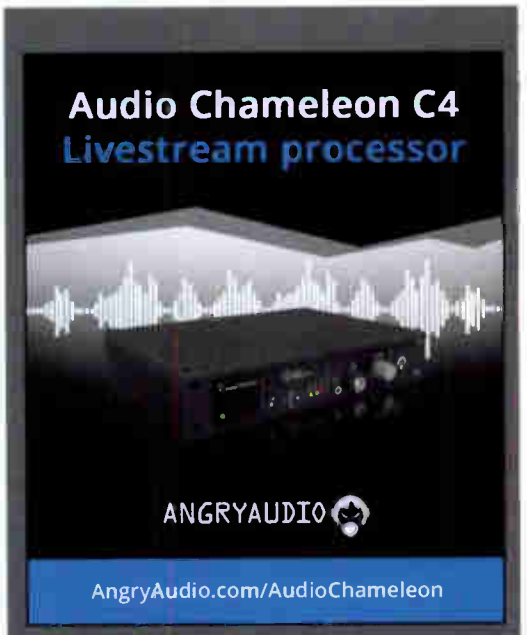
"Further, there is an automatic file closing function to prevent the loss of already recorded data plus a sliding record switch and hold function to prevent unintended operation during recording."

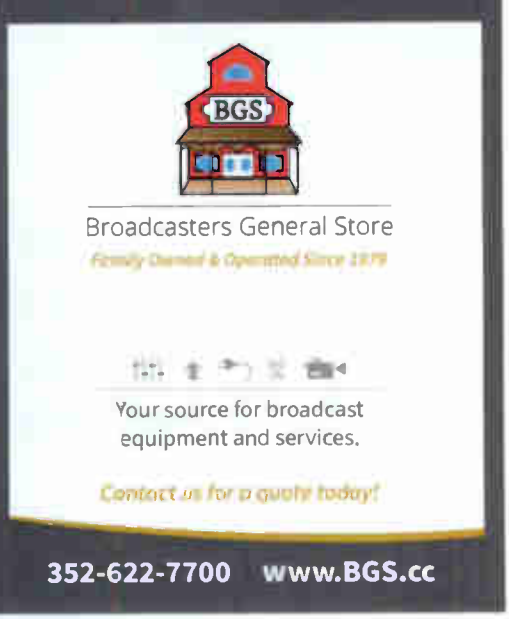
To ensure high visibility while checking battery level, recording status and level meter, the DR-10L provides an organic EL (Electroluminescent) display, so it doesn't need LED lights that could be distracting, especially in dark environments. Via the included headphone jack, the unit can play back recorded content; the jack can also be used to monitor the input during recording.

In addition to its Micro USB B port that enables data exchange with computers, the DR-10L is compatible with Sennheiser lavalier mics and mics with the same connector pinouts (Tip: Mic, Ring: Line, Sleeve: GND).

A belt clip, USB cable and a copy of iZotope RX Elements audio production editing software are included.

Info: *https://tascam.com/us/product/dr-10l/top*, call (323) 726-0303 or email *tascamfans@tascam.com.*





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ACCESS NX changes the game for WSCO

Comrex codec is used for courtside coverage of Wisconsin Herd

WSCO(AM), a Wisconsin station that is part of the Woodward Radio Group, serves sports and talk programming to an audience that stretches from Green Bay to Oshkosh.

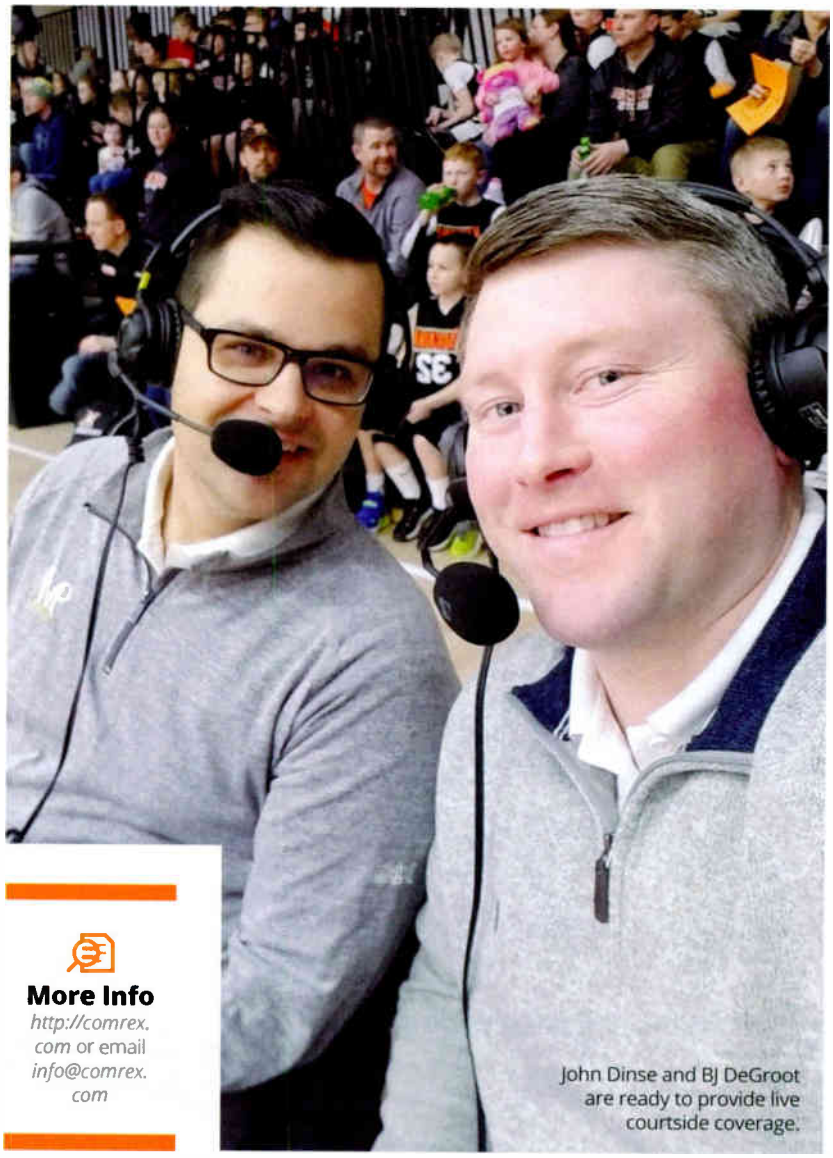
As part of its sports coverage, the station produces live play-by-play for Wisconsin major league, minor league, college and high school sports, as well as a sports morning show called "BJ and the Bear." WSCO covers every game live for the Wisconsin Herd, the NBA G League affiliate of the Milwaukee Bucks.

In its search for a way to send audio from the arena back to the station, WSCO became familiar with ACCESS 2USB, a portable IP audio codec from Comrex that's no longer available for purchase.

When Comrex released its latest model, WSCO decided to purchase a new ACCESS NX for courtside coverage of the Herd.

The station often uses a hard-wired internet connection, and intends to implement NX's portable capabilities for live broadcasts of road games in the coming season. ACCESS NX's attachable mixer allows them to feed in arena sound as well as maintain a private two-way connection with a producer at the studio.

BJ DeGroot, assistant brand manager for WSCO/WHBY and co-host of "BJ and the Bear," told Comrex, "It's functional and reliable, and it's changed the game for our live play-by-play broadcasting. As far as quality standpoint and ease of use is concerned, we have been so happy. If you're looking to take your station to the next level, it's the way to go."



John Dinse and BJ DeGroot are ready to provide live courtside coverage.

More Info

http://comrex.com or email *info@comrex.com*

> **"The unit's attachable mixer allows them to feed in arena sound as well as maintain a private two-way connection with a producer at the studio."**

World Radio History

Tech Update

Telos Enhances Infinity IP Intercom System

Telos Alliance recently released version 2.1 for its Telos Infinity IP Intercom System as a follow-on to major system update v2.0. It said the upgrade brings important new integration options along with free Infinity Dashboard Enterprise software.

"Whether in the studio or on remote, these enhancements open up a world of new workflow possibilities for broadcasters," the company stated.

The update makes Telos Infinity hardware systems compatible with the recently released Telos Infinity Virtual Intercom Platform (VIP). By integrating Infinity VIP with a hardware-based Infinity IP Intercom system, a user opens a range of deployment options for diverse applications for on-prem, site-to-site, in the cloud or as a hybrid of these.

The update also brings extended functionality between Infinity Systems and Telos Alliance's Axia Mixing Consoles. Axia Quasar now features multiple integration options with Infinity intercom, including the ability to control an Infinity panel from the console's central touchscreen as well as audio and GPIO interconnectivity.

Integration with the third-party Elgato Stream Deck is included in v2.0, making it easy to control Telos Infinity IP Intercom using this popular device, handy for VIP users who want tactile control of their virtual panel.

Info: *telosalliance.com/infinity*, (216) 241-7225 or *telosalliance.com/contact-sales*

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Radio Sintonía connects with Talent

AEQ codec helps station deliver on its promise of "street radio"

Radio Sintonía is the reference station on the FM band of Fuerteventura in the Canary Islands, recently subject to intensive news coverage due to the volcanic eruption on neighbouring island La Palma.

"We transmit on six different frequencies to provide the best geographical coverage possible to reach our listeners," said Technical Director Ivan Travieso Gomez.

"Our budget is limited, but we are devoted to serve the community and we focus on making what we call 'street radio,' with coverage of local sports, events and tourism on the island."

The station obtained the AEQ Talent Audiocodec in 2020, but unlike many stations, it wasn't concerned primarily with "radio from home."

"Even if we also have been producing programs from home during pandemic lockdowns, we focus on taking the radio out into the street to interact with our community. Also, out in the open, COVID is less contagious than indoors. Further, the fantastic climate of the Canary Islands allows both sports or other events to take place outdoors."

Above
Radio Sintonia with AEQ Talent Audiocodec broadcasting from Betancuria village.

> **"We focus on taking the radio out into the street to interact with our community."**

More Info
www.aeq.es,
aeqsales@aeq.es
or +34 91 686 1300

While the codec is suitable for personal use, the station seldom uses it for a one-man show.

"Talent has ancillary line and Bluetooth connections. Therefore, we can use it as an 'OB unit.' Sometimes we connect it to a 16-channel live sound console, a headphone amplifier, some wireless microphones and a 3G/4G router and we take the radio out to any plaza or town square."

Through the Bluetooth link to a smartphone, the team can receive calls and make them part of the program, usually using Whatsapp, which Travieso Gomez said provides very good sound quality.

He likes the simplicity of the Talent control surface and the fact that its Talent Pilot app allows them to manage the unit from a phone.

On the studio PC, the free ControlPhoenix application is installed, which allows him to manage the Talent codec in the field as well as the Phoenix rack-mounted codec at the studio. "We can monitor the status of both in real time and, if required, intervene to modify some configuration parameters or resolve other issues."

The application shows the connection status and VU meters of both Audio Inputs and Outputs. It also allows them to route signals to the headphones and control the gain.

Radio Sintonía uses the Opus algorithm included in AEQ's codecs and the free registration on its SIP server. "It saves us from having to complicate our lives setting up one of our own, an effort and cost that is beyond our budget and capacity."

Travieso Gomez said the Talent has helped the station stay close to its listeners and even improve its audience figures.

World Radio History

Tech Update

Henry Engineering Debuts Talent Pod II

Henry Engineering is out with a new version of its popular Talent Pod announcer station.

The Talent Pod II looks the same as the original but includes two significant improvements, the company said.

It now uses active electronic mic on/off switching for silent and reliable control of the announcer's mic. There is no noise or "pops" when turning the mic on or off, or when using the "Cough" button to mute the mic. Mic audio switching is silent even when using powered condenser microphones.

"The second enhancement to Talent Pod II is that the Mic output can now be at either Line or Mic level," Henry stated.

The output level is user-selectable via internal jumpers. The Mic output is balanced with ample headroom to prevent clipping or distortion. Mic gain is adjustable via a trimpot on the rear of the unit.

"These two performance upgrades make Talent Pod II even more effective as a sports announcer's mic and headphone controller, as well as a convenient mini-console for studio use."

Also, Talent Pod II and Sports Pod are now optionally available with a new style retractable Desk Stand. This design tilts the unit up for ease of use, and folds flat for safe transport and storage.

Info: *www.henryeng.com*, or call 562-493-3589.

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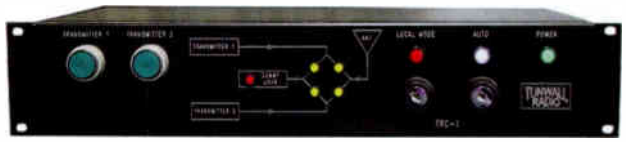

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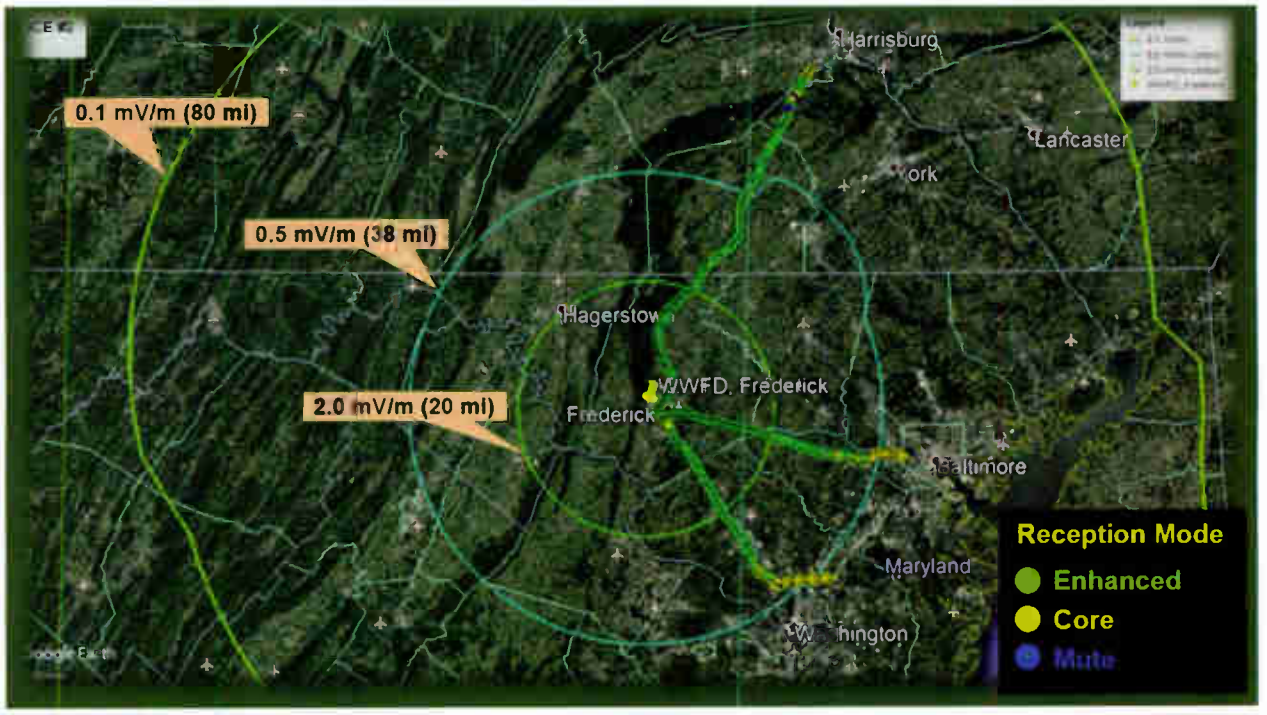

Above
Fig. 1: MA3 digital audio coverage in an ICE vehicle.

Control EMI, don't dump AM receivers

Makers of electric vehicles should devote sufficient resources to mitigating interference

As carmakers increase electric vehicle (EV) offerings throughout their lineups, the availability of AM radio to consumers is declining. This is because the effects of electromagnetic interference are more pronounced in EVs than in vehicles with internal-combustion engines (ICEs).

Although the character and severity of this interference can be difficult to model and predict, it is clearly more disruptive to AM radio reception, often causing annoying static and limiting coverage. As a result, some EV manufacturers have begun removing AM radios — but not FM — from their vehicles.

> **"Recent field tests ... allow comparison of AM analog and all-digital MA3 HD Radio reception performance in ICE vehicles and EVs."**

EMI can be suppressed in EVs using well-known mitigation techniques such as shielding cables and electric motors, installing filters and carefully locating electrical components within the vehicle. Within receivers, EMI can be limited by isolating and shielding antenna and RF sections, filtering connections and carefully grounding and placing receiver components.

EV manufacturers that have successfully controlled EMI using these methods continue to provide AM radio services in their vehicles.

Even when analog AM reception is degraded in an EV, it does not necessarily imply that AM HD Radio reception will be similarly affected.

AM HD Radio signals are naturally more resistant to EMI than their

World Radio History

analog counterparts. Much of the noise induced on an analog AM signal accumulates over the channel and down the receive chain, passing directly onto the audio. But digital waveforms leverage bit regeneration to allow noiseless reproduction of the audio signal.

Furthermore, advanced digital signal processing and digital communications techniques ensure that AM HD Radio signals are more robust than analog AM signals. In particular, the coverage of all-digital MA3 core signals significantly exceeds that of analog AM, and the coverage of MA3 enhanced signals is on par with that of analog AM.

Recent field tests supported by Hubbard Broadcasting — using AM HD Radio station WWFD in Frederick, Md. — and NAB PILOT allow comparison of AM analog and all-digital MA3 HD Radio reception performance in ICE vehicles and EVs.

Not surprisingly, signal coverage in ICE vehicles was consistently better than in EVs, presumably because the combustion engine in ICE vehicles emits lower levels of EMI.

Fig. 1 shows MA3 coverage of an OEM ICE vehicle (ICE #2) with solid core digital audio coverage beyond the 0.5 mV/m contour.

However, some EVs also afforded extensive MA3 core digital audio coverage, approaching that of the ICE vehicles, as shown for EV #2 in Fig. 2. This performance can likely be attributed to the application of effective EMI mitigation techniques.

In all vehicles tested, whether ICE or EV, analog audio quality was significantly degraded at the core audio point of failure, corroborating analytical predictions of more robust MA3 core coverage.

When AM radio is included in an EV, its reception performance is highly dependent on the manufacturer's dedication to EMI control.

Fig. 3 illustrates the potentially wide range of MA3 reception performance among commercially available EVs, as EV #4 digital audio coverage exceeds

that of EV #3 by several miles (the length of the pink route is about 25 miles). This difference is likely attributable to superior EMI mitigation techniques in EV #3. Fig. 3 serves as a graphic reminder that automakers who devote sufficient resources to mitigating EMI need not remove AM receivers from their EVs.

In summary, recent analysis and field testing of AM radio reception in EVs lead to the following conclusions:

- EMI generated by EVs can significantly degrade the quality of AM signal reception. Fortunately, as demonstrated in multiple commercial EVs, this harmful interference can be effectively suppressed in both vehicles and receivers using well-known EMI mitigation techniques.
- AM HD Radio signals have been shown — both analytically and experimentally — to be less susceptible to EMI than their analog counterparts. AM all-digital signals are especially robust and provide broader coverage than AM analog signals.
- Automakers are currently removing AM radio services from EVs. They should instead control EMI emissions and offer the superior consumer audio experience afforded by AM all-digital HD Radio technology.

Top
Fig. 2: MA3 digital audio coverage in an EV with effective EMI control.

Bottom
Fig. 3: MA3 reception comparison for EVs with good (EV #4) and poor (EV #3) EMI control.

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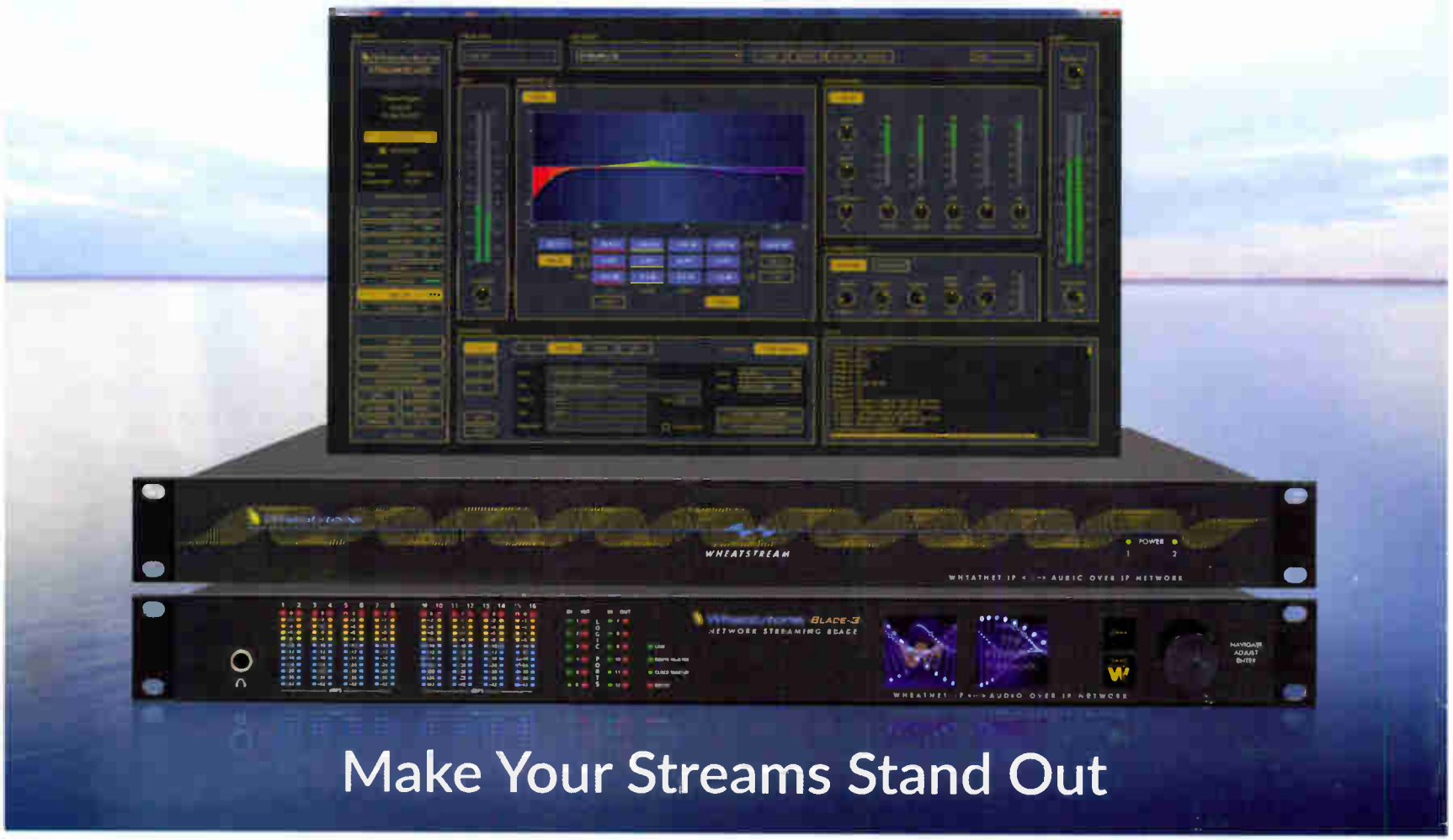

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