

RADIO WORLD

Your guide to radio technology

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FUTURE

RF Grounding in the Rocky Mountains

Spectacular terrain provides great coverage opportunities but also special concerns about lightning.

Workbench

The SensiML sensor tile can be affixed to a fan or motor and give predictive maintenance readouts on your phone.

"Tiny Desk" From Home

Audio engineer Josh Rogosin keeps the NPR tradition alive remotely.

Alexa Gets in the Car

We talk to Arianne Walker, chief evangelist for Amazon's Alexa Auto.

HIGH HOPES

Xperi has big plans for DTS AutoStage.

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Big Ambitions for DTS AutoStage

Xperi's hybrid radio system is intended as a global platform



Paul McLane
Editor in chief

I have a better understanding of the DTS AutoStage hybrid radio platform after interviewing Joe D'Angelo, Xperi's senior vice president radio, in a joint webcast about the company's automotive technology initiatives.

That webcast, "The Future of Radio in the Car," is available on demand, and I hope you can watch it given the expanded role Xperi hopes to play in how radio is delivered and consumed

around the world. Go to radioworld.com and type "Xperi webcast" in the search field.

DTS AutoStage, formerly called DTS Connected Radio, is intended to help stations compete in the dashboard with services like Spotify and satellite.

"DTS AutoStage is really a global connected car platform that enables broadcast radio to collaborate around delivering services to automakers in a direct response to the challenge posed by Big Tech in the car," he told me.

"We've all seen how Big Tech is coming in, they're taking over the dashboard, they're taking over audio services. DTS AutoStage is a global response that puts broadcast radio in control of the platform to design new interactive services, to expand functionality, to engage their customers."

Further, he said, it is free, requiring no capital investment from broadcasters.

Consumers get enhanced content discovery, with "now playing," live presets and a live guide, voice interaction and expanded visual imagery. D'Angelo calls it "a whole different user experience for broadcast radio." The emphasis is on helping consumers discover local broadcasts carried by on-air signals.

Xperi's recent merger with TiVo accelerated developments; TiVo knows about aggregating content with video metadata, so it brought useful resources to a similar task involving music metadata.

The first mass-market vehicle launch was in the Mercedes S-Class, a car with no fewer than five screens where occupants can consume radio and radio metadata.

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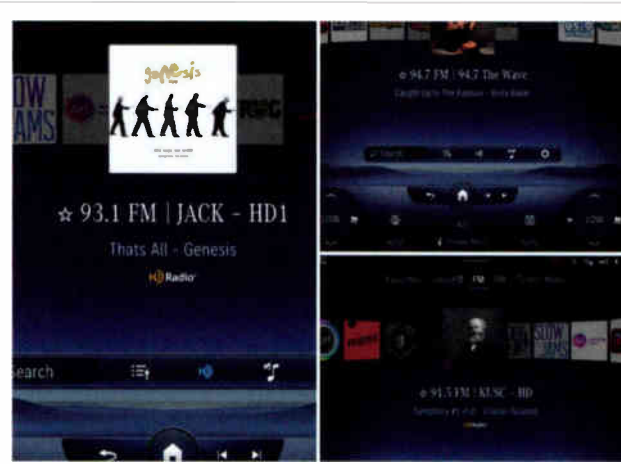
Right
The images in the slide show how DTS AutoStage and HD Radio display in a Daimler S-Class vehicle.

"Daimler was very interested in launching what is generically called hybrid radio — where you take advantage of broadcast radio content and you enhance it with IP-delivered metadata, you enable interaction with radio stations and in some cases provide high-resolution images," D'Angelo said.

"But they wanted a service that was available and consistent in all the countries where they sell the majority of their vehicles." He said Xperi spent two years aggregating content from broadcasters, technology platforms and service providers, and now aggregates content from 47,000 stations in 48 countries, with an eventual goal of 75,000 stations and 68 countries.

He emphasizes that this is intended to be a broadcast-first service offering, not trying to compete with "pure IP" platforms like Radio.com, TuneIn and iHeartRadio.

For instance, although a streaming catalog is part of the portfolio, the hybrid radio "service following" function switches to the stream only when really needed.



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Comment

Watch the webcast described in my column and let me know what you think. I'm at radioworld@futurenet.com.

"We've been able to optimize this system to assure that we only use the IP signal when it's absolutely necessary," D'Angelo said.

"We do this in an intelligent way, we have algorithms within the AutoStage environment that allow the radio to communicate back to us, to present information about the RF signal listenability; then we prompt the receiver to switch. It's very sophisticated and ensures that broadcasters, especially in the United States and Australia, minimize any IP content distribution costs that they would incur from streaming."



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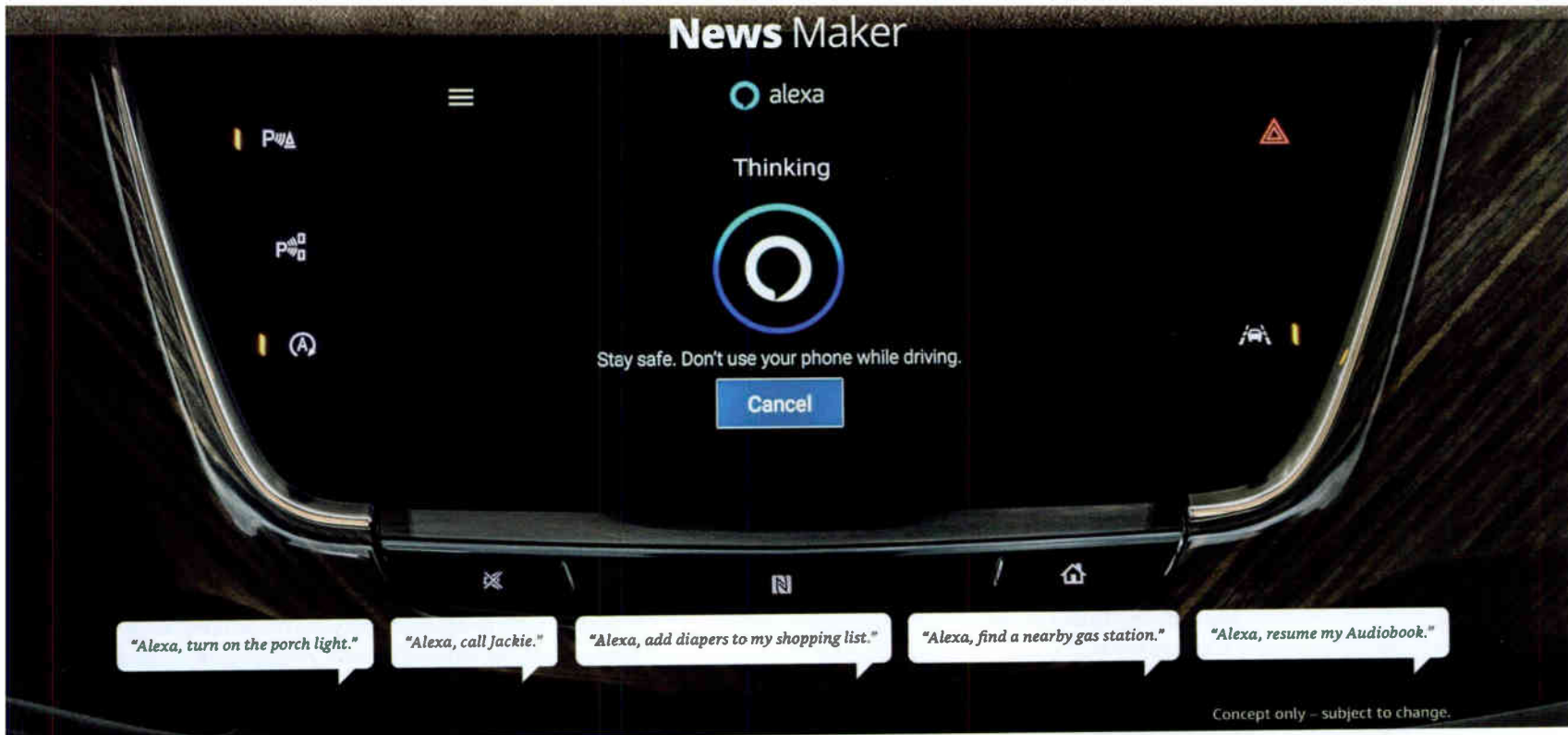
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Writer
Randy J.
Stine

Longtime contributor who covers newsmakers, regulation and radio trends.

Amazon's Alexa gets in the car

Brand's chief evangelist sees advantages for radio in the dash

The prominence of voice assistants in new vehicles is making for a more a hands-free environment for drivers and defining how they interact with media in the dashboard.

Companion voice-enabled technology like Alexa can also create a seamless infotainment ecosystem, allowing users to move freely from home and office to the connected car without interruption of services, which will likely influence in-car media behavior.

For radio broadcasters who quickly figured out how to allow Alexa-enabled home smart speakers to find their IP streams, the adoption of Alexa will provide a similar listening experience in connected cars, utilizing both the tuner and integrated LTE network IP connection in vehicles, according to Amazon officials.

The new world of connected cars is an ecosystem comprising over-the-air radio, streaming of FM and AM content, satellite radio, on-demand podcasts, audiobooks and music from digital service providers like Spotify, Apple Music and Pandora.

In-vehicle voice recognition systems like Alexa are seen as critical tools to guide the media experience in the vehicle.

Complementary

Arianne Walker, chief evangelist for Amazon's Alexa Auto, is preaching to a wide audience these days, including radio broadcasters.

She offers words of encouragement to radio people trying to understand how in-car voice assistants will drive consumption of media.

"The idea isn't to reinvent or duplicate functionality that already exists in the car, and radio is a great example of that. We see Alexa's role as complementing that experience and not replacing it," she said.

"The software is designed to be able to connect to the tuner that exists in the vehicle. But it also allows for people to call up the streamed content via the cloud when they need to."

The dash can become more streamlined, Walker says, through the adoption of voice assistants. For instance, to receive an OTA signal, Alexa users simply connect to the radio tuner.

"Customers can use their voice to tune by AM or FM, a frequency, a branded name or preset. Satellite radio works much the same way," she said. "You can even adjust the equalizer or change the media input totally."

A majority of auto manufacturers have announced broad rollouts of Alexa and are embedding the technology in more new models, according to Amazon. Apple CarPlay, Android Auto, Google Assistant and Amazon Alexa Auto are often included on many new vehicle models.

After-market add-ons such as Amazon's Echo Auto are available for older vehicles. It allows the Alexa app on a smartphone to play through a car's speakers via auxiliary input or Bluetooth connection. Garmin and

Above
An Alexa promotional image, courtesy of General Motors.

Anker offer Echo Auto accessories that vary by price and features.

Alexa integration in a vehicle depends in part of the brand of car and the manufacturer, Walker said. "The automaker gets to choose what they feel the best integration for their customer will be to maximize that experience. Obviously, utilizing the radio tuner in the vehicle makes the most sense as a first option. But asking Alexa to find a station based on a skill like TuneIn or Radio.com will work, too," Walker said.

The Alexa Auto software development kit and vehicle integration make it possible for customers to interact with the technology without their phone and still connect with the cloud via the IP stream. Customers typically have to register with Amazon to access their accounts and to find all of their personalization they are accustomed to.

Walker says utilizing the radio tuner in a vehicle reduces any "potential latency" when using the IP connection and listening to a radio station's stream.

"That means the vehicle media experience will be similar to what it always has been, but it will be voice-controlled without a driver having to take his or her hands off the wheel," Walker said.

(Hybrid radio systems with the "service following" feature are also starting to show up in U.S. vehicles; they can switch from OTA to streaming too but do so automatically based on user preference.)

"Easier for customers"

Automakers began flirting with Alexa in 2017 for rudimentary tasks such as starting the vehicle remotely through Alexa in-home devices. Those offerings quickly expanded to more in-car options, Walker said.

Amazon does extensive research on how drivers and passengers engage with Alexa for things like navigation and media entertainment, but it doesn't share the data, she said.

She said its research shows that those who use Alexa and Echo Auto "used voice recognition to control music streaming services and the radio tuner" most often.

"Entertainment is a huge use case in vehicles. It always has been, and we don't see that changing. We see the continued use of radio in the dash well into the future."

Alexa coexists with Apple CarPlay and Android Auto, Walker said, with the media experience again based on how automakers integrate the software and customer preferences.



Above
Arianne Walker

“Voice will be a huge part of the future in the car, and the continuity of Alexa voice from the home to on the go is critical.”

Walker's job is to spread word of Alexa Auto to the broader industry. "Our Alexa team is focused on the functionality of the experience in the vehicle. From the embedded Alexa experience to those experiences in older vehicles with Echo Auto.

"Voice will be a huge part of the future in the car, and the continuity of Alexa voice from the home to on the go is critical," Walker said.

And the car is an exceptional opportunity, she said.

"Voice really shines when used in an environment where people are focused on other tasks, like the vehicle. Voice can strip away complexities and minimize distractions and make the drive more productive and entertaining."

Alexa in the car brings customers the convenience of an in-home smart speaker that can play music, set reminders, control smart home appliances and access tens of thousands of skills built by third-party developers, Walker said.


"We've seen a bunch of momentum with announcements from Ford, GM, Toyota, BMW integrating Alexa directly into their vehicles. They are also developing connected car skills to allow customers to interact with their vehicles via an Alexa activated device." Amazon recently launched Alexa integration with Volvo trucks.

Walker believes broadcasters can benefit from voice technology in the car since Alexa can segue programming from the car to the home through any Alexa-enabled device, she said.

"There is a great opportunity to increase radio listenership in the home by using the cloud-based skill via TuneIn or Radio.com to play a favorite radio station. That's a nice advantage for radio."

There are also ways to use Alexa to customize local listening habits, Walker said. For example, by asking Alexa to play NPR it will prompt you to find local stations, she said.

"I would tell radio broadcasters that by having Alexa in the car, it just makes the listening experience ever easier for customers. They can access radio stations through the tuner or through the cloud via an audio stream. Streaming strategies will be important" for broadcasters, she said.

"Broadcasters will have the advantage of having customers who drive outside the signal area still having the capability to hear their favorite radio station's stream. That's an important combo." 

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 @stu_rush

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Hieb
PE, CPBE

RF grounding in the Rocky Mountains

Terrain provides great coverage but also exposure to storms

Above
The community ERI FM antenna serving KYGO, KOSI, KUVO, KIMN and KXKL overlooks Denver from Mt. Morrison. The site was blasted out of solid rock. The substantial excavation and lack of topsoil are challenging to establishing a good ground.

The Rocky Mountains are young, as mountain ranges go. Colorado has 53 “fourteeners” — mountains over 14,000 feet above sea level. The mountains of the Front Range in the Denver radio market are only 7,000 feet above sea level, but they are made from solid sandstone, limestone and granite rock.

These mountains are great for transmission sites; high-altitude radio and television stations cover the market well. The area sees some extreme spring and summer thunderstorms as cold northern storm fronts meet warm, humid, southern air. Lightning strikes, both direct and remote, interact with the above-ground utility power lines that feed the sites.

These natural events create issues ranging from minor AC line voltage transients to serious equipment damage.

Lightning

Lightning occurs when naturally occurring electrostatic charge builds up to a flashover voltage, ionizing the surrounding air.

A great surge of electrical energy is released almost instantly to a point of low voltage potential. Earth ground has a low voltage potential because the free charged particles, also known as ions, are plentiful in the soil.

In the Rocky Mountains and other mountainous areas, the ground situation is different. Some mountains are solid or fractured rock and have little or no deep soil on the surface to “ground” the lightning strike.

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Related reading

See Wayne Eckert's article "TVSS for Broadcast Facilities" at radioworld.com, keyword TVSS.

Radio, television and communications sites situated on rock summits need a sufficient RF ground. Remote lightning strikes several miles away can also, through inductance, enter power lines ... a small power bump or a bit of electrical noise can lock up digital equipment.

Ground systems

Where soil is plentiful, several copper rods driven into topsoil can provide an adequate electrical safety ground that meets NEMA electrical code.

But what if there is little or no soil on the surface, such as on a rocky mountaintop? The median resistivity of topsoil is approximately 26 ohm-meters compared to the median resistance of solid rock that range from 1000 to 5000 ohm-meters. Low-resistivity soils typically contain more salt and moisture than high-resistivity soils.

Symptoms of an inadequate RF ground system include transmitter and transmission line damage, equipment

but RF sites often use flat, copper strap which has a lower impedance at radio frequencies.

Both electrical power and radio transmission lines should enter the building at the same point (bulkhead) with transmission lines being bonded to the RF ground node with short, low-impedance conductors. This is also a good location to place the RF ground buss bar and cable ground kits. Electrical power panels should be located near the RF ground node with both ground and neutral busses bonded to the RF ground node. All RF grounding connections should go "one way" with no reconnection to the RF ground node and no ground loop.

A Nautel paper details this type of ground system at www.nautel.com/resources/white-papers/all/.

One way to reduce lightning propagation to the transmitter is with ferrite cores slipped over the transmission line prior to connection to equipment. Although RF cables are grounded, there is still a low impedance in the outer conductor. Energy from a lightning strike to the antenna or transmission line may substantially bleed off before the line enters the building; yet enough energy may still travel on the outer conductor to cause damage. The ferrite core acts as a "choke" by creating an impedance to the magnetic field created by the electrical current; it stores energy in a magnetic field, and eventually dissipates the energy as heat. Ferrite chokes can also be used on AC power mains.

Maintenance of RF ground systems includes recharging the chemical systems with water and salts. Ferrites should be periodically inspected to make sure they are intact.

Electrical outlets should be the isolated ground type whereby the ground and neutral conductors stay isolated from the conduit. All conduit connections should be insulated where the metal meets the equipment cabinet. It's best to home run all ground and neutral wires back to the power panel; daisy chaining of these conductors can create ground loops.

10 **“ The brine solution leaks into the surrounding rock and improves ground conductivity with a greater supply of free ions. ”**

lockups and frequent circuit breaker trips.

Communication sites built on solid or fractured rock may need a more substantial ground system; this can be done by adding chemical augmentation. Augmentation systems generally are made from copper tubing drilled with leach holes, filled with water and a salt such as magnesium sulphate. The brine solution leaks into the surrounding rock and improves ground conductivity with a greater supply of free ions.

Taming lightning

Lightning strikes a tower, the energy enters the transmitter building, and then tears through the transmitter because the path of least impedance is located through the utility power ground in the transmitter.

A properly designed and constructed RF ground system can reduce the probability of lightning damage. Electrical power systems typically use copper cable for grounding,

Safety

Site safety becomes an issue when there is a poor site ground.

Towers, buildings and steel appurtenances need to be connected to a good RF ground system, typically through exothermic welded cables. Air terminals (lightning rods) should be used liberally on the towers and buildings to dissipate atmospheric static charge and create a zone of safety from a strike. Parking lots and walkways should be built over a buried metal grid bonded to the facility ground buss. Metal fences, gates and door jambs should also be grounded.

Lightning strikes can also start wildfires that can threaten transmission sites. Some sites have alternate utility power paths in the event that the primary path is destroyed.

Mountaintop sites offer many challenges, but good planning, good design and good construction provide the solution.

One more thing ... when in doubt, ground it. 



Comment

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





Remembering John Burtle

John Burtle died at age 80. His career included stints at Automatic Tape Control (ATC) and Broadcast Electronics, where he was VP of product development into the 1990s.



1977] from the Washington, D.C., area to Quincy," Rector recalled.

Burtle became VP of BE's product development and held that role until the early 1990s, when the company was sold and new owners replaced its upper management.

"He was the force behind the BE automation products including the Control 16," wrote Chuck Kelly of BE.

Burtle served in the Air Force and graduated from Chicago DeVry Tech School, then worked at KOKX in Keokuk, Iowa, as an engineer and night-time DJ. He later was chief engineer of KCRC in Enid, Okla., where he also did college sports play by play.

The family moved to Bloomington, Ill., in 1969 when Burtle took a job with ATC, working with Andy Rector until that company was bought out by Gates Radio. The Burtles moved with the company from Bloomington to Quincy, Ill., in 1970.

A few years later, "John followed Larry Cervon when he purchased Broadcast Electronics and was instrumental in moving the BE operation [in

Not wanting to leave Quincy while his daughter was in school, he took a job with ComputerLand, teaching computer skills. His son Ron said, "He became sought out by many groups and companies to train their employees as he provided quality training, no matter of the participant's initial skill level. He would always review the materials the night before each class — for hours, even though he knew the material well."

Burtle retired from ComputerLand about 2005 and remained in Quincy.

"We are very proud of his work," Ron Burtle said. "He believed in doing things right the first time, no matter how long it took or how hard it was." ❁



GBS Defends Proposal

GeoBroadcast Solutions defended its proposed FM geo-targeting system.

The company wants the FCC to modify booster rules to allow stations to transmit localized content for three minutes per hour independent of signals of the booster's primary station.

GBS lamented "exaggerated speculations" by the NAB and some large radio groups about the potential for increased interference and damage to FM's business model.

GBS said that technical data doesn't support the claims of opponents about interference and performance in transition areas; that ZoneCasting won't affect the EAS system; that its system will not cause a "race to the bottom" or "redlining"; and that its demonstrations in San Jose and San Francisco will support its claims. ❁

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John Bisset

has spent over 50 years in the broadcasting industry and is still learning. He handles western U.S. radio sales for the Telos Alliance, holds SBE CPBE certification is a past recipient of the SBE's Educator of the Year Award.



Send your tips!

Workbench submissions are encouraged and qualify for SBE recertification. Email johnpbisset@gmail.com.

Pipe unions can solve PVC problems

Some useful AM radiator characteristics

Bill Bowin, CSRE/CBNT, chief engineer at North American Broadcasting, writes, "We've 'beaten to death' the topic of condensate drains" over the last six months, but Bill he one more trick that he has used on rooftop units that he wanted to share.

Rooftop units may be located far from the roof drains and require a very long piece of PVC drain pipe.

Sometimes, installers don't use glue on the PVC junctions so they can be disassembled and cleaned later. But Bill finds that this is not a good idea. Wind on the roof may move the long horizontal runs of PVC around, and, if the fittings are not glued, joints can pull apart.

An alternative to glue is to use pipe unions, so the drains can be taken apart, cleaned and reassembled. Bill provided a closeup of the junctions at one of his sites shown at upper right. Note each section can be easily removed.

You'll also find a number of online videos on this subject. For example, go to YouTube and search "Union for Schedule 40 PVC Pipe" for a video from manufacturer Flexible PVC.

Smart sensor

Consulting engineer and frequent Workbench contributor Frank Hertel of Newman-Kees RF Measurements & Engineering spotted this interesting device.

The SensiML is a sensor tile that can be affixed to a fan or motor, as shown at lower right. It's a predictive maintenance device that gives a condition readout on a smartphone.

Watch a very interesting demo of it at <https://youtu.be/qad5dFzqd18> or search YouTube for "SensiML Predictive Maintenance Fan Demo." Using the sensors in the battery-powered STMicro SensorTile, which is mounted atop the fan, SensiML shows how its AutoML software can produce autonomous predictive fault models. The device's sensing algorithms can be built by developers with little to no data science expertise using the SensiML Analytics Toolkit.

Remember the failed blower fan on the BE transmitter that was causing overheating, discussed in the Feb. 17 issue? A sensor such as this, mounted on each fan, would alert the engineer of failure, loose mounting or blade obstruction.

Visit <https://sensiml.com/products> for more information. A headline on that page gives a sense of their purpose: "Transform your IoT device from merely connected to truly intelligent."



Picky, picky

Louis Judson was the first of many to respond to our question about a flaw in the Seekers' Abbey Road video discussed in the Feb. 17 issue.

(At YouTube, search "The Seekers - I'll Never Find Another You." If you get more than one result, it's the video tagged "1964, HQ Stereo.")

Louis, who works as an audio engineer for Intuitive Audio in the Bay Area, notes that the percussion is not in the room and apparently not on the multi-track either.

He also noted the interesting mic position on Judith Durham. "Assuming it is side address, why have the mic below her and pointing up? That would invite 'plosives' — better above the singer, pointing slightly down."

But what was the "flaw" I referred to? Louis spotted it as well. Watch when the engineer starts the Ampex recorder. He presses what appears to be the "stop" pushbutton and doesn't depress the "record" pushbutton.

Okay, picky-picky! Still a fun video to watch. 🎧



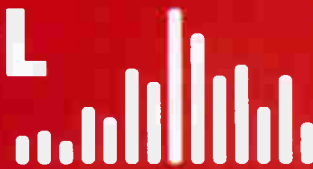
Above
PVC junctions make disassembly and cleaning much easier.

Middle
This pipe union is made by Flexible PVC.

Right
The SensiML is a sensor tile that can be affixed to a fan or motor. It's a predictive maintenance device that gives a condition readout on a smartphone.



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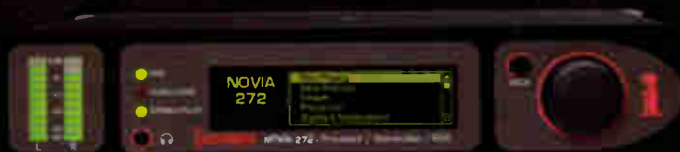
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Tieline Introduces Gateway-4

Tieline has rolled out the Gateway-4, "a powerful DSP-based 1RU IP codec designed for live remote broadcasting applications, as well as STL or SSL links."

It includes support for AES67, ST 2110-30, AES3 and analog I/O as standard, and an optional WheatNet-IP card.

The Gateway-4 replaces the Merlin and Genie STL audio codecs; it supports four full-duplex audio channels in 1RU.

VP Sales APAC/EMEA Charlie Gawley said it is suitable for mission-critical broadcast applications requiring two to four audio streaming channels. Those who need more channels can choose

the Gateway-8/16 multichannel codec, another recent introduction that replaced the Merlin Plus and Genie Distribution.

The new codec provides two stereo connections, or one stereo and two mono connections, or up to four mono full-duplex connections. Tieline said it also supports multiple unicasting to up to 20 endpoints and multicasting.

"For larger networks, the Gateway-4 is ideal for transmitter sites, remote trucks or rack-mounted remote kits," Tieline said. "For affiliates and smaller stations it can be used to transport studio-to-studio links, or a stereo studio-to-transmitter link signal plus another stereo connection, or dual mono connections for remotes."

Info: www.tieline.com



Inovonics Adds DAB+ Monitoring Package

Citing increased growth of DAB+ broadcasts, Inovonics introduced the 660 DAB+ Rack Bundle.

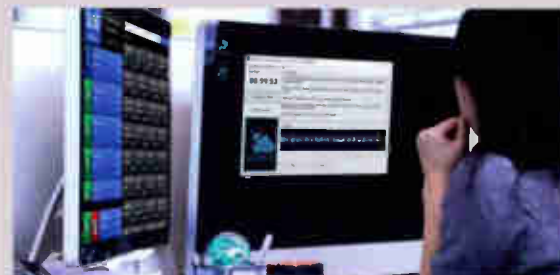
It's a set of three 660 DAB+ Monitor-Receivers preinstalled in a configuration that occupies one vertical rack space and uses a shared power supply. List price is \$920.

"Each of the three 660 DAB+ Receivers include Analog L/R and AES-Digital program outputs," it stated. "Alarm notifications for Carrier Loss, Digital Program Loss and Audio Loss are visible on the LCD front-panel display and there are rear-panel tallies for customized alarm solutions."

Sales & Marketing Manager Gary Luhrman said the company sees "the steady growth of DAB+ broadcasts across Europe, Australia and other global markets ... there's a real need for broadcasters to monitor their off-air signals and that's one of our specialties."

Each 660 provides off-air reception of standard DAB and DAB+ broadcasts in 1/3 rack width. It tunes to all of Band III. Features include setup via LCD screen with jog-wheel navigation and display of DAB and DAB+ PAD information.

Info: inovonicsbroadcast.com



Summit Integrates IPAWS in ATMOS

Summit Technology Group added features to its ATMOS Weather Reporting product, including an IPAWS integration that provides more natural-sounding emergency alerts.

"Stations that choose to ignore optional EAS alerts can instead provide an unobtrusive, natural-sounding announcement in its place to convey the same message," the company said.

"Furthermore, users can use ATMOS' advanced scripting language (known as ATMOS Markup Language) to create scripts that suit their station branding and include their station name or slogan. When integrated with automation, the product can produce an alert announcement and gracefully insert it into the playlist."

ATMOS is used by radio and TV stations to automate weather reports in a natural-sounding manner. It uses customizable script templates and AI-powered synthesized speech.

Info: www.summittechgroup.com/





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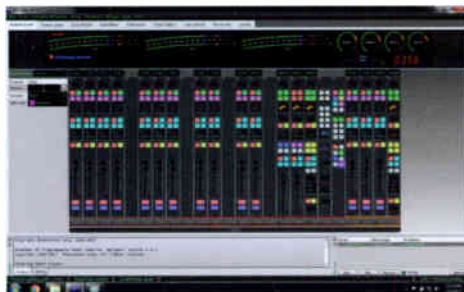
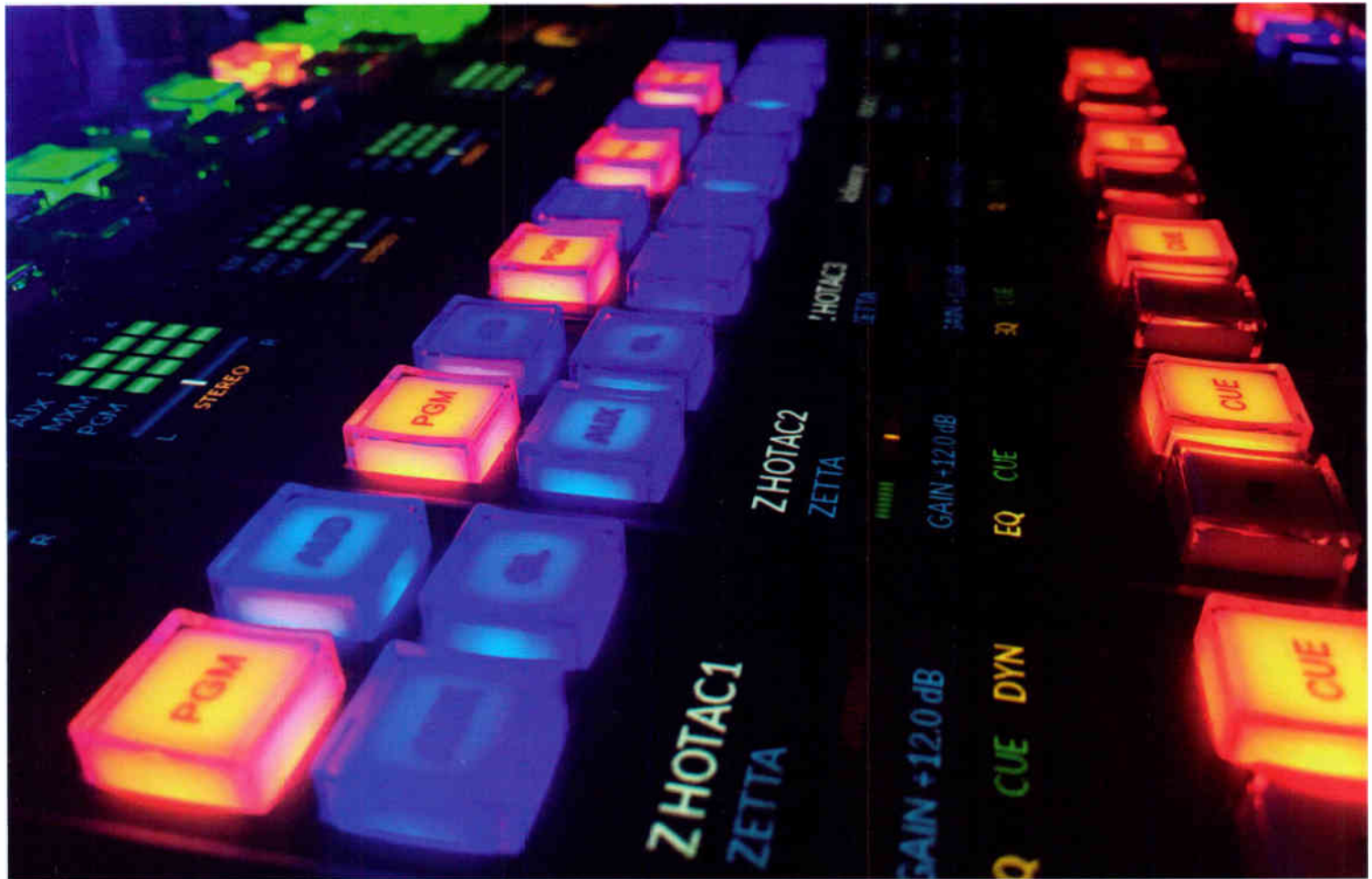


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Photo: Screen on laptop/Thanit Surtiviriyanon/EyeEm/Getty Images

Writer
Jennifer
Waits

A freelance content strategist, editor and writer, Waits co-produces the Radio Survivor podcast and manages publicity for college station KJFC.

College radio felt pandemic effects too

For students, tips and lessons from an unprecedented year

Study Abroad Gone Wrong." "Coronavirus Outbreak Leaves USC Empty." Students Protest on Campus." "Voices of COVID-19."

These could be descriptors from a college media time-capsule of the past year. In fact they are headlines from award-winning pieces at the National Student Electronic Media Convention held late last year and produced by College Broadcasters Inc.

Working amid unusual circumstances through most of 2020, students documented stories and news of campuses and communities grappling with the global pandemic.

"In a primarily virtual world, as due to the effects of the coronavirus pandemic, it can be hard to constantly adapt our functioning, even though we've been living through the pandemic for months," said CBI's Student Representative Laura Mooney.

While the situation was different at every campus and college radio station, the months of trial and error prompted lively conversations about education and radio. These themes were at the forefront at the convention as students, educators and professional broadcasters dug into the myriad ways that radio work adjusted.

Breaking news, overlapping crises

Laura Haefeli, TV reporter for CBS13, was new to the Sacramento area in the early days of the coronavirus outbreak. She was soon covering breaking news about quarantines, wildfires and civil rights protests.

Acknowledging the risks, she emphasizes the vital role that journalists play in reporting factual information to the public.

"We all do this to help people. It's our way of doing our part," Haefeli said. "If I didn't do this, I'd probably be some kind of first responder ... It's an important job. ... It's a dangerous job and I couldn't imagine doing anything else."

WCBS Newsradio 880 reporter Peter Haskell is a veteran of crisis reporting in New York City after the terrorist attacks in 2001 as well as following a devastating earthquake in Haiti. Haskell advises reporters to "be smart and protect yourself," pointing out that "you don't want to be the one doing a story from a hospital bed."

Equally vital to Haskell is to "not lose your humanity" when covering the news. In difficult situations, he implores journalists to treat people the way they would want their own family to be treated.

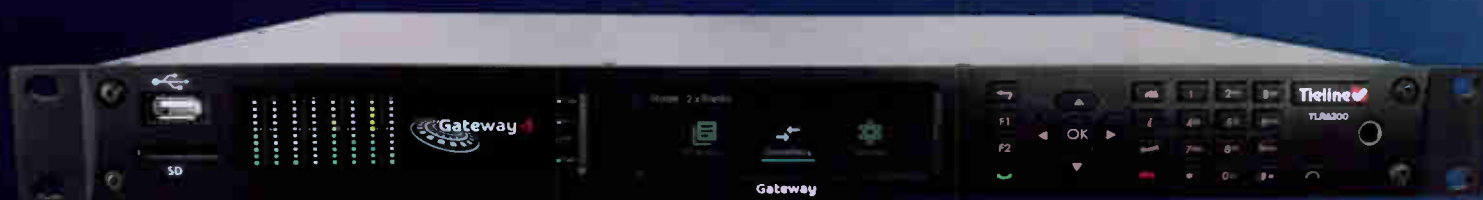
Laura Haefeli also encourages student journalists to think creatively and to look for the positive angle on a story during a crisis. "Find the stories that are based in humanity," she urges.

Remote tips and tricks

Of course, many interviews for radio took place remotely by phone or through online video and audio tools. Haskell points out that developing a rapport is key to a good interview and that it is much easier to do that in person.

Above
Remote workflows are great until they aren't. Hyper-communication and Zoom burnout are now part of daily life for college radio teams just like those at other stations.

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The Gateway-4 provides two stereo connections, or one stereo and two mono connections, or up to four mono connections.

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* The Gateway-4 codec supports 4 channels only and is not upgradable to support more channels.

For that reason, reporter Julia Ritchey of North Country Public Radio in the state of New York prefers Zoom or video interviews instead of the phone so that she can see the person she's talking to and keep an eye on their reactions and body language.

As far as remote audio logistics, Ritchey recommends asking interview subjects to record audio to help add color. She provided an example of having a chef use a phone to get the sound of sizzling bacon for inclusion in her radio piece.

While Ritchey records herself using a Zoom recorder and a microphone she always has backup plans and has used the voice memo app on her phone "in a pinch."

She cautions students to be prepared for equipment failure, check levels and capture at least a minute of sound wherever they are recording. This ambient sound serves as "glue" for the final radio story, allowing for smooth transitions.

Finally, when away from a proper studio, Ritchey suggests recording in one's closet, saying that "it's foolproof."

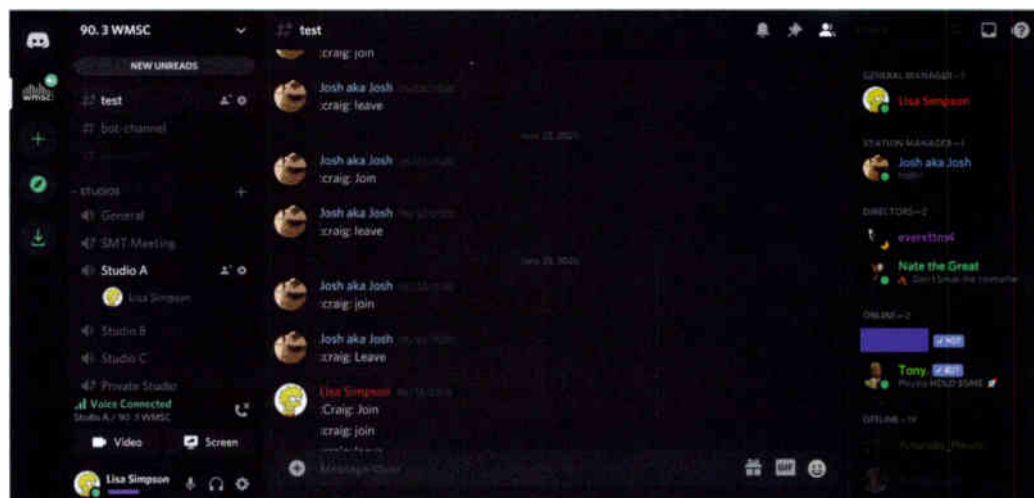
Remote best practices

Educators and industry professionals continue to evolve approaches to distance learning and working. There have been bumps, as teaching radio remotely has obstacles. Radio station advisors labored to obtain licenses for editing software so students could work from home. Workarounds via remote computer access may seem viable, but for some latency makes it impossible.

Students may prefer methods or apps that their instructors are less familiar with. At Montclair State University's WMSC(FM), demand to use the communication platform Discord prompted General Manager Anabella Poland to establish a virtual radio station studio in that space.

With countless ways to create and edit radio, some reported quality control issues. To help mitigate that, many stations crafted instructional videos and tutorials. At Pennsylvania's Muhlenberg College, WMUH(FM) General Manager Paul Krempasky took the challenges in stride, philosophizing, "when it doesn't work, that's where education starts."

Even working professionals grapple with these problems, as they navigate new technology for remote work and shifting expectations. Millie De Chirico, programming manager at Turner Classic Movies, commented on the good and bad sides of working at home.



Top
WMSC at Montclair State University uses the Discord platform to support its virtual studio workflow.

Above
"Students across the country are successfully engaging with their audience and community in ways they've never attempted before," says Laura Mooney.

“When it doesn't work, that's where education starts.”

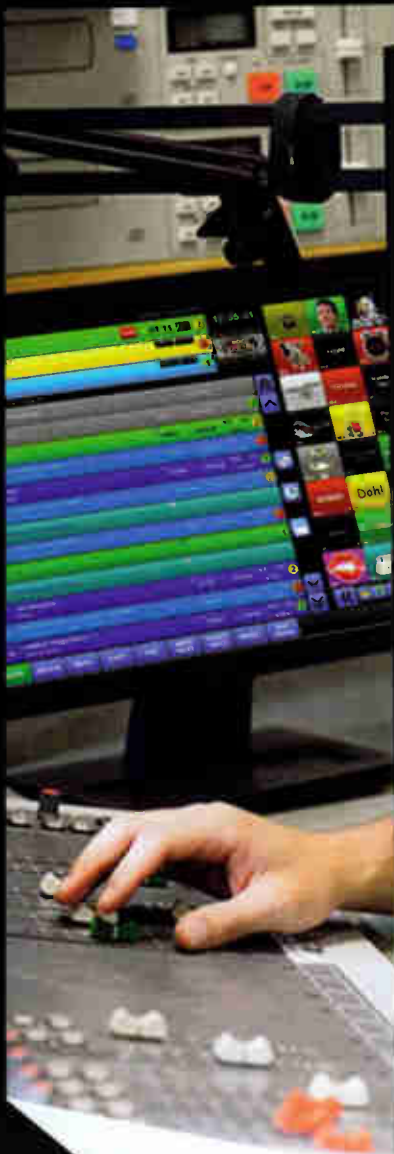
While appreciating the non-commute and the flexibility, she found that the early days of the pandemic brought with it "hypercommunication." She speculates that with people feeling isolated at home, there was a tendency to overcompensate.

In addition to Zoom burnout, she felt communication exhaustion and had to set more work/home boundaries. To help her "clock out" at night so that she wasn't responding to texts at all hours, she got a dedicated work phone that she can put away and turn off at night, and set up a specific workspace in her residence.

The blurry boundaries between work, home, school and socializing affected college radio participants as well as those out in the business world. When not in person, it can be tricky establishing a sense of community at a station. Because of that, stations have experimented with remote events including game nights, talent shows, scavenger hunts, trivia contests and speed-friending. Similarly, some stations are introducing their community to newcomers by recording video tours so that people can get a glimpse of the operations. In some ways, this can even make stations more accessible than before.

CBI's Laura Mooney was hopeful after hearing about the resourcefulness and resiliency of college radio peers. "Students across the country are successfully engaging with their audience and community in ways they've never attempted before. I think that's really inspiring."

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Catch the buzz with listeners

Here are ideas to capitalize on the pending arrival of cicadas



It begins with a low hissing sound, like air being let out of a thousand car tires. Within days, the noise is so loud that having a conversation outside is challenging.

Reality has exploded as millions of large black bugs — downright prehistoric, with orange wings and red, beady eyes — cover the trees, crunch under your feet, get caught in your clothing and stick to your hair.

While it may feel like yesterday, it has been 17 years since cicadas dominated the environment of millions of Americans. Since 2004, the *Magicicada septendecim, cassini* and *septendecula* species have been gorging on root sap and now they're nearly ready to emerge from the dirt to munch on trees and gleefully mate.

Are you ready for some comic relief this spring? Aren't we all?

Once soil hits 64 degrees, anywhere from mid-May to late June, our noisy neighbors of 2021 will emerge in Delaware, Georgia, Illinois, Indiana, Kentucky, Maryland, Michigan, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and Washington, D.C.

Promotion ideas

For stations addicted to national collective contesting, this one-in-17 spectacle should encourage you to dream up unique local challenges that involve kids and families. During a time when one of the safest places we can be is outdoors, having fun with cicadas is a natural.

Here are a few idea starters:

Cicada Cuisine: Okay, so it's not for everyone ... but adventurous eaters know why cicadas have been called "the shrimp of the land." I was astonished at the number of cicada recipes available for soups, snacks, main dishes, desserts and even candy (like chocolate cicadas). Engage your listeners in the search for the best cicada recipe, along with gathering tips and cooking techniques. If your morning show is hungry and brave

enough, perhaps the finalist creations could be sampled on-air and ranked for creativity, flavor, and yes, crunchiness!

Cicada Travel: Perhaps your area will be light on cicada numbers but close enough to a high-density region. If by late spring it's okay to start encouraging travel, why not

send a pair of listeners on a cicada scavenger hunt to an area where cicada cacophony rules. Sound levels can hit 100 decibels and have a nearly hypnotic effect. Your contest winners can record the sound for you and send video for your website. Maybe you have them go camping in a forest for the full effect.


Hunt and Gather: Cicadas shed their shells. These husks are brown and look terrifying, but, like the bugs, are totally harmless. Have kids gather and count the shells up to the number of your station frequency. Your junior entomologists take a pic or video of their collection and submit to win a cicada mask with your station logo.

Bug Me to Draw: It's a perfect time to give away a VW Bug. Could be a new Bug or a classic Beetle. It might be easier to get a dealer to do it as a two-year lease. To enter, have listeners submit their best drawings or paintings of cicadas, put them on your Instagram feed, then do a random drawing from all the entries.

News stations, get your reports ready to roll so you've got plenty of stories to feed your cicada-swamped listeners.

Keep in mind that there will be people who initially freak out, so getting folks to understand that the creatures are harmless is a first step.

Sure, small trees and certain plants may need netting for protection. And folks will want to check the car and drive with closed windows since the crazy buzz of a cicada on a driver's face or neck could cause an accident. But cicadas are really different and interesting and there's a lot to talk about.

Could you find a local resident who has been around for four or more cicada events? Now that's a story that a cicada sensationalist would surely enjoy. 



Above

The author's daughter is shown in a family video having fun with cicada shells in 2004.

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Kudos to Tony

Leighton Broadcasting in St. Cloud, Minn., wants us to know that it has a very special director of engineering and IT. He is Tony Abfalter, KOVSC, recipient of its MVP Award for 2020.

CEO Bob Leighton wrote on his blog, "When the government called for a shutdown to protect against the coronavirus, we, like many others, had to quickly rethink how we worked ... Our account executives were going remote but still needed access to company resources and new ways to connect with their clients. Our on-air announcers needed a safe environment to broadcast in and when they were self-quarantined due to potential exposure, they too, needed to be able to work from home.

"With the clock ticking, we called the department all station managers call when things aren't working: engineering. ... Tony Abfalter was already formulating a plan."

We contacted Abfalter to ask how he approached the pandemic.



"We had been focused on taking a look ahead on what could become problems in the future. While COVID-19 obviously was not something seen, our planning was easily adapted to it," he replied.

"Over the past few years, broadcasters have had to take a look at some new challenges, like, 'What if we can't access the studios but still need to delivery timely,

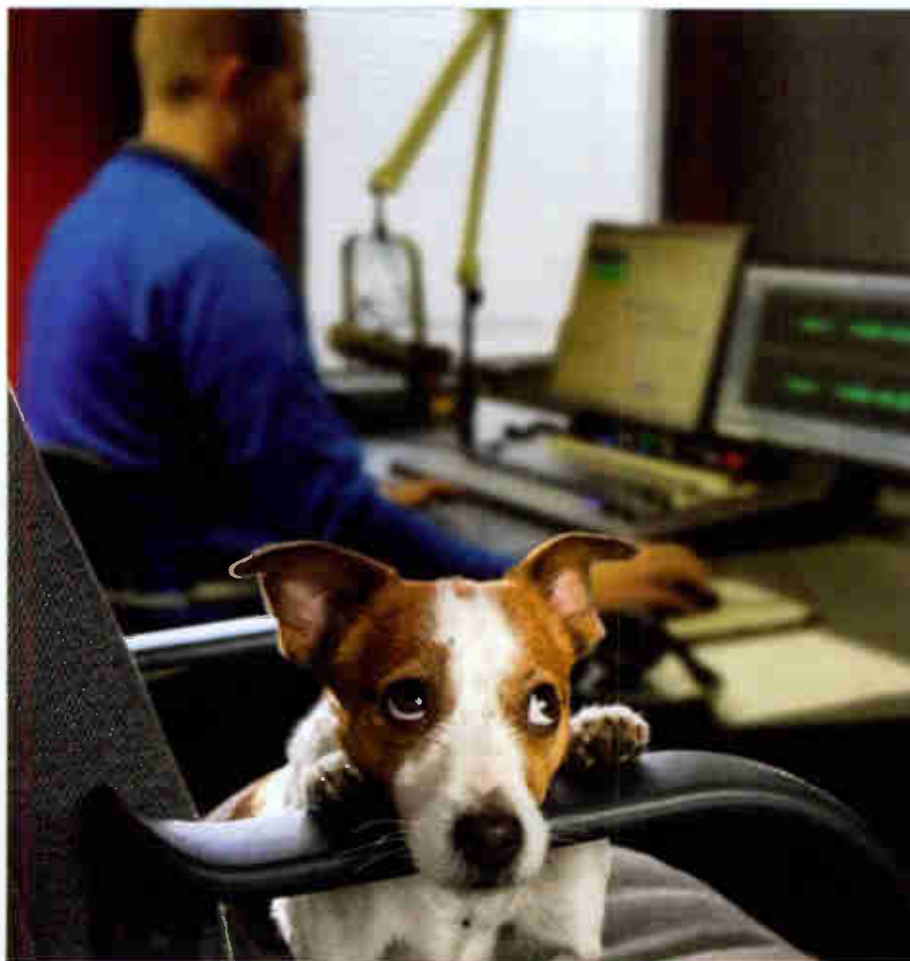
quality content? How do we do that cost-effectively? How do we make the process easy to implement on the fly?"

"Some of the solutions we implemented in building out this plan was moving to cloud-based services that can be accessed easily. The use of Microsoft 365 services, especially Teams, allowed staff to communicate and keep things moving. For remote studio work the Comrex Opals we installed three years ago proved to be extremely valuable." A secure VPN also was part of the process.

Bob Leighton said, "Tony accomplished all of this seamlessly and swiftly, which we considered exceptional and instrumental to our success, as an organization — a real MVP."

The family-owned company has 190 employees, 64 RF/streaming audio sources, 26 format brands, six markets and one engineer.

Kudos to Tony Abfalter — and a tip of the hat to Leighton Broadcasting for highlighting the important contributions of radio engineering. 🎧



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New HQ for ENCO

Automation and workflow systems provider ENCO moved its headquarters from Southfield, Mich., to the community of Novi about 17 miles away.

"The newly constructed, 12,000-square-foot facility will offer a more collaborative work environment and a centralized location for staff and customers in the Detroit suburbs," it stated in an announcement.

"ENCO's entire operation across sales, administration, engineering, finance, management, manufacturing and marketing will be based in Novi, effective immediately."

It said the interior of the leased space uses an open floor plan and will bring previously separated functions closer

together. "The spacious environments throughout all areas ensure that social distancing policies can continue to be met until the pandemic subsides."

President Ken Frommert called it "truly a state-of-the-art facility"

that includes an open production lab, high-tech meeting and conference spaces, and various seating and lounge settings.

He said Novi is a "city on the rise" and that the location is more accessible to Detroit Metropolitan Airport.

The company was founded by the late Gene Novacek and started in St. Louis. It had been in its previous location in Southfield, Mich., for 20 years.

The new address is 41551 West 11 Mile Road in Novi, MI 48375. 📍



24



Ecreso Software Gets New Features

WorldCast Systems recently announced new software for its Ecreso FM 100W-2000W transmitters.

Version 1.9.0 tweaks automation, SmartFM and RDS functions.

The company says the update enables the transmitter to automate a configuration change or send GPIO commands in case of specific alarms.

There are changes to the SmartFM energy monitoring and usage algorithm that the company says will bring greater efficiencies and operational cost savings. The RDS module is receiving new TA, TP, PTY, DSN and MS settings. 📻

Info: www.worldcastsystems.com/en/



WideOrbit Expands Remote Support



New from WideOrbit is v5.0 of its WO Automation for Radio. It includes important enhancements for broadcasters with "distributed operations," aka remote work.

It said these improvements help users manage station operations with a decentralized staff; run programming from home or elsewhere via mobile devices; manage content and playlists remotely; and integrate with other systems like MusicMaster and WO Traffic.

"Native apps can be installed and operated from virtually anywhere there's an internet connection, on almost any device, including desktop environments running macOS, Windows or Linux, as well as on iOS mobile devices."

Also new, a "Stop Media Asset Workflow Action" allows on-air assets to be stopped automatically or on-demand. And "Content Import Prioritization" streamlines the downloading of important content first whether from local drives or FTP sites. 📺

Info: wideorbit.com

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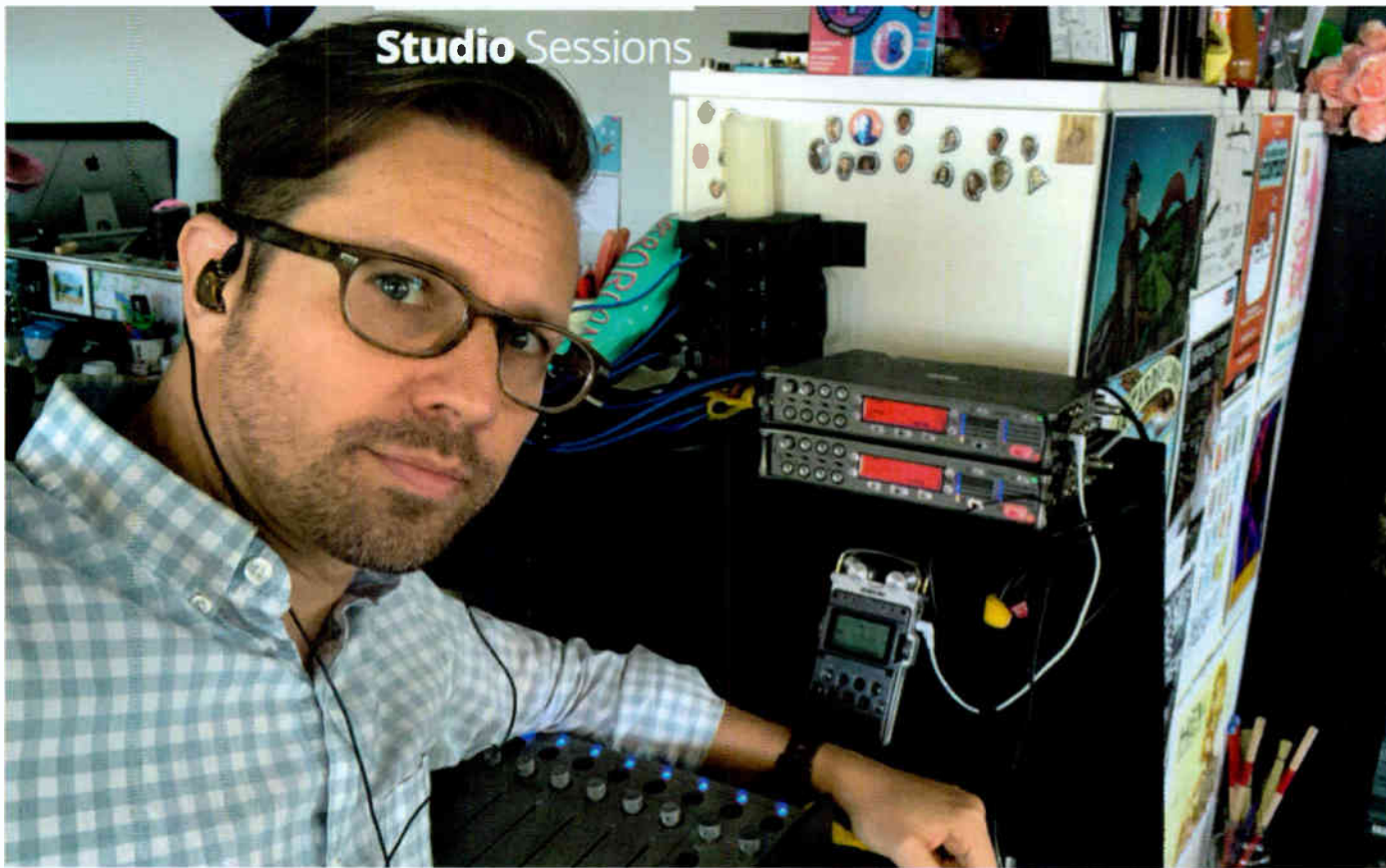
Writer
Jim
Beaugez

is a writer whose work has appeared in titles as varied as Rolling Stone, Smithsonian magazine, Guitar World and Garden & Gun.



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www.youtube.com/user/nprmusic.



Tiny Desk series works from “home”

Audio engineer Rogosin keeps the NPR tradition alive remotely

The “Tiny Desk Concerts” audio and video podcast series, National Public Radio’s flagship music program, has produced more than 1,000 musical performances with billions of streams on YouTube and audio podcasting platforms since 2008.

But once the COVID-19 pandemic took hold in March 2020, three months of scheduled tapings dropped from the books and left staff wondering what to do next.

As a temporary fix to continue delivering performances to its audience, the Tiny Desk team pivoted to a home recording arrangement that they dubbed “Tiny Desk (Home) Concerts.”

Audio engineer Josh Rogosin and the Tiny Desk Concert team put together a one-sheet rider for guests, with instructions and tips for getting a well-

recorded signal at home, and jumped into producing the show remotely.

“What’s happening with a lot of the home concerts,” says Rogosin, “is we’re relinquishing a lot of our control-slash-demands. When everyone comes into the office, there’s no wiggle room when it comes to, ‘Hey, we really want you to try this without monitors, at least to start.’”

The result runs the gamut from simple recordings made on a smartphone or an app like Photo Booth, which is how Norah Jones recorded her performance, to produced, live-in-the-studio recordings.

Core elements

The roots of the series go back to NPR’s “All Songs Considered,” which Bob Boilen began as an internet radio program in 2000.

At a SXSW showcase in 2008, when Boilen couldn’t hear singer-songwriter Laura Gibson over the crowd noise, he invited her to perform at his desk at NPR headquarters in Washington. She called his bluff, and the Tiny Desk concept was born.

Rogosin notes that this was before podcasting really took off. “All Songs Considered” was an internet-only radio show, which, in my opinion, paved the way for podcasting.”

The ethos of the Tiny Desk Concert is to strip musical performances of the studio polish and return them to their core elements, as if the musicians were playing around a campfire. Artists who perform on the program generally don’t get in-ear or wedge monitors, and those whose performances rely on electronics and effects are given a short leash.

Above
Audio engineer Josh Rogosin with Sony PCM-D50 handheld digital audio recorder and Sound Devices 788T digital multitrack audio recorders.

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Studio Sessions

"It forces musicians to play quieter and more dynamically, and it also forces them to listen to each other in a much different way," he says.

"That lends itself to a much different vibe and performance that you're not used to hearing. Before all this technology existed, musicians got together in a room and they had to play dynamically enough so that they could hear themselves and each other."

When recorded at NPR, every performance at the Tiny Desk revolves around a stereo shotgun mic — it's so integral, in fact, that it makes a cameo in the preroll for every video.

Chosen for its "bright, airy and realistic" characteristics, the Sennheiser MKH 418-S picks up speech, vocals and musical



“ Every Tiny Desk Concert, in terms of level, is mastered and matches every other Tiny Desk Concert. ”

instruments from a distance, well outside of the camera shot. Rogosin has evolved the production to include additional shotgun mics, as well as the ability to run direct-outs from keyboard and bass amps. He records to up to three Sound Devices 788T (24-bit/48 kHz) eight-channel recorders for eight, 16 or 24 channels of audio.

From there, Rogosin imports the raw files into Pro Tools for light treatment from Waves and iZotope plug-ins before mastering in iZotope Ozone.

"Every Tiny Desk Concert, in terms of level, is mastered and matches every other Tiny Desk Concert, so if you go into a binge situation,

hopefully you're not fiddling with your volume dial between concerts, because everything is mastered to the same specifications."

Rogosin also ensures the podcast has the same specs as the video version of the program, with a target of -16 LUFS with a peak at -2.

"NPR has [NUGEN] audio software, so I try to master as close as possible to what the robots are going to do to it once I upload it to our CMS. [The] audio robots analyze the file and level it, basically, so when it pulls up in our podcast feeds across the network, it will match."

Although Boilen never intended for the series to leave his actual desk at NPR, by adapting to the constraints of



Top
Pre-pandemic, Olafur Arnalds and band are shown at the Tiny Desk in 2018. Note the Neumann KU 100 dummy head/microphone array (top center) used for binaural recording.

Above
2 Chairz performs from his nail salon in Atlanta.

the pandemic, Rogosin and team have been able to deliver new performances to music-hungry audiences.

"You'll see in some of the comments, 'This is really cool and thank God we have this, but we can't wait to get back to the real Tiny Desk,'" Rogosin says. "There's something about that space, the live-audience aspect — it's just NPR employees — and also what we have them do by not relying on any sort of crutches." 🎧

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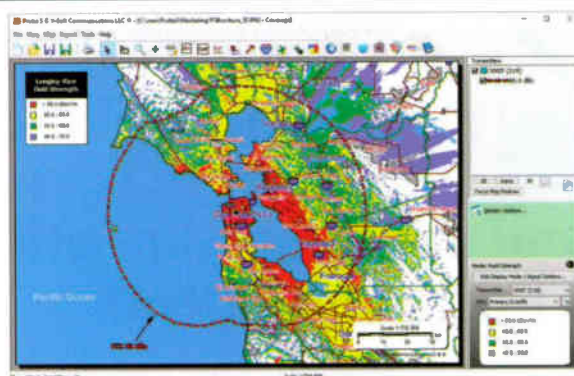
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Writer:
Paul
Dobosz

worked for Collins Radio, then spent most of his career with General Motors engineering and Delphi/Delco Electronics as an advanced development engineer and engineering manager for the design of automotive radios and infotainment products. He founded engineering project firm PD Technologies.

ISS antenna is an option in an AM pinch

It fills a need for a cost-effective, compact AM and TIS antenna

The recent Radio World article "Quick, We Need a Temporary Antenna" showcased the ingenuity of WMJC engineers as they scrambled to get a station back on the air quickly. While improvised antennas are one way to return to the air and can serve as an acceptable emergency or auxiliary antenna in a pinch, they may not be the best or easiest way to get an AM station back on the air.

AM stations faced with the dilemma of a damaged antenna, or one down for maintenance or replacement, have a commercially available option that is cost-effective and quickly deployable, one that allows them to remain on the air with reasonable coverage.

The Information Stations Specialists HPR.0990 is a resonant center and top hat loaded vertical monopole antenna with an integral 50 Ohm transmission line matching unit and optional quick-deployment ground radial system.

A typical installation requires setting a simple wood or metal support pole or a short tower to mount the self-supporting antenna using a quick deployment ground radial system or a connection to the station's existing ground radial system at its base.

The antenna is side-mounted on the support using the included saddle clamps to attach it to the support pole. Due to its resonant design and integral impedance matching, the HPR.0990 can be directly connected to the transmitter's 50 Ohm coaxial output without the need for an additional impedance matching network.

The base of the antenna is ideally mounted about 15 to 20 feet above ground level, which places the tip of the antenna about 45 to 50 feet high. This installation configuration, using the quick deployment ground radial system, shows a measured efficiency of 100 mV/m per kilowatt at 1000 kHz increasing to 175 mV/m at the top of the AM band. HPR.0990 efficiency declines gradually as the operating frequency moves toward the bottom of the AM



band due to the longer wavelengths, but despite its small stature, the HPR.0990 can still produce efficiency of 55 mV/m per kilowatt at 540 kHz.

Tuneup and installation are quick and easy once the support mast is erected and secured. The HPR-0990 is designed to handle transmitter power levels of up to 250W.

There are currently four HPR.0990 installations in commercial temporary use, serving stations in Connecticut, Pennsylvania, Virginia and Iowa. In addition to commercial applications, the HPR.0990 is well suited for use under Part 90.242 as a higher-efficiency Travelers Information Station antenna.

My familiarity with the HPR.0990 comes from my role assisting Information Station Specialists with the design, development and field testing of this antenna as a contract engineer. The antenna was born out of the need for a more efficient cost-effective compact AM and TIS antenna capable of medium power levels.

Based on its field deployment success, the HPR.0990 has achieved those goals. 🎯

“ The base is ideally mounted about 15 to 20 feet AGL, which places the tip of the antenna about 45 to 50 feet high. ”

Above
The HPR-0990 is designed to handle transmitter power levels of up to 250W.



No ads, no radio

I agree with the article ("No Soft Edges From Jerry Del Colliano"). However one important point was missed.

Radio stations, TV stations, magazines, newspapers have one issue that is critical to survival: Advertising! Without it you have no revenue to pay bills and staff.

Radio stations have always had a revenue issue, with a lot going the barter route to get what they

need. They all need to do a much better job at attracting advertisers. With this cancel culture movement it makes that goal challenging.

Angelo Gerber
New Jersey

RW's new format

Nice job, Paul. Only two changes in 25 years! Great continuity over the years. Keep up the good work.

Comment: You have the tech side under control. Advertising content is abundant. A bit more editorial content, perhaps leaning on the need for new ideas for innovative programming leading into the next few years, would be welcome.

Don Watson
newstalkradio.com



How to submit

Comment on any Radio World content by emailing radioworld@futurenet.com with "Letter to the Editor" in the subject field.

See better, sound better

Your articles on cleaning electronic equipment were interesting ("Radio Equipment Pandemic Cleaning 101").

One "tool" I have used for some time to keep my personal electronic equipment clean are the little disposable Bausch + Lomb Sight Savers, available in many stores to keep eyeglasses clean.

The saturated papers use isopropyl alcohol and don't seem to leave a film. I have used them on my cellphone, iPad, etc. Gets into crevices, inexpensive.

Keep up the good publication. Always interested in articles relating to transmitters and antennas, my field of interest.



Steve Molnar, W8ANJ
SM Consulting

What are they smoking?

Regarding the story "FCC Schedules Auction of 136 FM CPs (and Four AMs)," radioworld.com:

What is "in the water" at the FCC these days? So you can bid on an FM construction permit for as little as \$750 or \$1,500 and get a dinky FM; but if you want to hop on the grandfather band and grab one of the four AM openings, the opening bid is \$50K?

For a daytimer?

What are they smoking? They're all frequencies where you'd end up needing a directional antenna array, so why are they starting the bidding for a Class C or Class D at \$50K?

Only way you'd see me bid \$50K for an AM opening is for a 50 kW clear channel frequency, or maybe \$10K if I could snag an expanded band allocation.

Or, is the FCC deliberately trying to kill off AM by making the costs so unreasonably high that nobody would want to start an AM station, yet alone pay the license fee for an existing underperforming AM station?

FM allotment can be had for the price of a 10-year-old used car, but an AM allotment will cost you a used Caddy? Something is wrong here.

John Pavlica
Engineer
Lionel & HO



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