RADIOWORLD

Your guide to radio technology

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Fun with buttons

Dan Slentz discovers radio applications for this streamer-centric content creation controller.

"We are Farmers ..."
Why audio logos are so powerful.

A TV+radio experiment
Testing a hybrid FM/ATSC 3.0 signal in San Diego.

Dashboard urgency
Fred Jacobs warns that radio's place in the vehicle is not assured.

FUTURE

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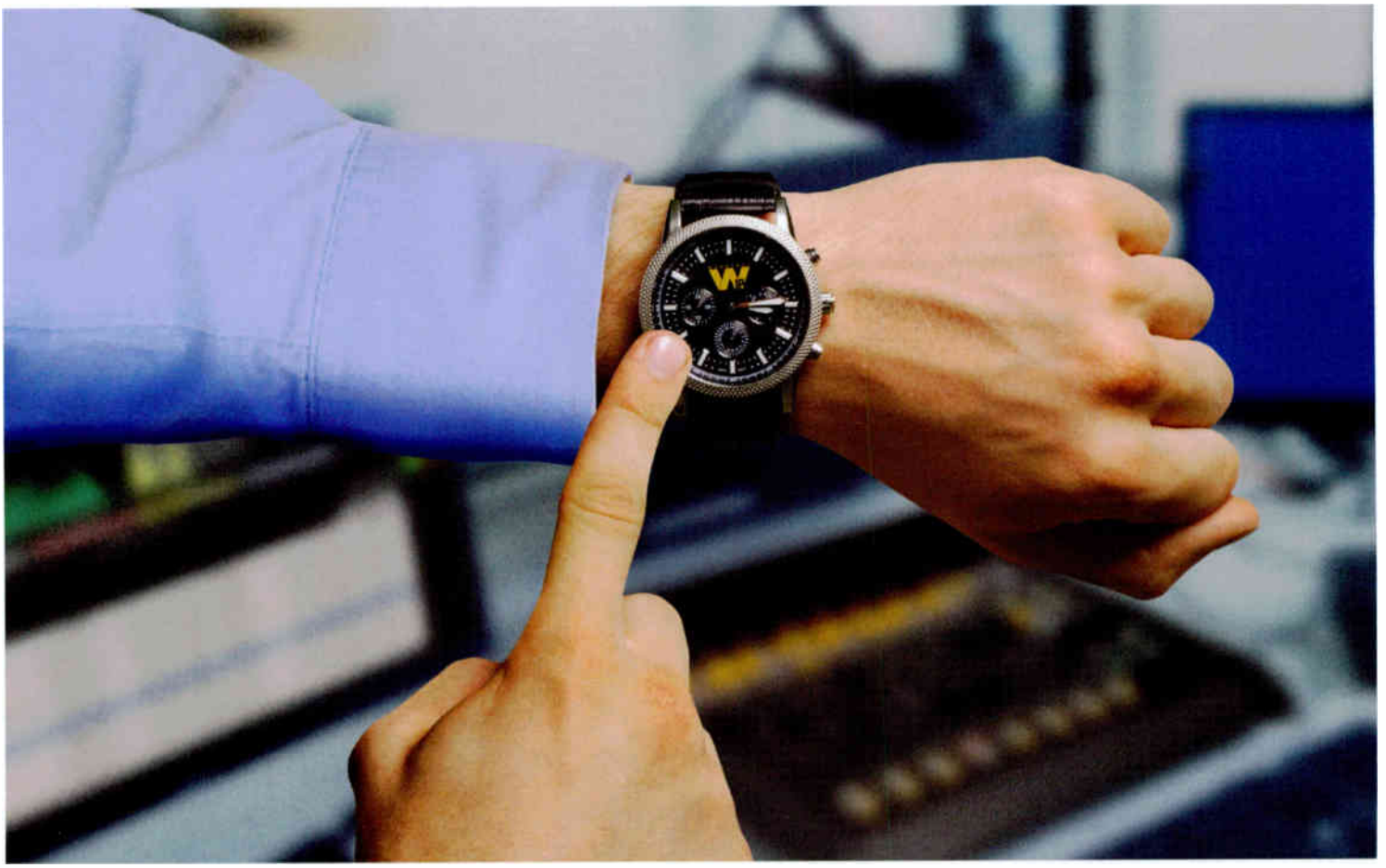

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DTS AutoStage in the spotlight

An ebook and webcast explore the business proposition

Paul McLane
Editor in chief

I've written a bit in the past about DTS AutoStage and what Xperi Corp. hopes to achieve with it. Now a new Radio World on-demand webcast and companion ebook delve into it.

Co-produced with Xperi, they explore the business proposition and what radio managers and engineers should know.

Dashboard images of DTS AutoStage in a Mercedes EQS with MBUX Hyperscreen dashboard and a Mercedes S-Class vehicle will give you a sense of how the platform is intended to help keep broadcast radio "front and center" in connected cars, and how slick the radio tuning experience can be when integrated well by a carmaker.

But the promise of this platform goes beyond one-way PAD and metadata.

Xperi's pitch is that this finally gives radio functions that 21st century consumers have come to expect, such as personalization, content discovery, voice control, service following and listener analytics.

Further, it says, carmakers should find the platform appealing because it allows them to provide a consistent interface to their car buyers anywhere in the world.

Judging from questions we got during the live version of the webcast, there's a lot of interest in this topic, but also a lot of education that Xperi has yet to do, and I expect we'll hear more from the company about it, including at this year's trade shows.

Find the ebook and webcast at *radioworld.com* by clicking Resources and scrolling to the Ebooks and Webinars sections respectively.

THIS ISSUE

New England Gets an All-Digital AM

WSRO in Ashland, Mass., turned off its analog in early December and was broadcasting jazz in the MA3 mode of HD Radio.

The 650 kHz station, in the western suburbs of Boston, is licensed for 1.5 kW day, 100 watts night; it is owned by Langer Broadcasting Group. It promoted the switch on-air, asking for reception reports from listeners in its online post.

WSRO programming is simulcast on FM translator 102.1 MHz in Framingham. It also simulcasts in analog on 1410 kHz and 98.1 MHz.

WSRO was silent from for about three months in 2020 to reorganize its finances, according to the FCC database. After returning to the air, it switched its format from Brazilian music to jazz.

Nautel said the station is using an NX3HD All-Digital solution comprising an NX3 transmitter, NX-HD Radio upgrade and an HD MultiCast+ Importer/Exporter.

The station's transition follows the recent move of Cumulus Media news talker WFAS in New York's Hudson Valley to all-digital AM.

WWFD in Frederick, Md., and WMGG in Tampa, Fla., are two other stations operating in MA3.

Jeremy Ruck Dies, Age 50

Jeremy Ruck — a broadcast engineer and P.E. who owned Jeremy Ruck & Associates, managed broadcast facilities at Willis Tower in Chicago and wrote many articles for Radio magazine and Radio World — died in December.

According to his obituary at Oaks-Hines Funeral Home in Canton, Ill., Ruck was 50. He died after a battle with COVID-19.

Ruck graduated from Bradley University in 1996 with a degree in electrical engineering.

His friend and colleague Mark Persons said that Ruck was an employee of D.L. Markley & Associates for many years, but left that firm after Don Markley died. He formed Jeremy Ruck & Associates in 2012.

"Jeremy was always young and vital, ready to go the top of the Sears Tower, now known as the Willis Tower, in Chicago to supervise a broadcast antenna project in the middle of the night. Many remember Jeremy as a frequent speaker at the Wisconsin Broadcasters Clinic in Madison, Wis., describing the complexities and math behind engineering problems."

Persons said Ruck, WM9C, became an Extra Class amateur radio operator at age of 17 and was active in the ham community over the years.

Fletcher Ford, CEO of Regional Media, posted on social media that Ruck was "one of the best consulting broadcast engineers in the country, a great husband and father, a devout Catholic and Freemason, and a great friend."

Another friend, engineer Art Reis, said Ruck had been involved in leading the television repack in Chicago.

metamorworks/Getty Images

Writer
Randy J. Stine
RW's lead news contributor wrote about the FCC's exploration of internet alerting in December.

Jacobs: Treat the dashboard with urgency

Broadcasters should "set aside their differences and speak in one voice"

Automakers have long included traditional AM/FM radios in new vehicles at no charge, with broadcasters gladly nodding their approval.

But Fred Jacobs says the relationship between those parties is changing as automakers look to monetize the dashboard further.

Jacobs, founder of consulting firm Jacobs Media, wrote in a series of recent blog posts about how radio has fit into the dash historically and who will dictate its path to the future. He even contemplates a world where in-dash entertainment systems in new vehicles are no longer considered a standard feature.

Rethinking radio

Car manufacturers are making vital decisions right now about how entertainment will be consumed in the connected car in the ever-expanding Apple and Google in-car ecosystems. New in-vehicle dashboards with internet-based auto infotainment systems could potentially contain a new revenue stream for automakers, Jacobs says.

Many radio industry leaders believe it's crucial that broadcasters engage with metadata service providers and automakers to keep over-the-air radio in the front of this dashboard discussion.

Analog and HD Radio, hybrid radio, dash visuals and in-vehicle voice interaction are part of the in-car focus of radio broadcasters in the United States. But the acceptance of the Android Automotive vehicle operating system by multiple automotive manufacturers, including Ford, GM, VW, Group PSA and Volvo, is a critical development when considering how automakers view the connected car.

ABI Research recently said it expects 36 million vehicles will be shipped with Android Automotive in 2030.

Jacobs says this is the perfect time for the radio industry to dig deep for the answers to many questions about its future.

"So, the idea that some automakers are rethinking their 90-year policy of radios solidly positioned in the center of their dashboards — now known as head units — should send shockwaves throughout the radio business from Napa to New York," Jacobs wrote in the fall.

He argues that it would be a mistake to assume that traditional AM/FM radio will always be in the dash and offered as a free feature to car buyers. He said broadcasters who are oblivious to recent developments are putting future success at great risk.

"For nine decades, automakers have graciously included radios (first AM, then FM, now HD) as standard equipment on most of their vehicles — while not charging radio broadcasters a dime. Like any smart business, they are now looking for ways to monetize their dashboards, from payments from content creators (e.g. SiriusXM) to the data they have."

Jacobs wrote: "Because it has always been considered standard equipment — like the glove box, rear-view mirror and turn indicators — inertia has kept automakers dutifully installing those car radios in dashboards.

"Take a moment and consider it from Ford, Toyota, Subaru or Volvo's point of view. The only party generating revenue from those car radios in the dash are radio broadcasters. Radio stations and networks have been successfully monetizing them for nearly a century."

And don't think installing car radios and infotainment systems like Apple CarPlay or Android Auto doesn't cost the automakers money, Jacobs said.

"Despite what you've heard, installing radios in cars doesn't just cost automakers a buck or two. There are engineering, equipment, installation, quality control and other associated costs. And given the scale of being an auto manufacturer, you take your savings wherever you can find them."

"The car dashboard is a mini billboard"

Quu recently commissioned Jacobs Media to gather feedback about metadata messaging and displays from American drivers. Jacobs interviewed 19 drivers about their reactions to a variety of simulated "radio stations" displaying metadata messages. Key findings:

- Artist and title information is table stakes. "Consumers expect it from the audio platforms they listen to, whether it's satellite radio, audio streaming services, or broadcast radio."
- Album art could be a powerful feature for radio broadcasters. "Most respondents find it to be a welcome addition to the dashboard experience."
- Ads that include relevant text and logos tend to have higher unaided recall. "Metadata should be brief, compact, and match the commercial's audio message. Similar to billboard copy, text for ads should include the fewest words possible."
- Continuous text ads displayed on top of other audio ads in a commercial break are confusing to most respondents. "Additionally, recall tends to be poorer for these ads, as well as for the commercials they cover."
- Jacobs concluded that radio broadcasters need to improve the dashboard experience by adopting metadata standards to improve continuity and clarity of messaging on car display screens. "Oftentimes, radio does not compare well to other services, like satellite radio or audio streaming services."

In short, listeners like visual content that matches what they are hearing on-air. Conversely, they get confused or even annoyed when visual messaging is unrelated to what they are hearing.

Read more at *https://myquu.net/news/*, and scroll to "Jacobs Study on Ad Metadata."

Watching Tesla

Jacobs likens it to "automakers doing radio broadcasters a big favor" over the years.

But recent dashboard evolution — including moves by Elon Musk's Tesla, which Jacobs says is at the center of the movement to remove radio from the automakers electric vehicles — makes hybrid entertainment solutions a primary focus in which radio can be harder to locate.

Smart infotainment systems, which consider listener preferences in their displays, could ultimately push radio further down the list of entertainment options, he said.

Tesla for instance has a $1,500 upgrade package for older-model Teslas, Jacobs wrote, which does away with broadcast radio and satellite reception. And to get radio reception capability reinstalled on a Tesla will cost the owner another $500, Jacobs added incredulously. Nonetheless, he thinks the rest of the auto industry is watching Teslas's moves closely.

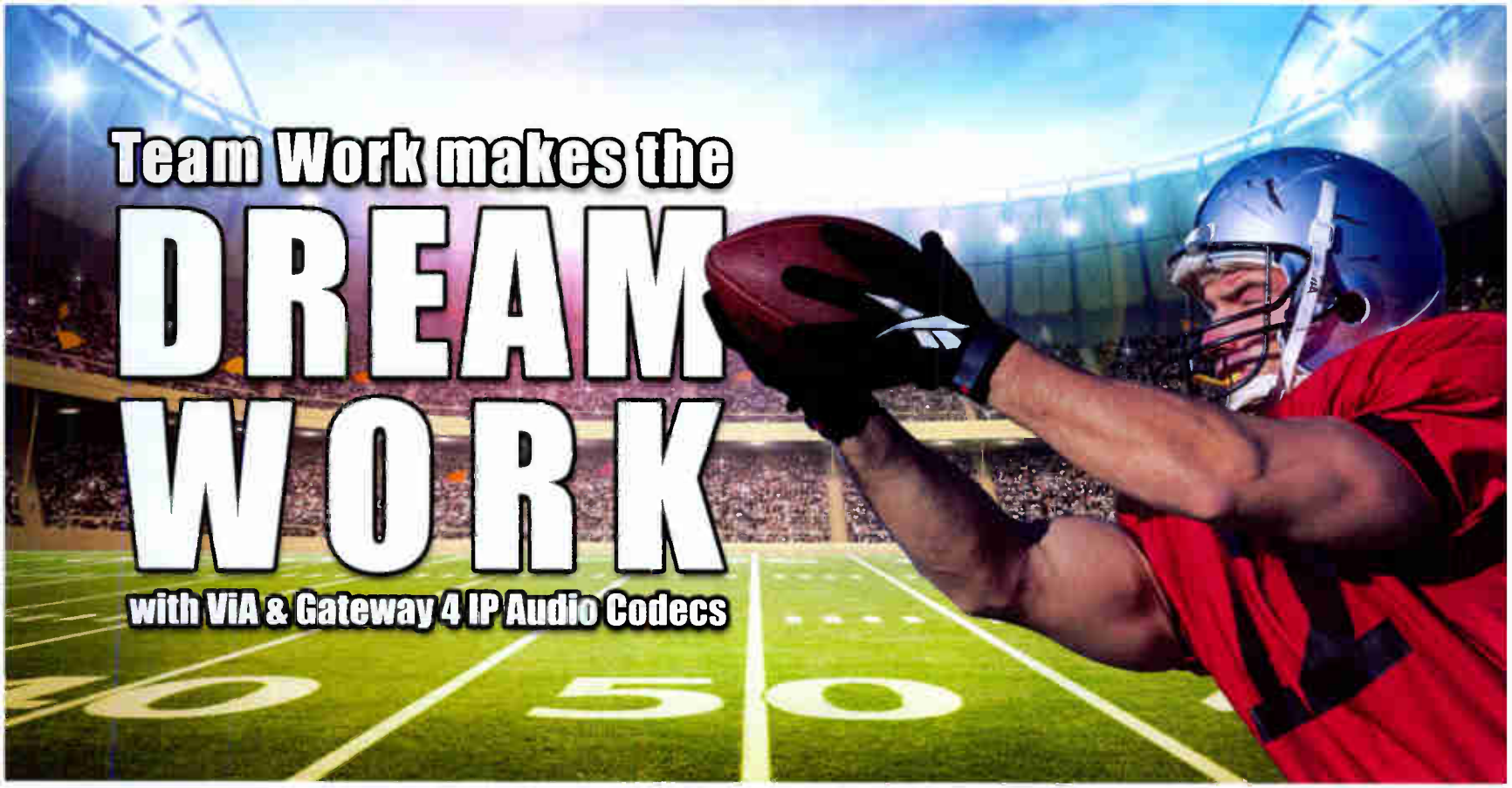
"The other auto companies are begrudgingly taking notice. And they are slowly but surely incorporating Musk's operating philosophies in their own companies."

Loss of momentum

Radio broadcasters historically have struggled in their dealings with automakers, Jacobs told Radio World, because the broadcast industry is not monolithic.

"Like the audio industry's 30-something OEMs, auto companies also are independent operators, each of whom has their own priorities and strategies," he said. "It's like herding cats."

Jacobs acknowledged efforts by the National Association of Broadcasters in recent years to build ties with the OEM sector. But, he wrote: "As we know, the NAB has had a particularly challenging couple of years, between a new building, leadership changes, conference cancellations and other speed bumps."



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The most recent in-car developments coincide with what Jacobs perceives is a potential "loss of momentum" by the radio broadcast industry and their efforts to build relationships with the auto industry.

"Every company and organization has been rocked by the shifting media landscape, and of course, COVID. The disruption has been unprecedented, forcing most players to focus inward, rather than addressing existential challenges — like the car dashboard.

"Unfortunately, the automakers and their T1 partners have not been in neutral. They are in rapid development mode, trying to stay cutting-edge in dashboard technology. And they have challenges of their own, including the question of integrating expanded services from Apple and Google."

Jacobs compared the recent situation to "a slow leak" directly tied to consumer acquisition of new (and later model) vehicles with more options and capabilities.

"The one-two punch of pairing a smartphone and being able to access satellite radio challenges broadcasters' abilities to hold their own. Our research clearly shows driving a true connected car with a system like Ford SYNC or Chrysler UConnect has a direct impact on AM/FM radio's ability to hold onto its consumption level in cars," Jacobs said.

Below
Fred Jacobs

Google Automotive Services is locking down OEMs, Jacobs said, with a deep integration of its features, controlling everything from climate to the windshield wipers to, of course, the media system via voice.

And Android and Apple systems, which are being placed in cars with advanced voice command systems, seemingly make the radio tuner harder to find in new dashboard technology.

Jacobs told Radio World: "It is an imperative broadcast radio stays front and center on those auto display screens. Properly enabled radio station mobile apps appear on both CarPlay and Android Auto. And metadata support and dash display is more important than ever."

Hybrid radio in connected cars will present radio broadcasters opportunities to "attract an audience outside of a station's signal range," Jacobs says.

Jacobs complimented Xperi Corp, licensee of HD Radio and developer of the hybrid radio DTS AutoStage platform, for its efforts making inroads in the world of automotive.

"They are connected with virtually every OEM in the world, connected to more than 10,000 radio stations." He said the company has long had a presence in Detroit, which "is where auto business gets done."

Xperi believes the DTS AutoStage system will help radio stations address many of the concerns Jacobs mentioned, including visibility in the dash, but that would rely on carmakers adopting it widely.

> **Our research clearly shows driving a true connected car with a system like Ford SYNC or Chrysler UConnect has a direct impact on AM/FM radio's ability to hold onto its consumption level in cars.**

Jacobs included a call to action in his last blog in the series. He identified ways in which radio broadcasters could establish better presence in the auto community. The ideas range from a grassroots effort for radio stations to engage their local car dealers to utilizing big stars like Ryan Seacrest and Bobby Bones to promote the medium on a national level.

He also is vocal about the importance of managing the way your station appears to the listener.

"Radio stations have a tremendous amount of control over what appears on the screens of millions of cars and trucks. Problem is, they rarely do anything about it. If there was ever a radio content category that programmers, sellers and managers simply left in the 'set it and forget it' category, it's in-dash messaging, better known as metadata."

Regardless, Jacobs says radio broadcasters must work to solidify relationships with the auto industry: "It will require radio broadcasting's leadership to set aside their differences and speak in one voice."

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The term virtual could be outdated soon

"What we are heading towards is a completely new ecosystem for our industry"

Alan Jurison is senior operations engineer, iHeartMedia Centralized Technical Operations, and the chair of the Metadata Usage Working Group within the National Radio Systems Committee.

Alan you said a year ago that you define virtualization as consolidating broadcast functions into a software environment or single-purpose hardware and facility functions at the transmitter site. How is that definition holding up?

Alan Jurison: I think that concept is progressing. Many vendors are actively consolidating functions into existing processes, whether it be hardware or software.

This is a transition that will happen over time. For the most part, a lot of what has occurred in the last year has been in existing hardware platforms we are accustomed to; as new platforms are developed, I think we will be able to take what we've learned as an industry and consolidate even more functions in the next generation of hardware and software platforms.

You've also said that there's no universal solution for getting stations connected to run air chains completely virtually. How far are we from that?

Jurison: I've yet to see a cohesive strategy provided by a single vendor, or consortium of vendors, in this space. I think that's what it will take for most broadcasters to get started — trusted industry partners to help them accomplish this. Vendors are working in this space, but I still think it'll be a bit of time before we see an ecosystem — i.e. a "product line" or solution that a station could buy into to accomplish this.

The idea of "air chains as a service" is just so interesting. Will we really get to that point?

Jurison: I think so. As connectivity options at transmitter sites improve and become diverse, there will be stations that opt to consolidate everything into a single service or set of appliances to enable them to do exactly that.

We talked too about connectivity.

Jurison: The success of these future solutions will live or die with connectivity. IP is competing with traditional RF-based STLs that, when designed properly, have near-perfect uptime.

Finding a combination of reliable and diverse connectivity to the transmitter site is key. Diversity is key. You can't put all of your connectivity in one basket, i.e. with the same connectivity provider, and the same types of delivery mediums.

I think it is possible to achieve IP diversity at many sites across the United States right now with existing wired and wireless telco infrastructure with different providers. As we move forward, connectivity options will only increase over time, as additional technologies and delivery mediums are offered by IP/telco solutions providers.

Are we farther along now in seeing virtualization come to PPM, to EAS?

Jurison: With PPM, we are already there. With the NAB Radio Technology Committee and Nielsen's PPM Software Encoder, the major audio processing companies all have solutions that eliminate the need for an external PPM encoder.

With EAS on HD2/HD3/HD4, the industry now has a great solution for including alerts on HD subchannels.

EAS on main-channel AM and FM stations is a bit more involved, as the broadcasting industry needs to have broader discussions with our partners at the FCC and FEMA.

What else should we be considering on this topic?

Jurison: As time has gone on, it almost seems the term virtual is becoming outdated.

The IT space has moved away from virtual environments and changing platforms completely to work with cloud-based infrastructure. While the industry doesn't have a "virtual air chain" today, I think by the time we get to that, we'll be calling it something else.

We likely won't call it cloud-based either. What we are heading towards is a completely new ecosystem for our industry. Because the new ecosystem will be rapidly changing to meet the industry's needs, we won't have time to sit around and dwell on what we should call it.

Learn more

This interview is from the ebook "What's Next for Virtualization?" Find it at *radioworld.com/ebooks*

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John Bisset
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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.

Apostoli Rossetti/Getty Images

Our garden of ideas

Plant a seed and help a colleague. Send your tips and ideas to *johnpbisset@gmail.com.*

Retirement starts in your living room!

Also, remember to identify Pin 1 when wiring XLR connectors

A reader wrote in to ask, "Could someone identify the location of that mountaintop community tower site in the photograph included with the article 'Time to Plan for Old Man Winter' in your Oct. 13 publication? It reminds me of Tiger Mountain east of Seattle."

The image is reprinted above. Radio World Editor-in-Chief Paul McLane replies that the photo in fact shows towers atop Paganella, a mountain in the Trentino-Alto Adige region of the Italian Alps.

Have you been there? Tell us about it at *johnpbisset@gmail.com*. And other great tower site photos welcome!

Potential gotcha

Dave Kline — who describes himself as a solder jockey — writes to comment on our discussion of 3.5 mm TRRS (Tip-Ring-Ring-Sleeve) connectors as used in computer audio wiring, and the potential "gotcha."

Not only might the ground/common/shield not be where you expect it, but its location may differ depending on the device. Dave ran into this when trying to interface audio with Apple iOS devices and other devices such as ones from Samsung.

He found that there are at least two different "standards." Most notably, the common, which is on one of the rings shown in our previous column, might be on the shield for other devices.

Dave found an explanation that included drawings. Google "Mashtips Apple headphone" and look for the story headlined "Apple Headphone on Android Is Not Working ..."

The "standard" that uses ground on the shield not only seems intuitive but is more compatible with common TRS (Tip-Ring-Sleeve) wiring.

If we have at least two "standards" for wiring TRRS connectors, who knows how many more might be lurking in the dark to make our day more interesting? Great point, Dave.

I should add that Dave began his email with an

Above
Do you know where this photo was taken?

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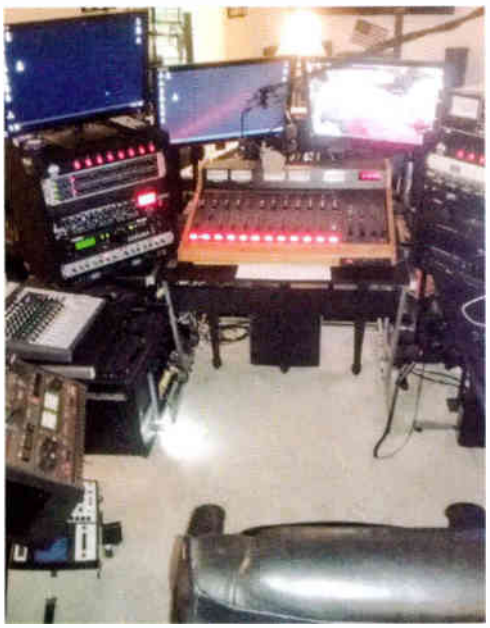
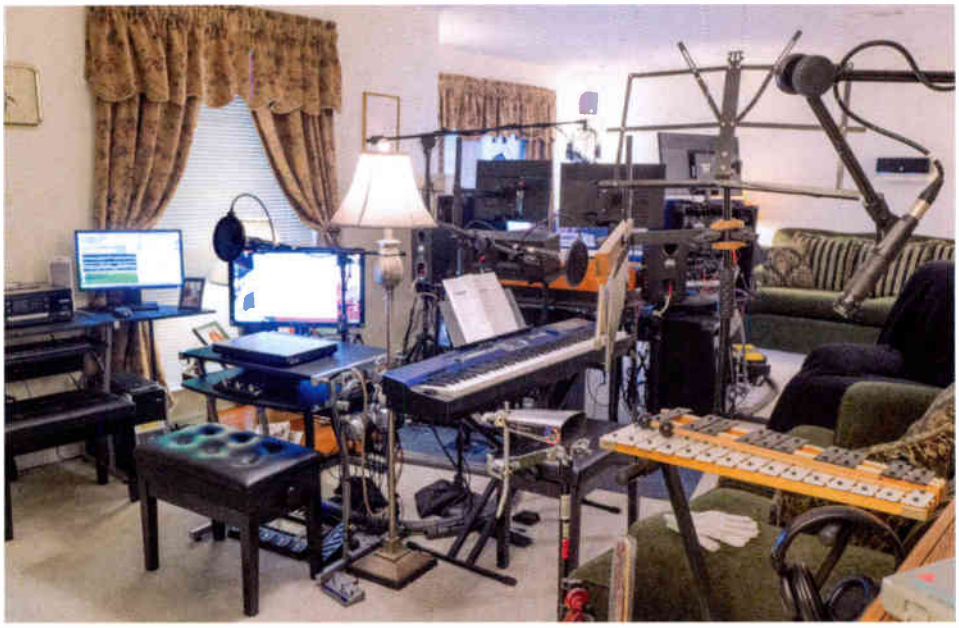




Above Left
Start with a studio in your living room.

Above Right
The musician's pit!

Below
A handy reminder for wiring XLR connectors.

appropriate quote from Andrew S. Tanenbaum, an American-Dutch computer scientist: "The good thing about standards is that there are so many to choose from." (For you old-timers, think "AM Stereo.")

Keeping his hand in

Over the course of his career, Harry Simons has worked in numerous roles: on the air, as a chief, as a director of engineering and in station management. So it's not so unusual that in retirement, Harry chose to build a studio in his living room, shown here.

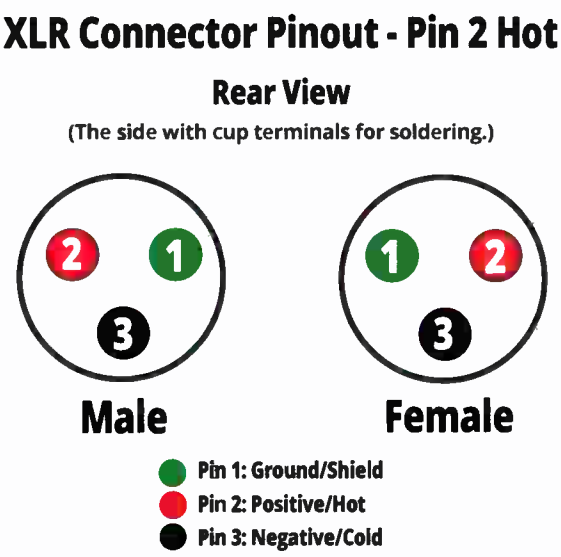
In addition to a Radio Systems console, Harry has added a variety of recording equipment and a Musician's Pit; see the second photo.

Harry produces and mixes tracks for local groups, as well as music for a Part 15 carrier current/internet station that he programs.

It's true: Once broadcasting is in your blood, it never really leaves — even in retirement.

Harry can be reached at *h790@cox.net*.

> **If we have at least two 'standards' for wiring TRRS connectors, who knows how many more might be lurking?**



A note about pins

Following up on our "Pin 1 is ground" discussion in December, here are a couple things to remember when wiring up an XLR connector.

First, although soldering wires to the pins on an XLR connector is straightforward, when you observe the pin numbers imprinted on the connector, keep in mind that the location of "Pin 1" flips from left to right (or vice versa) depending on the sex of the XLR.

A common mistake is to wire all the terminals the

Continued on page 19

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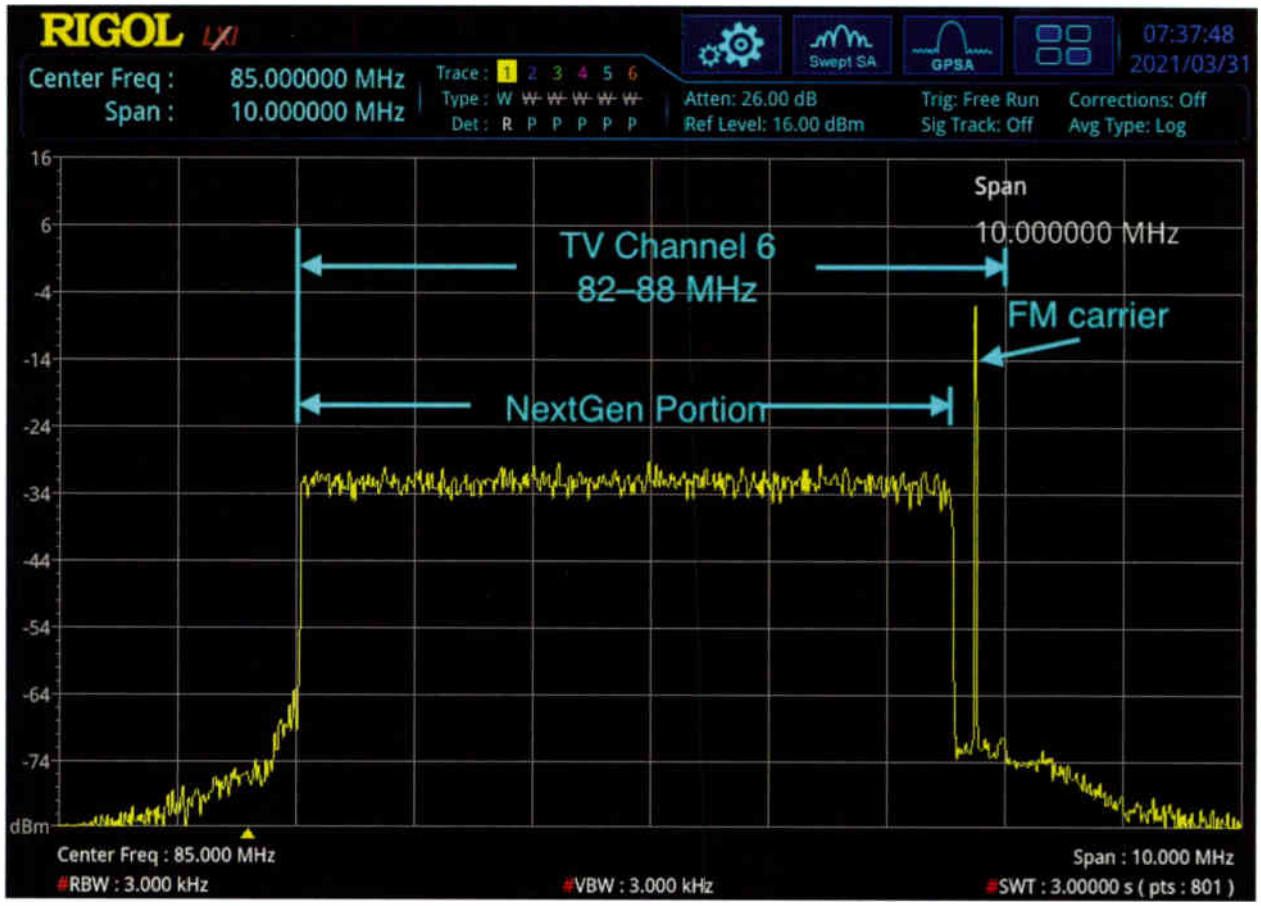
Wheatstone

Writer
Gary Stigall
A contract broadcast engineer in San Diego, the author has 44 years in radio and TV engineering.

Comment
We welcome letters to the editor. Email *radioworld@futurenet.com*.



A TV/radio experiment in San Diego

TV station broadcasts hybrid FM-ATSC 3.0 signal on Channel 6

A local San Diego low-power TV station is testing the broadcast of FM signals over ATSC 3.0 (aka "NextGen TV").

KRP(LD) San Diego, low-power TV Channel 6, atop Mt. San Miguel, is the first station in its market to broadcast ATSC 3.0. The FCC granted a Special Temporary Authorization for a signal on TV Channel 6, 82–88 MHz, that includes an innovative analog FM carrier at 87.75 MHz.

According to Director of Engineering Daniel Bissett, licensee Venture Technologies Group LLC completed construction of the new signal in early October.

Analog broadcaster KRPE(LP) and Channel 6 low-power TV stations nationwide had for years been marketing to audiences as an FM station, broadcasting aural subcarriers with high injection levels and 75 kHz FM modulation in order to attract listeners using conventional FM tuners.

Many industry engineers had derisively called these "Franken FM" signals on 87.75 MHz, the traditional Channel 6 visual carrier frequency. For their accompanying analog TV visual signals, they carried a static graphic, slide show or limited video.

Venture filed an application with the FCC in October to license KRPE(LD) as a NextGen station, confidently citing FCC rules regarding the adoption of NextGen without explaining the two-part signal.

"This is done because the License to Cover must be granted before the STA for the FM carrier can be requested," Bissett said.

Venture filed like applications for their other stations earlier in 2021: KBKF(LD) San Jose, KEFM(LD) Sacramento, WRME(LD) Chicago, and KZNO(LD) Big Bear Lake (Los Angeles), and the FCC granted each.

Bissett says Venture broadcasts a signal at each of its Channel 6 stations fully compliant with the ATSC 3.0 standard, ingenious with its flexibility. He says the scheme should be adopted by the FCC without having to ask for temporary authority. And he adds that tests have shown the signal to be compatible both with current NextGen demodulation devices and analog FM tuners.

Venture first implemented NextGen TV at its station in San Jose, KBKF(LD). Bissett says that the station first tried to use 87.70 MHz as its FM frequency for compatibility with synthesized FM tuners but found many car tuners put out unacceptable levels of distortion in their demodulated audio. When they moved to 87.75 MHz, the distortion cleared, so they adopted the old frequency in their FCC filings for their Channel 6 properties.

Bissett says the cause of this distortion so far remains a mystery unsolved by tuning their output filters. (On the other hand, my disciplined Sony XDR-F1HD tuner cannot demodulate an 87.75 MHz FM signal without this same distortion.) Their ATSC 3.0 signal occupies 5.5 MHz of the TV channel.

They're using transmitters assembled by Italian manufacturer Syes and by American Amplifier Technologies of Sacramento. Com-tech of Italy makes their output filters, and Bissett says the ATSC mask filters use eight cavities.

It hasn't been lost on Bissett that there is great potential in multicasting digital audio signals on Channel 6 ATSC. Ignoring for a moment the enormous political hurdles to doing this, he says mobile reception tests of NextGen on Channel 6 have been disappointing. You can see on the spectrum diagram (Fig. 1) that the average visual signal is at least 24 dB below the level of the FM carrier, so the signal tends to drop out behind terrain.

> **“Tests have shown the signal to be compatible both with current NextGen demodulation devices and analog FM tuners.”**

Bissett doesn't see much future in mobile broadcasting with the present broadcast model of few, prominent transmitters. However, Qualcomm's implementation of Forward-Link-Only TV ("FLO TV") digital broadcasting in the late 2000s took this into account with its synchronized, multiple-transmission-point system for each of its metro markets.

For now, Venture provides only a direct response shopping channel on their visual NextGen TV signals. They are looking for additional revenue opportunities.

Continued from page 14

same, regardless of the sex of the connector (Male A3M or Female A3F). Since Pin 1 is ground and Pin 2 (next to it) is the hot or "+" you should refer to the pin numbers embossed or printed on the connector.

Oh, and before you begin soldering, don't forget to slip the XLR cover over the wires!

A nifty specialty tool

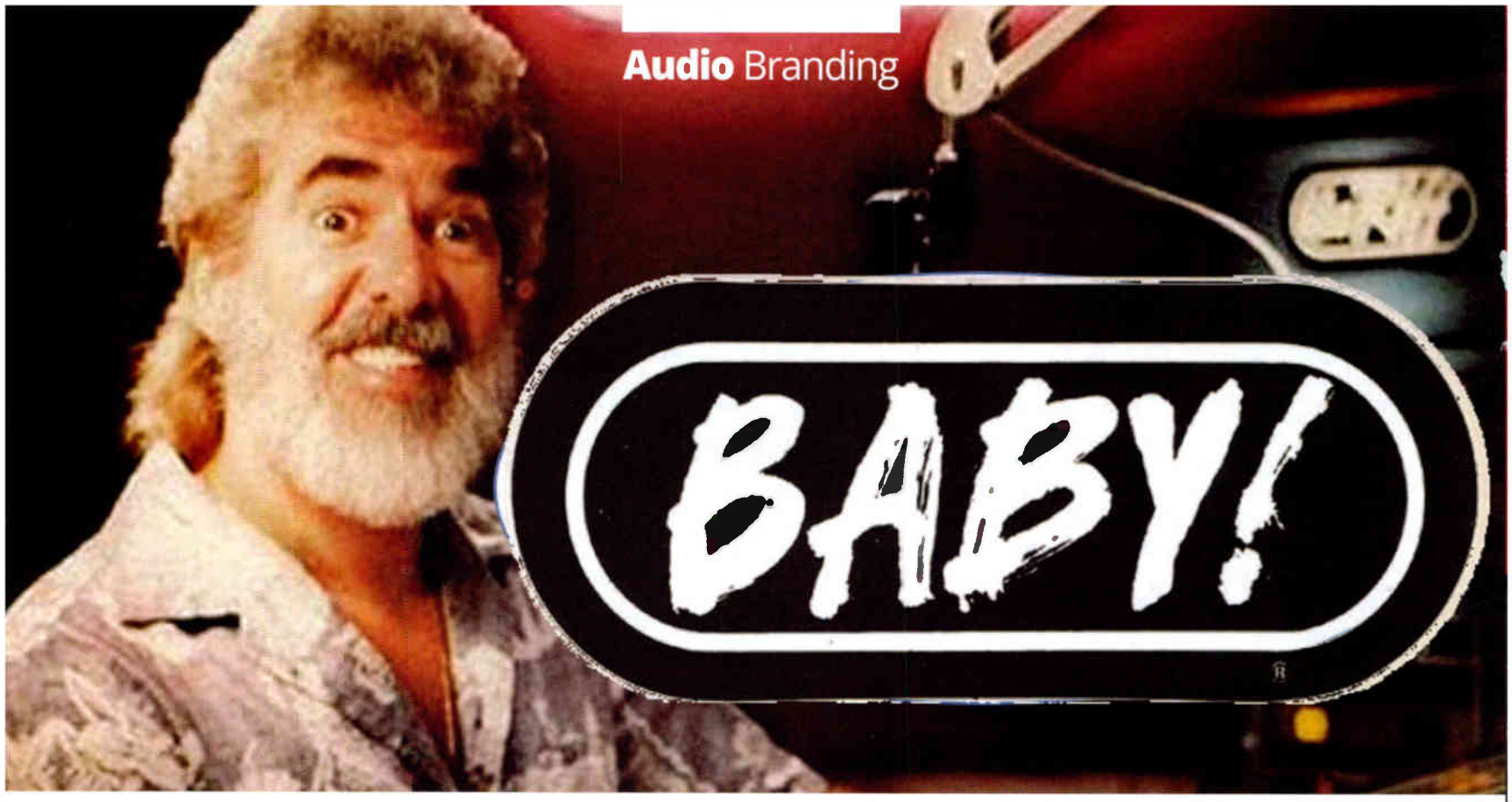
There's nothing more frustrating than radiofrequency interference. But when RFI affects airport communications, the problem is no longer just a nuisance. It must be corrected quickly.

In the case of Rotterdam The Hague airport, interference was coming from an arcing electrical substation. The problem was resolved with the help of a Fluke ii910 Precision Acoustic Imager, which was developed to help engineers detect and identify such sources of electrical discharge. (It can also be used to detect air leaks.)

The handheld ii910 has a 7-inch LCD touchscreen that displays the results of an array of integral microphones that convert ultrasonic signals into clear visual images. It quickly diagnosed the source of the problem at the substation.

Read more about this device and the problem it corrected at the airport. At *fluke.com*, search "The Hague."

Left
European electricity transmission system company TenneT used a Fluke ii910 Precision Acoustic Imager to troubleshoot an interference problem at an airport.



Audio logos are powerful, in radio and beyond

Veritonic ranks logos that best project brand identities

Writer

James Careless

The longtime RW contributor wrote recently about SiriusXM's fish mapping service.

For smart businesses, in a world where the selection of audio channels just keeps increasing, having a strong "audio logo" for branding purposes is more important than ever.

Whether it's the distinctive three chimes long used by NBC (the musical notes G-E-C), or the McDonald's short whistled melody, or the choral "Liberty, Liberty, Liberty ... Liberty" tag employed by the Liberty Mutual insurance company, the most effective audio logos stay in consumers' minds.

Listeners just have to hear these short audio bursts to remember which brands the logos are referring to.

For the past five years, the audio intelligence firm Veritonic has ranked the most effective audio logos (as determined by AI-assisted measurement tools).

In 2021, Farmers Insurance had the highest ranked audio logo in the U.S., while McDonald's was tops in the United Kingdom.

Above
Detroit DJ Arthur Penhallow came up with the slogan "Baby!" at WRIF.

Make it stick

But the "2021 Audio Logo Index" — available for free download at *www.audiologoindex.com* — doesn't just offer rankings by business sector: It also provides tangible advice on creating "sticky" audio logos — memorable, emotionally resonant, correctly associated with a brand.

"The value of saying your name has never been more obvious," states the report. Equally as important is crafting audio logos that reflect the diversity of the target audience, so that consumers feel acknowledged and respected by the brands they're listening to.

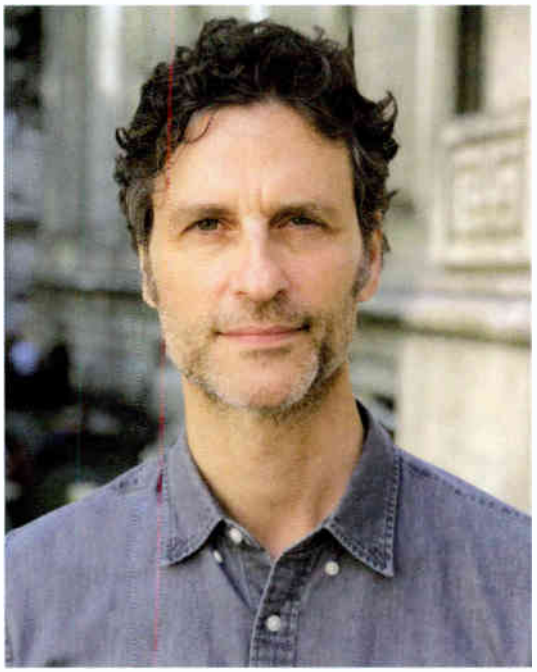
(One nice feature in this report's downloadable PDF: It includes links to the audio logos being cited, so that readers can hear what Veritonic is writing about.)

> **"The value of saying your name has never been more obvious."**

Also worth noting: Sound and words together can be extremely effective in creating sticky audio logos.

"In particular, companies that combine melody and brand name repetitions score consistently higher on our audio logo rankings," said Scott Klass, Veritonic's SVP of marketing.

"This is why the Liberty Mutual audio logo does so well: They sing the brand name four times. Liberty is the poster child for audio logos that not only stay in your head, but help people know exactly which brand they're hearing."



Above
Scott Klass

Why they work

Dave Bethell is co-owner of TM Studios in Dallas, a 50-year-old company known for its work in radio branding jingles.

"We sing our first audio logo in the form of the alphabet song," Bethell told Radio World. "There's a reason why we learn music when we're children. Combining words with music imprints in a different area of the brain than is used for spoken word memory. Our ability to remember music melodies and the words or messages associated with them is scientifically proven to be more effective than words alone, which is why memorable audio logos stick with us."

When it comes to audio logos for radio, the most memorable ones reflect the stations that they are promoting.

"Audio logos that evoke the brand in a visceral way can be especially effective," said Fred Jacobs, founder of Jacobs Media, which creates audio logos for its clients.

"San Francisco's KOIT(FM) was famous for its audio logo, which used a cable car sound effect. This sounded evoked the San Francisco vibe very successfully, and it made you think of KOIT whenever you heard a cable car go by."

He recalls that WRIF(FM) DJ Arthur Penhallow came up with the Detroit station's signature slogan "Baby!" that became an audio logo in its own right. "Baby!" was so tied to WRIF that "it eventually made its way to bumper stickers and merch," said Jacobs. "Whenever people thought of WRIF, they bellowed out a 'Baby!' imitating Art's voice and exuberance."

Making logos

Jacobs is a big believer in audio logos for radio stations. But

Above
Dave Bethell of TM Studios.

it takes more than a choir singing the station's call sign to make an audio logo memorable.

In fact, so many stations use this form of audio branding that it may be counterproductive to create audio logos in this manner.

So what does it take to make an effective audio logo for radio?

"The key to winning in radio — and for a brand — is capturing the consumer's attention; better yet, getting inside her head," he replied.

"To achieve this, the sound has to be memorable and evocative. It helps to have a regional or local hook too, and to offer something that is relevant to the target audience."

The success of KOIT's and WRIF's audio logos were rooted in these principles. Today, a similar approach can be used by bringing together a short instrumental sting that aligns with the station's music format, locally meaningful sound effects like KOIT's cable car, and the station's call sign and punchy slogan — ideally something witty that has caught on with listeners like WRIF's "Baby!" rather than a vague marketing tag like, "Always with a better song!"

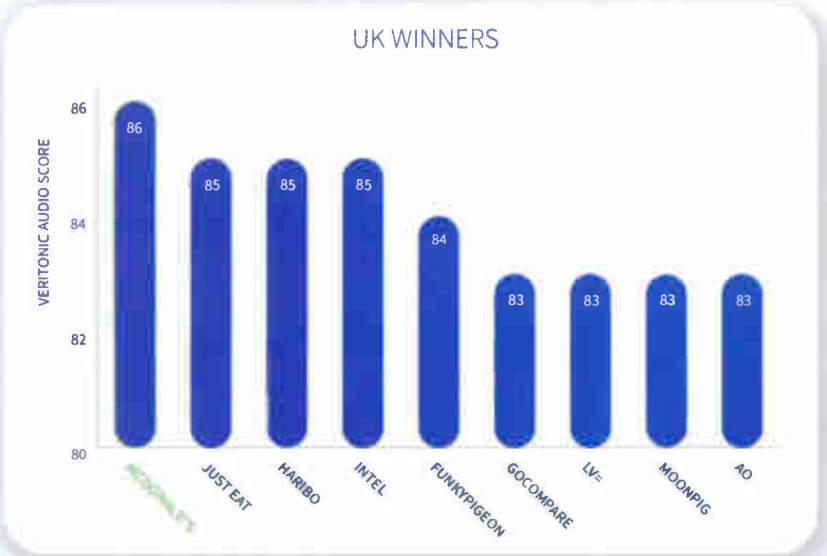
To determine which audio logos actually capture consumers' attention, Scott Klass recommends leveraging consumer response data targeted within the station's listening area to see which ones work best.

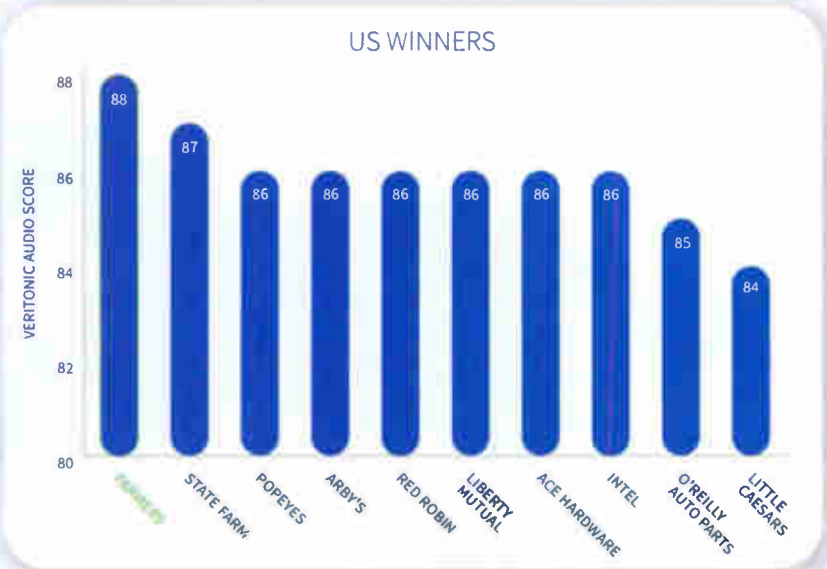
"Veritonic is a data analytics company, so naturally I suggest that people look at the data," he said. "If you need ideas as to what specific elements work best in audio logos, I would refer to our 2021 Audio Logo Index."

Results on a budget

Memorable audio logos don't have to be expensive, said Bethell, as long as the content is unique, evocative and closely identifiable with the radio station being promoted.

He does recommend keeping audio logos short, because attention spans are shorter than they





Above
Top 10 by Veritonic Audio Score in the United States and the United Kingdom, respectively

used to be.

"Back in the day, the radio industry used three-minute jingles where we'd sing all about the place where the radio station was from," said Bethell. "Today, audio logos have to be very short because we want to get the listeners back to the music."

As for radio executives who don't think that audio logos matter?

"Whether you're in a PPM or a diary market, consumers have to remember you — and then remember to listen or write you down," Jacobs said.

"Sonic signatures can be that special identifier. Yes, there are other brand practices that are more comfortable and familiar to some executives because they're more traditional, such as logo design, station voice and slogans. But in the age of smart speakers, when clear sound branding is more important than ever, standout audio logos are a must." RW

Marketplace Orban Rolls Out XPN-Enterprise

Orban says its new Optimod XPN-Enterprise ecosystem is a customizable, Linux-based processing platform with capabilities for centralized contexts, including broadcast groups that run multiple stations or clusters and/or streaming services.

"It provides Orban's proprietary OptiCloud processing for up to eight FM and eight HD/DAB+/Streaming processing channels in a 1 RU package and supports AES-67/SMPTE-2110 protocols using an enterprise-class SoftGear server and the appropriate Optimod XPN-Enterprise Nodes," it stated.

The XPN-Enterprise server is shipping, as is the XPN-Enterprise AES3 Input/Output Node. Orban said nodes to extend the available outputs and functionalities are coming including DMPX, Kantar and Nielsen watermarking and Orban uMPX.

Content to be OptiCloud processed is brought to one location using AES3, AES-67, SMPTE-2110-30, Dante or Livewire+. It creates the necessary outputs (FM composite, DMPX, uMPX and DAB+HD) using the appropriate Orban XPN-Enterprise Nodes for distribution to each transmitter site.

The server also handles processed channels for streaming, sending those outputs to the appropriate streaming devices.

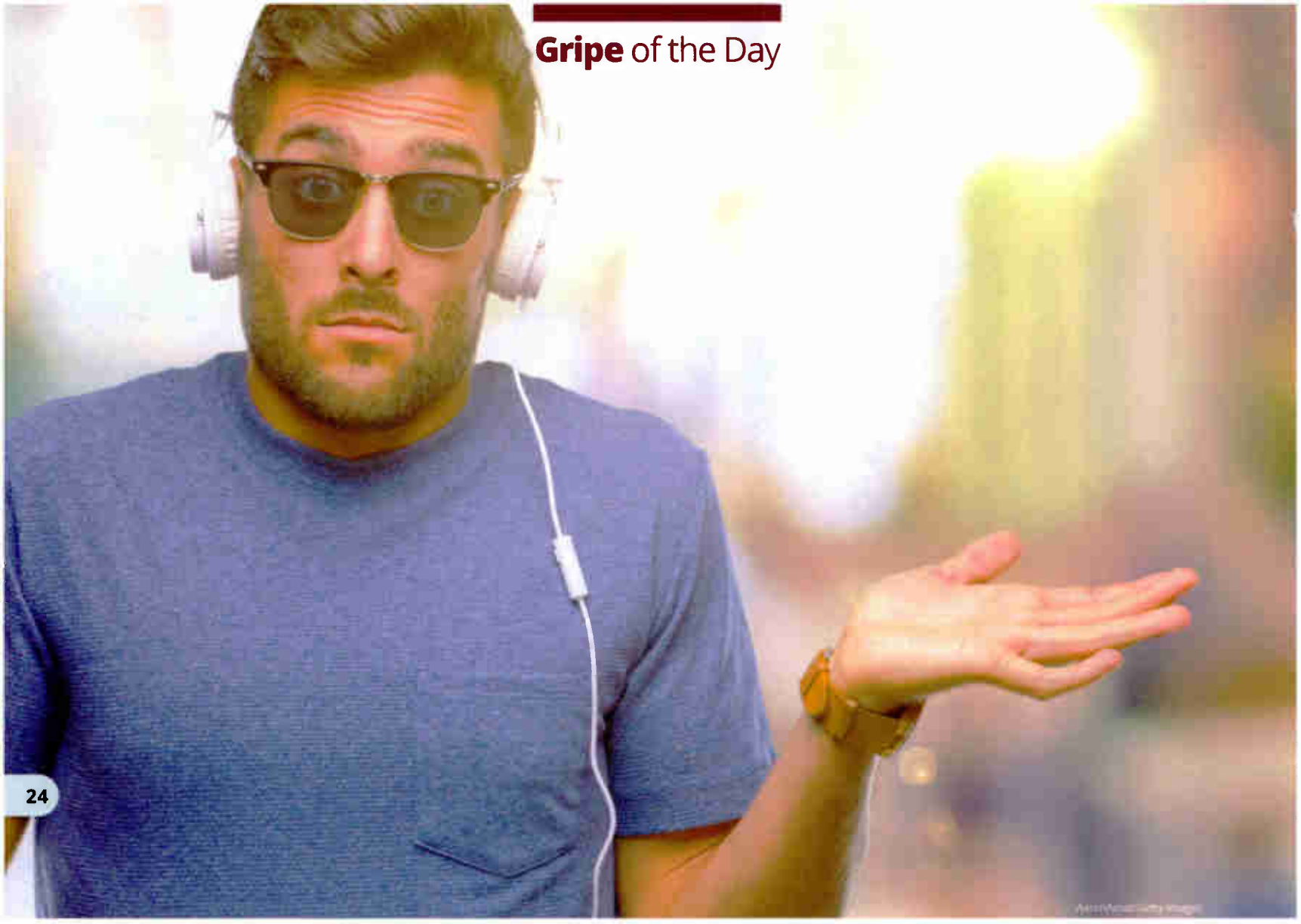
"Each signal coming into the Optimod XPN-Enterprise server can be individually processed, with Orban's OptiCloud providing precision tailoring of each station's broadcast or stream to meet the requirements of the audience and delivery method."

Features include presets for various formats and "Less-More" controls to simplify "dialing in" a desired sound by combining multiple processing parameters.

Orban also highlighted its "Last Mile" solutions including XPN-Enterprise input and output nodes and low-bandwidth solutions.

"This 'Last Mile' service is especially important for stations whose transmitter sites may be in locations with less-than-ideal internet access. We make it possible to manage our processing remotely and feed that signal to a site on lines as slow as 500 kbps, with high-quality results. And many nodes are 'Power over Ethernet' (PoE) capable, further simplifying installation."

Info: www.orban.com



Writer

Larry Langford
Chief engineer and owner of WGTO Cassopolis, Mich., and W246DV South Bend, Ind.

Time to come clean on AM quality

Someone explain to me why radio manufacturers still have not accommodated the NRSC standard

I have written in recent years about AM quality, including modulation and bandwidth. Many experienced and qualified engineers have authored articles on this topic.

Today I want to ask a few questions and set the stage for answers that seem to have evaded us for more than three decades.

A brief history

AM radios were at one time rather broad in their front-end response. And while that sounded pleasant, that caused trouble as the band became packed with more stations. The typical receiver delivered degraded audio, as its wide front end let in adjacent signals that made listening less enjoyable, especially at considerable distances.

The problem was exacerbated by AM stations running boosted high-frequency audio at full unrestricted bandwidth, as the audio demanded.

As a response, manufacturers tightened up the IF so the audio output was less affected by adjacent-station high-frequency modulation. We then saw years of tit for tat. Denser modulation with high-frequency boost was met

with more narrowed response by radio manufacturers.

The battle went on until AM sounded more like telephone audio than a quality audio service.

In the 1980s the National Radio Systems Committee set out the honorable goal of standardizing transmission equalization with preemphasis that was matched by complimentary deemphasis in receivers. The goal was a much improved end-to-end listening experience, one that could approach the sound of FM in new radios.

The FCC adopted the transmission preemphasis, along with a bandwidth limit or mask for modulating audio with a cutoff that was as sharp as the edge of the Grand Canyon, blocking anything over 10 kHz from making it onto the air.

Receiver manufacturers said they would soon open the front ends of typical cars and home radios once the new preemphasis and cutoff were adopted.

Fact is the mask cutoff worked so well that you could sit five miles from a 50 kW station and tune to a 1 kW first-adjacent 80 miles away and hear it with no interference from the nearby flamethrower on just about any modern car radio. For the casual listener on a consumer radio, the days of adjacent interference were over.

Teach us your tech!

Share your own tech tips or stories about how you solved a problem. Write to *radioworld@futurenet.com.*

The present

It has been more than 30 years since that agreement was made at the NRSC table, more than a generation since the plan was drawn up.

We have gone through many phases since then — AM stereo, which died. AM nybrid digital, which frankly sucked. And now finally a move to go all-digital.

But we know that analog radios will be around for years to come. Most of the senior engineers from the manufacturers who were working in the '80s have long since passed away. But the standards that were supposed to change never did.

I often wonder why the NRSC or NAB could not twist some arms and why the FCC left the room when asked to mandate the new receiver standards; but that is another story.

AM portable and most car radios still have audio response that rolls off like a ski slope after 2 kHz. But every station in the United States and some other areas have adopted the 10 kHz cutoff.

The question and challenge

A lot of people read Radio World so I am looking for someone to answer the question in technical detail of why, after all these years and tests, the standard AM radio is still unnecessarily narrow and bad-sounding.

I want someone with credentials as a manufacturer to step up and tell us what possible reason they have for not redoing the basic chipset in 30 years to accommodate the NRSC standard.

The argument has gone on for decades, but I have never seen a written word from any trade group or individual representing radio manufacturers that really explains this position.

Manufacturers promised the NRSC they would make radios to compliment the new standard, even though the FCC never made the receiver improvement mandatory, while making every radio station modify transmission systems to meet the new standard.

Makers did respond quickly to the expanded band, cranking out radios that went to 1700 kHz at record speed; and now they are slowly making digital radios for more car models. But no one took the simple step of changing the mass-produced chipsets to something that would better resemble decent fidelity since 1988.

Someone tell me why improvements were not made to increase bandwidth to any reasonable degree. Is there a political answer? I cannot think of an engineering answer, but I wish to open the floor for someone to stand up to explain this archaic practice of tightly limited AM bandwidth — at a time when most AM listening is local, and adjacent interference at that range is rare. Is there anyone from the manufacturing side who will offer testimony? Is there someone to come forward or will we hear only country crickets in the night?

Comment on this or any story to radioworld@futurenet.com. The author can be reached at LarryLangford@aol.com.

> **I want someone with credentials as a manufacturer to step up and tell us what possible reason they have for not redoing the basic chipset in 30 years to accommodate the NRSC standard.**

Writer
Dan Slentz

Chief video engineer for The Cleveland Orchestra, he has been been doing engineering, on-air or production in radio and TV since the age of 14.

Having fun with the Elgato Stream Deck

Content creation controller has uses for a radio dude or dudette

Many engineers are familiar with programmable keypads, sometimes referred to as X-keys, used for shortcuts to computer software. A gaming company called Elgato has taken the idea a step further with something called Stream Deck.

This is a hardware box with buttons that simply connects to a computer (Mac or Windows) via a USB port. There are no additional power requirements or anything else but the USB cable.

This content creation controller is aimed at the new world of video streamers: "Streamline your setup! Elgato Game Capture, OBS, Twitch, Twitter, TipeeeStream, XSplit, YouTube and more — Stream Deck integrates your tools and automatically detects your scenes, media and audio sources, enabling you to control them with a quick tap of a key."

But there's plenty here that a radio person can put to good use.

Engaging keys

With three sizes, you can have a 32-button, 15-button or small six-button version of the Stream Deck.

Utilizing its software (a free download from its site), you can easily create shortcuts and macros to allow this device to control the computer, connected hardware or software.

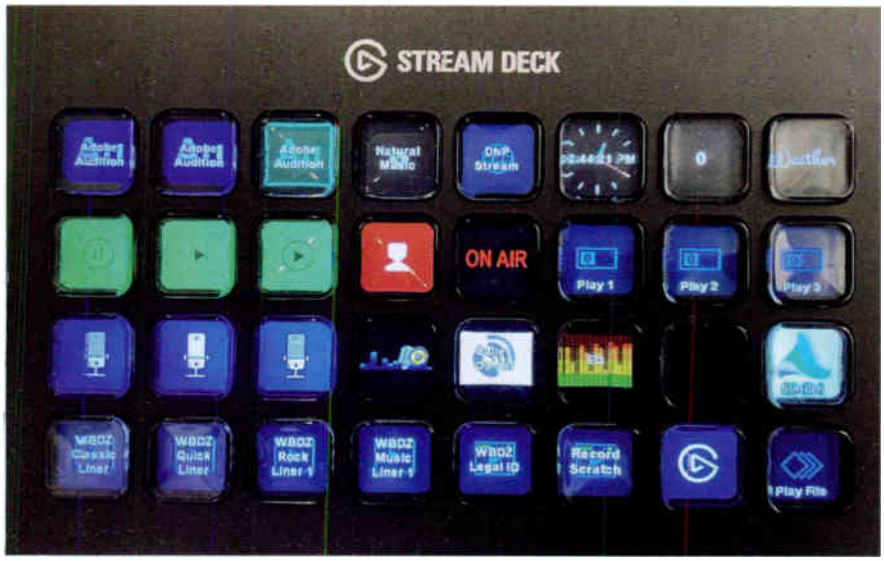
Making this more visually appealing and user-intuitive is that the keys are backed by full color LCD graphic displays. You can place JPGs or animated GIFs on the key faces to represent functions or software.

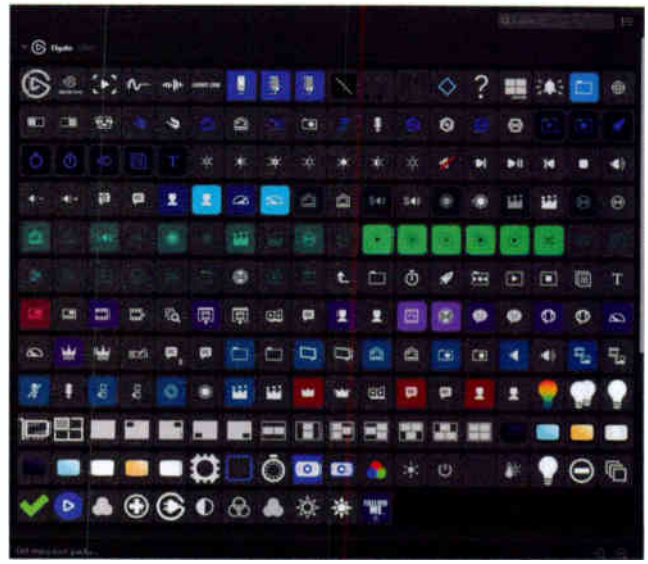
And while 32 buttons gives a lot of options, you can have one button to act like a shift or control key to take you to a new layer/page of presets, thus increasing choices.

Since the Stream Deck has no GPIO interface, for the device to control hardware, either that hardware must have software on the PC, or another device (like a USB to GPIO adapter) would be needed.

Enticing

Elgato is a company that focuses on gaming, but its technology has some enticing possibilities when tied into





radio broadcasting, webcasting or video for radio when interfacing into the workflow of a radio station.

On testing Stream Deck, I was successful in controlling BSI's Simian automation software, opening Adobe Audition and quickly recalling effects and settings. I was also able to load audio (from music to SFX) and activate equipment off and mic mute buttons. In addition it can display currently playing audio represented by a horizontal bar graph meter. You can have a combined analog/digital clock displayed as a button (accurate with the computer), and even a button that updates the temperature and current weather graphic (displayed on the button).

Above left The author's Stream Deck with custom buttons.

Above right Stream Deck icon library.

It's easy to use and lots of fun. I suspect other users, including the creative geniuses working for morning shows, might make this do even more cool things.

Elgato is based in Germany and California. Founded in 1999, it was acquired in 2018 by Corsair Gaming Inc.

Stream Deck XL (32 buttons) lists for $249.99. Stream Deck (15 buttons) is $149.99 and Stream Deck Mini (six buttons) is $79.99.

Also available is Stream Deck Mobile software for smartphones (Apple and Android), with a 30-day free trial, then $2.99 a month or $24.99 a year for a subscription. For info see *www.elgato.com/en*.

BROADCAST EQUIPMENT EXCHANGE

BROADCAST EQUIPMENT EXCHANGE

Writer

Ashruf El-Dinary

Senior Vice President of Engineering, Digital Platforms, Xperi

Xperi completes successful HD Radio Tests in Delhi

Company says its solution is well positioned to support digital FM transitions in India

Xperi has been actively testing HD Radio in Delhi, India in cooperation with All India Radio. HD Radio, which has been implemented in more than 4,700 digital channels around the world, reaching over 400 million listeners, utilizes existing broadcast infrastructure to add a digital transmission that delivers a more compelling and engaging over-the-air experience for listeners.

HD Radio testing in India started in January 2020 at Akashvani transmission site and was interrupted by COVID-19 restrictions for over 10 months. Additional testing at Jaipur, India began in February 2021. Test activities concluded in February 2021.

The testing is part of HD Radio's initiative to fulfill India's roadmap for digital radio through the Digital India initiative. HD Radio services can be key to establishing a much-needed, digital, world-class broadcast network to serve all the citizens of India.

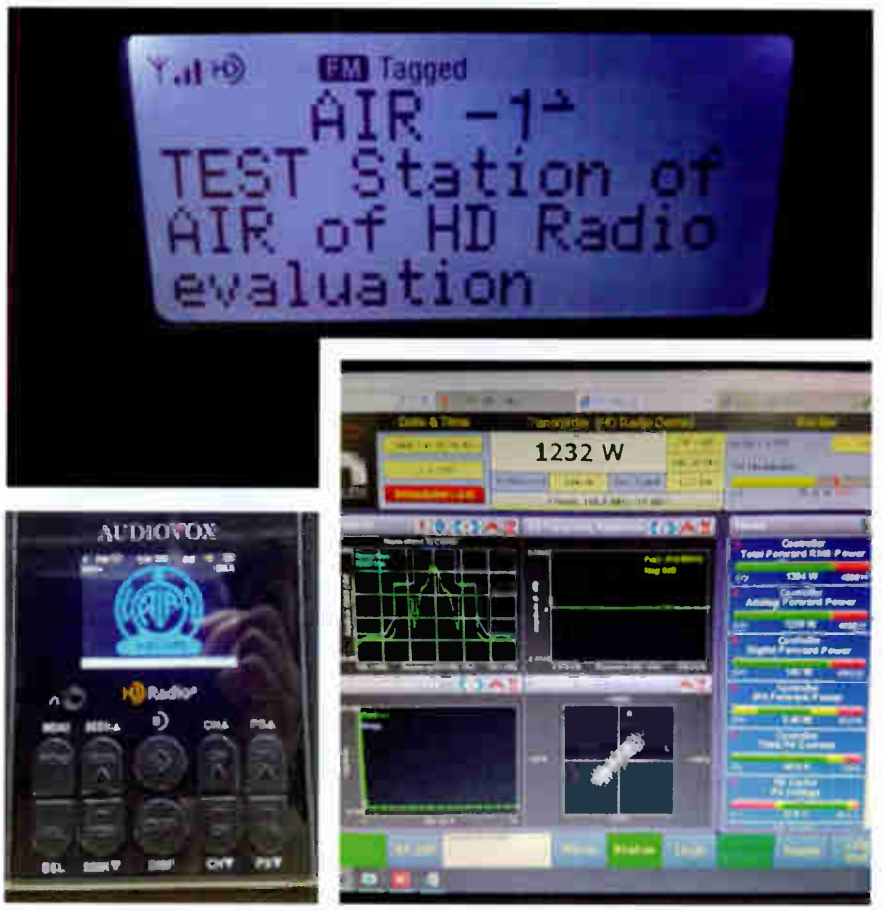
While most other technologies are transitioning, or already fully transitioned, to digital services, digital radio in India has lagged behind. In India, radio has a long history of providing critical public services and important information, in multiple languages to the population. Unfortunately, not everyone has ready access to internet and data services, especially in rural regions.

But, because HD Radio can easily and inexpensively be integrated into mobile handsets for ease of use, it can digitally provide real-time emergency and disaster notifications through cell phones across India's multilingual population, as well as enabling access to national, regional, and local information and entertainment programs.

Key metrics

Xperi partnered with leading industry experts to demonstrate the HD Radio digital FM system in India. An HD Radio transmission system was configured on 100.5 MHz at the Akashvani Bhawan transmission tower in New Delhi. The digital FM broadcast operated in a simulcast mode (hybrid operation of analog and digital) between Jan. 13, 2020 and February 2021 (with interruptions due to COVID-19 lockdowns). All India Radio conducted additional combiner tests in Jaipur.

The tests successfully addressed the key performance metrics established by All India Radio. The HD Radio system tests in Delhi and Jaipur were consistent with operations of the HD Radio system in the U.S., Canada, and Mexico. All service modes met predicted performance metrics for signal quality, coverage, and adjacent channel interference protection.



Right top HD Radio test message as received from All India Radio (AIR) on an evaluation receiver in Delhi.

Bottom left All India Radio station logo seen on an HD Radio receiver.

Bottom right HD Radio transmission metrics displayed on a Nautel VS2.5 transmitter in Delhi.

Commercial receiver products were used in the field test to demonstrate the capability of consumer-grade receivers for the general public and to evaluate the following performance metrics for All India Radio:

- Digital broadcast signal quality
- Digital broadcast coverage
- Host analog interference
- Adjacent channel analog interference
- Building penetration and indoor reception
- Audio content quality
- General receiver performance

Outdoor and indoor reception for all consumer-level radio products were successfully achieved in the test. Each of the products tested featured the key components of the HD Radio system. Of note, the Beatboy feature phone demonstrated the potential digital radio offers when integrated into a mobile handheld device.

"Outdoor and indoor reception for all consumer-level radio products were successfully achieved in the test."

The positive results of the testing in Delhi clearly strengthen the case for HD Radio operations on FM stations in India. That being said, the success of a new digital broadcast service depends on four main points:

- Providing regulatory agencies with solutions to address spectrum and frequency allocation needs
- Providing consumers with a variety of cost-effective products
- Providing radio broadcasters with new business opportunities to realize a return on investment
- Providing future technology integration to remain relevant as new services emerge

The HD Radio testing successfully demonstrated each of these points.

Today, the HD Radio FM broadcast solution is well positioned to support digital FM transitions in India. Xperi's HD Radio team continues regular dialogue with the Ministry of Information and Broadcasting, the government broadcast Prasar Bharati, and private broadcast groups, while showcasing the success of HD Radio in the U.S., Canada, and Mexico. Broadcasters in these markets have experienced increased revenue through HD Radio features such as multicast audio programs, Artist Experience and advertising, and data services to devices and cars. Public safety and digital alert warnings have also benefited HD Radio listeners. These applications can be quickly implemented in India and will increase access to information and diverse content across all socio-economic groups.

In short, the future for digital radio in India is bright. The test report is published at *www.hdradio.in*.

Readers' Forum

Reciva workaround

Regarding the article "With Reciva Dead, Internet Radio Manufacturers Manage the Fallout" (*radioworld.com*, search Reciva):

You may be interested to know and perhaps pass on to anyone in a similar position that while the portal has closed it is still possible to access any stations that have been stored on presets.

To do this turn on the radio. If it gets as far as "searching for the gateway/portal," then it may be possible to hit "back" until the menu showing "Internet Stations" appears.

At that point, with a bit of luck, pressing the preset button will bring up that station. It will not be possible, however, to add any new stations.

It appears that existing portals to stations are somehow stored differently, whether on the radio itself or by Reciva I can't find out. Once you have found the station for the first time you should be able to use the preset either on the radio itself or on the remote thereafter.

W G Hedinger
Vares, France

The C. Crane CC Wi-Fi is one of the receivers affected by the shutdown.

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