

# RADIOWORLD

Technology & news for radio decision makers

radioworld.com | October 25 2023 | \$5.00

## Ten AI-based tools for radio



### WWFD turns in its STA

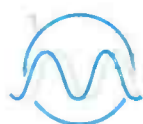
But its all-digital AM broadcasts aren't going anywhere.

### Restoring old gear?

Check out a helpful resource described in Workbench, called Hayseed Hamfest.

### Buyer's Guide

Tools for signal monitoring, remote control, test and EAS.



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# AM digital WWFD concludes its test phase

## The Hubbard station now is a full-time, all-digital operation



Paul McLane  
Editor in Chief

# W

WFD in Frederick, Md., has concluded the experimental phase of its MA3 HD Radio operation. It has

notified the FCC that after five years, it will now continue to operate as a full-time all-digital AM station, as is allowed under commission rules.

The Hubbard-owned facility was the first AM station in the United States to

convert to the MA3 mode, doing so under experimental authority in 2018.

Dave Kolesar, the engineer and program director who spearheaded the initiative and has given numerous presentations at engineering conferences about it, tells me that Hubbard recently asked the FCC to conclude the special temporary authority.

"It was my intention all the way back then that this would be permanent, there just wasn't a legal mechanism at the time to do so. The STA had been kept so that we could do research on MA3, which required us to operate at variance with the NRSC-5 mask, for the purposes of furthering the understanding of all-digital operations in the field," Kolesar wrote in an email.

"The end of the STA simply means that WWFD is now operating under the same legal authority that the other stations are using for all-digital operations. We haven't ruled out filing for an STA again if the desire and need to conduct more experiments warrant it."

I asked him for a thumbnail takeaway of these past five years.

"We have learned that all-digital AM broadcasting is much more robust than the hybrid mode of HD AM, and in fact has many advantages over analog broadcasting in terms of sound quality and metadata," he replied.

"Stereo audio, song data, album artwork and even a secondary HD2 channel are all capabilities of MA3

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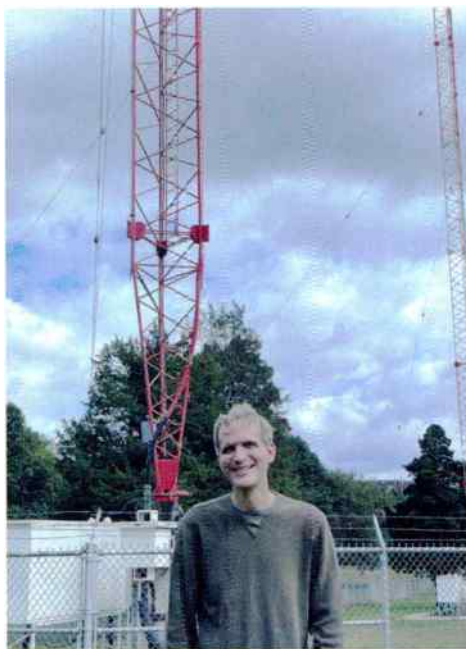
broadcasting. It opens up the possibility of music formats on AM that can be competitive with FM, satellite and streaming services. It makes AM look and sound like every other broadcast service in the dashboard, and that's essential to the future of the band. It even works well in EVs, much better than analog in fact."

To my knowledge there are two other stations airing all-digital AM HD Radio right now. Crawford Broadcasting flipped WYDE in Birmingham, Ala., in September. And Cumulus station WFAS in White Plains, N.Y. went on with all-digital in 2021 and continues to operate in that mode.

Stations that gave it a try earlier but have since turned it off include WIOE in Ft. Wayne, Ind.; WTLC in Indianapolis; WMGG in Egypt Lake, Fla.; and WSRO in Ashland, Mass.

What about future adoption of MA3? Kolesar said it's hard to tell.

"I view MA3 transmissions as the goal that every AM broadcaster has to get to, sooner rather than later. Analog AM listenership is declining, and we need to stop worrying



**Above**  
Dave Kolesar at  
a meeting of SBE  
Chapter 37 in  
Wheaton, Md.

about obsoleting existing analog-only radios, because fewer people are bothering to turn them on."

He thinks stations without a significant audience should try digital now and build up a new audience, with a compelling format, perhaps from scratch.

"Legacy stations with established audiences can convert later, but their day will be coming soon. There's nothing written in stone saying that the AM band has to survive, but if you want to save it, I strongly believe that getting to digital ASAP and pairing it with compelling 'destination' content is the way to go."

He says that when you pair MA3 with a connected car platform such as DTS AutoStage, which tunes stations by flipping through tiles on a screen, you have a powerful solution to the band's woes.

"You simply select a station by its logo and then you hear audio. It doesn't matter if

it's FM, streaming, satellite or digital AM. There's another argument for digital: Analog AM stations have no metadata capability, and so those stations will only show up as a number on a screen, and will likely be passed over."

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## A roundup of AI tools for radio

Services based on artificial intelligence are springing up across the radio workflow

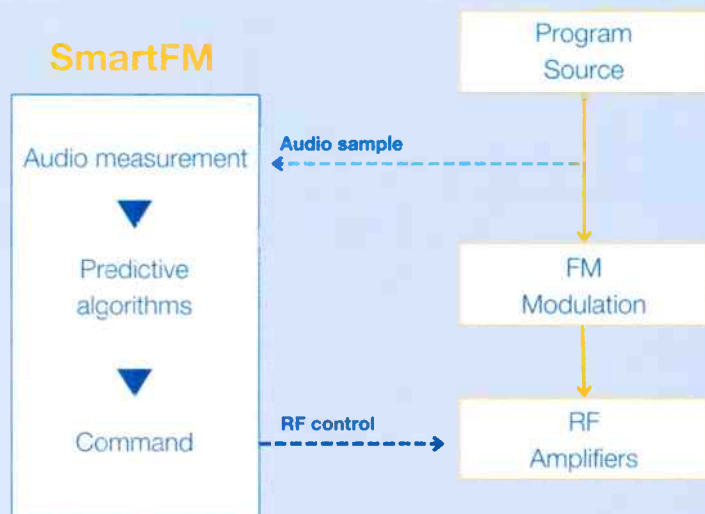
### WORLDCAST SYSTEMS

While generative AI gets attention for its potential impact on creative work, AI already is being used behind the front panels of parts of the airchain already.

WorldCast Systems offers a technology called SmartFM on its Ecreso transmitters, which range in power levels from 100 Watts to 10 kW.

"SmartFM enables broadcasters to benefit from up to 40% energy savings on their FM transmission — this includes reducing electricity costs and lowering CO2 emissions — without any compromise on audio quality or coverage," said Gregory Mercier, director of product marketing. He said a 10 kW FM using an Ecreso transmitter with SmartFM could save 824 MWh over 10 years compared to an older transmitter with 55% efficiency.

The tool predicts human perception of audio quality at the limit of coverage and depending on



# Artificial Intelligence

content characteristics. "After a psychoanalysis algorithm qualifies the robustness of audio content to perturbations, SmartFM dynamically changes the RF output power in relation to broadcast content."

The AI has three steps. First it uses a statistical approach for content breakdown and classification. "This phase corresponds to the retrieval and analysis of large numbers of data, our 'big data,'" Mercier said. This enabled WorldCast to create a library of audio content classified by signal characteristics as well as by the impact on the listener's acoustic experience. The tool then uses a probabilistic approach in the implementation of content detection, and finally a deterministic approach in automating RF management.

SmartFM is sold as a software option with annual fee or a permanent license. Eceso transmitters include a three-month free trial.

A notable user is Uplink Network GmbH in Germany. It deployed SmartFM across 800 Eceso transmitters with the support of broadcasters including Deutschland Radio, RBB, WDR and NDR.

Info: <http://worldcastsystems.com>

## ENCO

ENCO-GPT uses generative AI models to generate audio content and automate voice tracking and commercial creation for TV and radio workflows. It creates spec spots and commercials on demand to simplify radio production.

"ENCO-GPT shines by helping users to instantly create ad and promotion copy on behalf of sponsors, alleviating the time, energy and costs spent with traditional methods," said President Ken Frommert.

"An intuitively designed web interface allows users to run ENCO-GPT from anywhere with an internet connection, including mobile browsers."

The user answers a few questions to generate copy for a 15-, 30- or 60-second ad. A text window presents the copy, which users can manually edit or re-generate.

Next, the user selects the most appropriate voice from several male or female voice options available. ENCO-GPT then allows the user to add the right music bed for the spot before downloading the final down-mixed audio file.

"Spec ads can be downloaded from ENCO-GPT and sent to the client almost immediately," Frommert said.

"The user interface is simple enough for users of any skill level to learn quickly, with intuitive prompts that guide users through the process."

Info: [www.enco.com](http://www.enco.com)

## SUPER HI-FI

Super Hi-Fi products are based on an AI production technology called MagicStitch, said Chief Commercial Officer Ryan Taylor.

The headliner product is Program Director, an "operating system" that Taylor says enables broadcasters to curate, program, schedule and operate

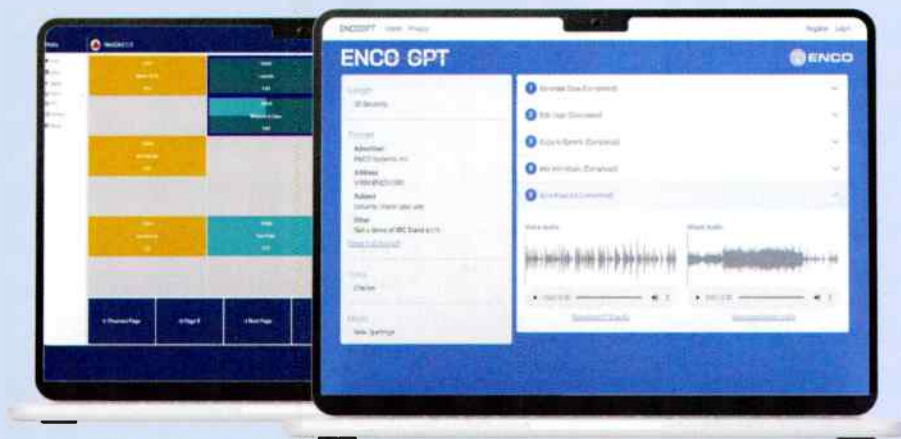


their stations.

"AI powers all of the audio production, like creating segues, layering in voice tracks and branding, volume leveling and more. AI also powers our clock rotations, automatically selecting songs that sound good together and separating out music throughout the day." Program Director is sold for a monthly platform or per-station fee.

The company also has Weathercaster, an automated service that can create weather reports using custom synthetic voices, produced with openers, sponsorships and music beds, and created in various lengths. The AI generates scripts, creates voices, assembles elements and produces the output. Weathercaster is offered in tiers starting at \$199 per month per station.

And VoicelQ, part of Program Director, is a cloud-based AI that prepares and delivers produced voice



# I Trust ViA for Sports Remotes



Dan Israel broadcasts to more than 100 affiliates with the ViA codec.

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Dan Israel, Executive Producer & Co-host, Chiefs Radio Network

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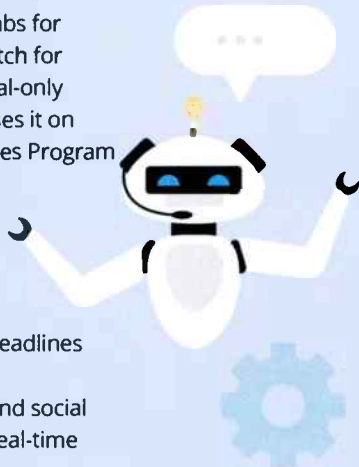
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# Artificial Intelligence

tracks. Taylor said they sound as if they were edited and mastered manually. It removes background noise, tone-matches to the user's reference standard, eliminates plosives and clipping and optimizes dynamic range.

Super Hi-Fi's audio and music selection/rotation AI was developed in house. The company uses ChatGPT for script creation and partners with ElevenLabs for voice synthesis. iHeartRadio is using MagicStitch for automated segues in its mobile apps on digital-only stations. Cardio equipment maker Peloton uses it on Peloton Radio and its "Scenic" rides. Sonos uses Program Director on its owned-and-operated stations.

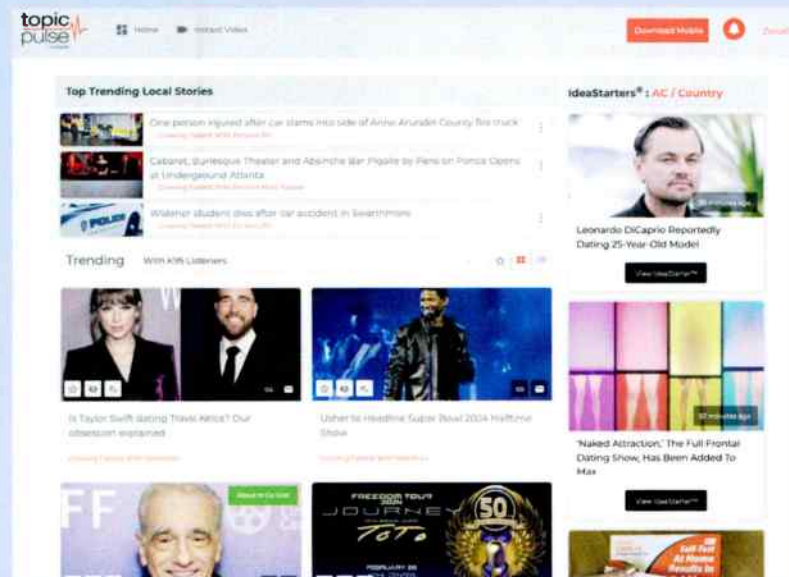
**Info:** [www.superhifi.com](http://www.superhifi.com)



## FUTURI MEDIA

The company's RadioGPT has gotten lots of headlines but that is only one of Futuri's AI-based tools.

TopicPulse is an AI-driven story discovery and social content system. For show prep it promises "real-time



insights on the stories that are currently trending with a specific audience, the stories that are about to go viral with that audience, and the stories that are getting stale so that content creators can avoid them."

A companion product called TopicPulse Instant Video gives creators access to short video clips on that day's hot stories, using licensed footage, that can be rebranded or edited with custom VO or images, and pushed to a station website and social feeds.

Spokeswoman Zena Burns said the AI is used to scan Facebook, Twitter/X, Instagram and a quarter of a million sources of news and information to deliver insights on how stories are performing with specific audiences. "AI is also used to create first drafts of social posts, blog posts and on-air talking points based on those stories."

TopicPulse uses natural language processing and adaptive AI.

Futuri said the tool has thousands of users in radio, TV, digital publishing and other segments. Radio users include Audacy's WXBK(FM) in New York and Hubbard's WTOP and Howard University's WHUR(FM), both in Washington.

Other tools from Futuri that rely on AI include SpotOn, Prep+, podcasting AI Post and revenue AI system TopLine.

**Info:** <https://futuraimedia.com>

## WAYMARK

This video creation tool uses the website URL of a business to create "instant, fully customized and ready-to-air commercials." It can be used to generate "spec" creative for potential ad partners for streaming and cable TV placements.

"Broadcasters find that this helps them from spec all the way to air; they can win more ad revenue and/or extend campaigns with local businesses," said CEO Alex Persky-Stern.

"Our partners consistently report that Waymark helps open doors to businesses who otherwise would not have been able to afford video advertising packages."

The platform uses AI for multiple stages of the video creation process. It incorporates large language models for scriptwriting, computer vision models for image curation and selection, upscaling models for asset enhancement, and text-to-speech technology for synthetic VOs. "Waymark leverages a fine-tuned model of GPT-3, as well as a proprietary combination of 12 other AI technologies."

The company partners with stock libraries to ensure that its assets are licensed, and the AI models rely on images and videos that are already in use by the user's brand.

*Continued on page 14*





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John Bisset

CPBE

The author is in his 33rd year of 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.



Send your tips

Workbench submissions are encouraged and qualify for SBE recertification credit. Email [johnpbisset@gmail.com](mailto:johnpbisset@gmail.com).

# Share your interesting piece of tech history

What's that thing you've been keeping in the corner?

**D**r. Tine Hicks and his brother Leigh, owners of WBTE Radio in Windsor, N.C., share this interesting variable coil used for HF (3 to 30 MHz) applications.

This was manufactured long ago by Barker & Williamson of Upper Darby, Pa. In the first photo, note the capacitor plates below the coil assembly. The second image, on page 12, shows how the movable arm can couple more or less of the RF signal.

Do you have an interesting piece of radio or electronics history at hand? Send us a photo and tell us about it. Email [johnpbisset@gmail.com](mailto:johnpbisset@gmail.com).

## I "can" and so can you

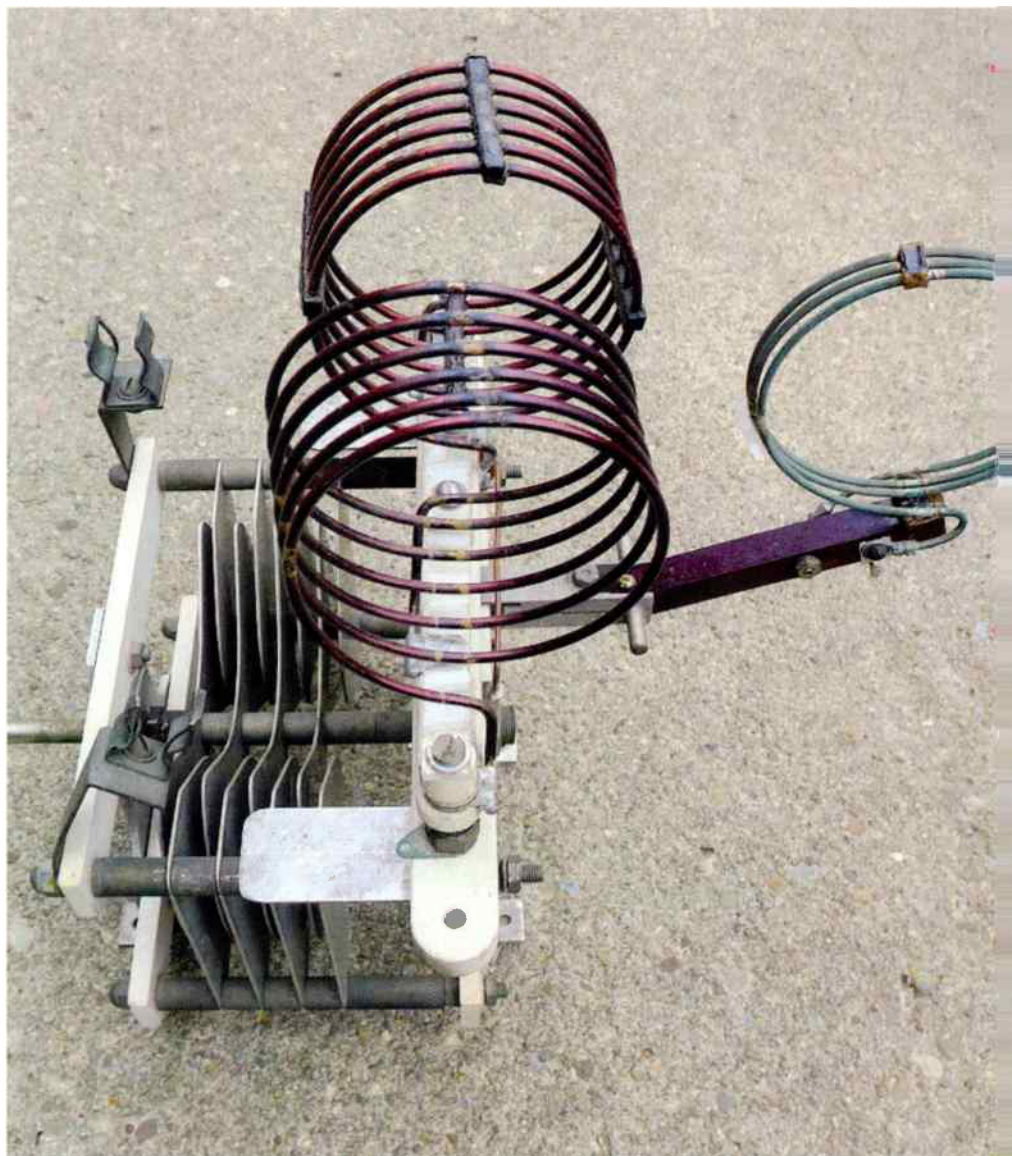
Scott Todd, who describes himself as a classic radio gear nut, loved the article on the refurbished Gates Biamote that we published in September.

If you are into restoring old gear, Scott points you to Hayseed Hamfest LLC at <https://hayseedhamfest.com>. The company can build pretty much any type of can capacitor for you.

Scott notes, however, that defective caps can also be opened and re-stuffed. There are videos on YouTube if you are interested.

## Kinky college story

Walt Konetsco is a former Foreign Service officer and field engineer for Voice of America. The photo of crushed coax that Larry Wilkins shared last month brought a smile to Walt's face, along with memories of a situation he'd experienced years ago.



Walt had his own consulting business and had contracted with a station to install a satellite receiving system. He dutifully installed and sighted the dish, but the station general manager felt he could save money by having a college student on staff run the coax cable from the dish to the interior of the building.

When Walt came back to complete the installation, the coax had indeed been run and buried as he had instructed. But Walt installed the connectors on each end and fired it up. Nothing!

**Right**  
This unique variable coil assembly was manufactured by Barker & Williamson.



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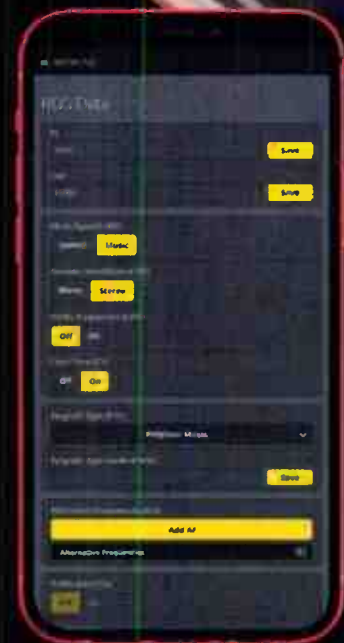
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an internal standard to test for this. It consisted of charging a 4.7 uF capacitor to 600 volts and then discharging that capacitor into the input terminals. That's almost 1 joule of energy.

This isn't huge but enough to zap any semiconductor and to fry a 1/4-watt resistor or a Zener diode. Kenneth's team needed a protection circuit that could dissipate the 1 joule and at the same time limit the transient voltage to 5 volts.

They developed a two-stage circuit to separately absorb most of the energy and then limit the voltage. One can use a spark gap, but they are expensive. Their solution was to use a good old NE-2 neon bulb, which works just fine.

The NE-2 would absorb the 1 joule but allows about a 70-volt transient to pass. The NE-2 was placed from each input terminal to chassis ground. That was followed by a series 150-ohm resistor and then a 5-volt Zener diode connected to the printed circuit board (PCB) ground. You don't want the NE-2 ground to go to the PCB ground.

It worked every time, Kenneth reports. If you repeat the test too often, the NE-2s will fail eventually; but for infrequent transients, the circuit does the job.

12

**Above**  
Note how the pivoting coil can change the network coupling.

He checked the receiver at the antenna and got an operational signal, leaving the coax as the likely source of the problem. Well, the college student came back and dug up the coax. It had multiple kinks, just like Larry's photograph and with additional crimps and multiple damaged locations along the line.

When Walt told the GM that he would have to buy a new expensive run of cable to replace the damaged one, he suddenly realized it would have been far less expensive had he simply paid Walt's hourly rate.

## Surge solution

Years ago, Kenneth Lundgren was designing a remote-control console for a CCTV system that used a twisted pair cable to transmit a digital control signal up to a mile away.

The signal went to an IC that would be susceptible to transients on that long twisted pair. Kenneth and his team had

## Wisdom from the bird lady

That photo we published in July of what appears to be nest material in a transmitter room continues to cause chirping and clucking.

Bill Ruck, projects and contract engineer in San Francisco, shared the photo with his wife Sjoban. She reminded him that a nearby abandoned AT&T Trans-Pacific receive building in Point Reyes, Calif., has a continuing problem with broken windows and birds getting in. The staff at Point Reyes National Seashore eventually fix the windows, although they have been known to screw 1/8-inch acrylic across other broken windows to keep birds out.

Birds in a building leave guano everywhere; and when we zoom in on our original photo we can see bird excrement all over the floor, so despite speculation to the contrary, this does appear to be an avian intrusion. But of what kind?

Bill points out that while osprey nest on towers all the time, they're not cavity nesters and presumably wouldn't go through an opening like the coax cable ports we discussed.

The mystery continues. 🐦

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Continued from page 8

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**Info:** <https://waymark.com>

## RADIO.CLOUD

From Radio.Cloud comes Voicetrack.ai, which is used to create hosted radio shows with an AI DJ.

"Voicetrack.ai allows a fully automated AI supported operation of a hosted 24/7 channel or complete radio shows, such as overnights or weekends," said Managing Director/CEO Christian Brenner.

"The AI host will perform similarly to what a real DJ would do: music teasing, weather forecast, local stories, news, traffic reports, music chart updates, etc."

AI creates the text for each voice break, creates DJ audio from a cloned voice and mixes the voice track into the show and playlist, including ramps and hook promos.

"We developed a complex backend and created the prompts we send to ChatGPT or Google Bard before checking and improving the reply," Brenner said. "The Text-to-Speech is third-party."

Brenner called it "a real automated operation. We have heard that other products still require a lot of day-by-day manual work."

The tool is sold as a monthly SaaS service, with cost varying depending on how many stations and how many hours per day are used.

In July Radio.Cloud helped launch Absolut Radio AI, believed to be the first 24/7 internet radio station fully

driven by AI; the host, named kAI, informs listeners about AI and the voice tracks, imaging and playlist mixing are done by AI. Then in August, Absolut Radio AI debuted on DAB+, believed to be the first OTA station driven full-time by AI.  
**Info:** [www.radio.cloud](http://www.radio.cloud)

## RADIO WORKFLOW



Here is a web-based traffic platform that incorporates AI to generate creative elements for ad production. This includes voiceovers, voice cloning and generation, production music, sound

effects and script writing.

Founder Shane Zammit said, "The AI component focuses on generative functions for ad production, including creating unique voiceovers through voice cloning and voice generation, script writing based on the context and tone of the ad segment, and generating production music and sound effects that fit the narrative."

Zammit said Radio Workflow uses a mixture of AI models, including some developed in-house as well as open-source models and other external ones. "This hybrid approach allows us to offer a robust and versatile set of generative features tailored for radio ad production."

The platform is available through a monthly model, with pricing tiers based on size and needs of the station.

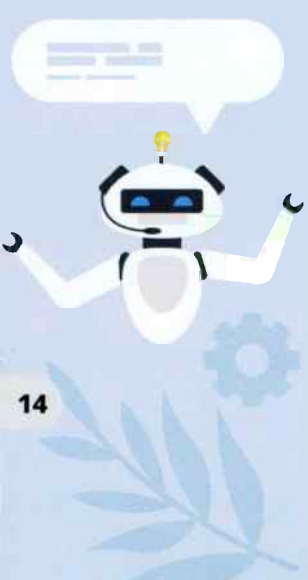
Regional Media is among its users. "They have reported a significant improvement in the speed, productivity and creativity of their ad productions, attributing it to our AI-driven generative features," Zammit said.

**Info:** [www.radioworkflow.com](http://www.radioworkflow.com)

## SUITLEIFE SYSTEMS

SuiteLife Systems software helps broadcasters monitor infrastructure in and from studios and remote transmission sites. Its flagship product is Axess.

"It's a logic engine that enables a centralized engineering team to monitor, control, manage and diagnose hardware and transmission infrastructure and facilities around the United States," said Bobby





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- APEX Tools.
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# Artificial Intelligence

Stevens, director of media technology sales and marketing.

"This includes monitoring for a site's vital technical information including temperature, line pressure, RF Line (forward and reflective power), as well as the weather and outside environmental influences."

The software provides cross-platform support for hardware and software systems made by various manufacturers. Axxess logs data and creates instructions to notify engineers of changes in the state or function of infrastructure at their sites.

The engine uses SuiteLife Control Language to analyze hardware throughout a network. Data and information that are gathered are moved into an optical visual interface to be viewed on a dashboard. Axxess notifies the broadcaster if systems are showing errors or are out of norm and logs the information. It can also be directed to make changes to hardware and RF transmission devices.

**Info:** [www.suitelivesystems.com](http://www.suitelivesystems.com)

## VERITONE

Veritone developed an enterprise AI platform, aiWARE, that supports several offerings.

Veritone Discovery is a media discovery and analytics tool to discover large amounts of visual and audio broadcast data, and track and verify ads including organic mentions.



It provides the ability to search a broadcast for spoken words, faces, logos, objects and sentiments. Users include Audacy and Cox Media Group.

Veritone Attribute tracks performance of ads including tangible ROI data. It enables stations to optimize linear TV and radio campaigns by correlating an ad with web "lift" in nearly real time. Bonneville Seattle, Hubbard Broadcasting and Primedia are customers.

And Veritone Digital Media Hub is an asset management and monetization tool that enables stations to generate more revenue from their content.

"AI can uncover archival footage that can be shared, sold or otherwise used, speeding the path to content monetization. Additionally, AI makes it easy to organize, share and consolidate content with AI-driven metadata asset tagging, rights management controls and flexible integrations with current systems, ingesting AI into your current solution stack." Users include CNN, Bloomberg and Westwood One.

**Info:** [www.veritone.com](http://www.veritone.com)

## ADTHOS

The Adthos Ad Platform can be used by broadcasters and clients to create targeted and voice-branded advertising and short-form audio content at a moment's notice, the company says.

It uses AI to generate creative scripts. Text-to-speech adds the voicetrack using AI and synthetic voices, then the tool automatically selects music or sound effects to complete the audio ad, based on the context of the script generated.

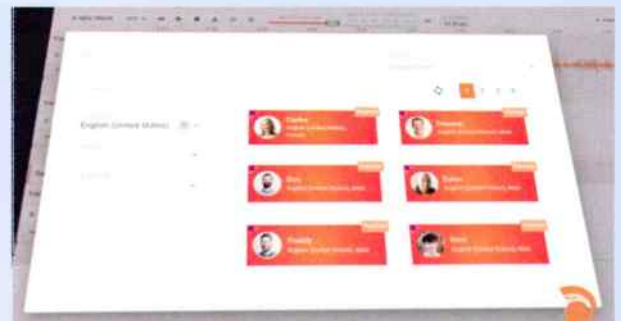
Processes includes Voice Conversion, in which accent and pronunciation of the original speaker remain but it takes on the sound of the voice model; Overdubbing, in which a voice is instantly cloned and words in a sentence can be replaced, without training a voice model; Source Separation, in which music and voices can be separated into different tracks; Noise Removal, eliminating background noise; Speaker Separation, identifying individual speakers and separating them into tracks; and Content Moderation by the AI.

Subscriptions start at just \$49.95 per month for a basic package. A month's free trial is available.

This year saw the launch of self-service audio ads. "Users simply submit a short briefing via the portal, and using AI technology, Adthos generates the script, adding AI voices, sound effects and music, resulting in a fully AI-produced ad that's available to be played out instantly."

For advertisers and smaller broadcasters, Adthos said, it saves time and cost of production, "while publishers can offer customers a self-service ad buying experience while supporting long-tail revenue streams through microtransactions."

**Info:** [www.adthos.com](http://www.adthos.com)



Writer



Randy J. Stine

Radio World's lead news contributor has spent 40+ years working in audio production and broadcast radio news. He joined RW in 1997 and covers new technology and regulatory issues.

# John Broomall: Broadcasting God's Word

Longtime community radio advocate continues mission

**S**ome might describe John O. Broomall Sr. as a serial filer of FCC forms. In fact, he estimates he has submitted more than 1,000 successful filings to the commission.

Broomall, 83, is recognized by many as a national authority on community radio. He operates Christian Community Broadcasters, a consultancy near Atlanta, that he founded with his wife Henri in early 2000. He has helped more than 300 churches, ministries, school and community groups build and operate noncommercial low-power FM stations.

Broomall got his start in broadcasting at 17 as a student intern when WETV Channel 30, now WABE(DT), signed on in Atlanta in 1958, one of the first city-owned PBS stations. He helped found WATC(TV) Channel 57, a non-CPB private educational station, in 1996 and retired from his job there as underwriting manager in 2012.

The son of a Southern Presbyterian pastor, he estimates more than half of the 2,000 LPFM stations on the air in the United States are operated by churches and Christian ministries. The veteran broadcaster operated WPCG(LP), Grace Radio in Canton, Ga., but turned over operation of the station to Encompass Ministry in 2022.

Radio World spoke with him about the success of the LPFM service, demand for new stations, a proposal to



increase power levels and his life as a Christian broadcaster. Some answers have been edited for brevity.

**RW** What are your emotions on learning about the November filing window for new LPFMs?

**John Broomall:** There has not been a low-power FM window since 2013, and I am excited for what will probably be the final one. The radio dial is getting full nationally in urban and suburban areas. At 83, it will be the climax of my broadcasting career.

**RW** Have you had many calls from prospective LPFM broadcasters seeking help?

**Broomall:** Since CCB started in 2000, I have proactively sought clients through ads and faxing, emailing, calling and mailing to prospects. I am notifying all my clients and relying on referrals to keep me busy.

**RW** What do LPFM wannabes need help the most with?

**Broomall:** Frankly, everything. LPFM is a unique radio service not understood even by some FCC employees. If a person has never filed an LPFM Form 318, being a full-power radio personality is of no benefit.

**RW** What should people know about the commission's procedures?

**Broomall:** FCC legacy rules and procedures, changes the commission made in 2019 and its future rulings can best be interpreted by men and women who have done dozens or hundreds of low-power FMs. "Do it yourself" is not for brain surgery, repairing aircraft or filing in the fiercely competitive November window.

For example, one LPFM board with a former "pirate" member did not know it was a fatal flaw. Once filed it's too late to remove the person.

**RW** You recognized the significance of LPFM early on. How do you characterize the success of the service?

**Broomall:** Is a cup half full or half empty? Is it 80% full or 20% empty? Listeners to a station don't care if it is 100 watts or 100 kW if they can hear it.

Right  
John Broomall

**“Radio is one of the most cost-effective ways to spread the Good News. A low-power FM can operate 24/7 for less than \$25 a week.”**

People define success differently. A manager of a Christian station might be satisfied to reach one person with the Good News. Someone else would say that it had failed if it had not met its budget.

**RW** Are you an advocate for allowing LPFMs to increase power to 250 watts, as some have proposed?

**Broomall:** While I want LPFMs to reach as many people as possible, I have never really been an advocate for LP250. The 250 watts would work only in small towns and rural areas, based on terrain and an open dial.

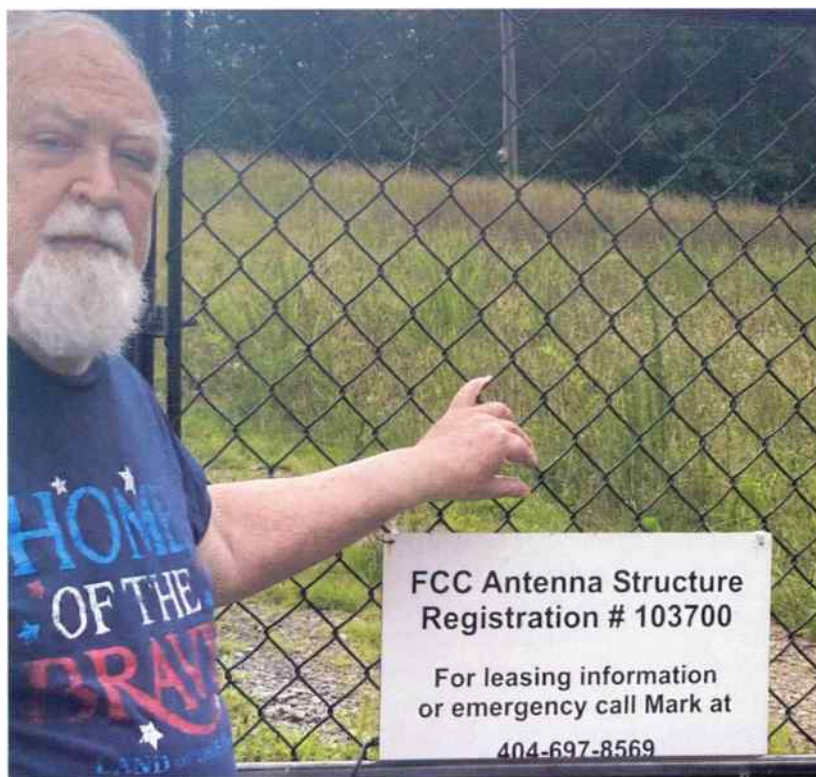
**RW** Share your thoughts about the role of Christian radio in our society.

**Broomall:** Anyone who believes in the afterlife knows that Christian radio literally has eternal significance. Good and evil is everywhere, from huge cities such as New York and Chicago to rural Alaska where long nights and isolation foster evil such as incest. Christians should use radio and all other modern communication and social media tools.

Radio is one of the most cost-effective ways to spread the Good News. A low-power FM can operate 24/7 for less than \$25 a week.

**RW** What is Grace Radio?

**Broomall:** The slogan of Grace Radio, 102.9 in Canton, Ga., is "We Proclaim Christ's Grace." WPCG has operated at four transmitter sites, moving closer to Atlanta to reach more people, as FCC regulations allowed. We are in the heart of the Bible belt. To the best of my knowledge,



metro Atlanta has more Christian radio and TV stations than anywhere else in the world.

Grace Radio is 100% automated. Most programming is from Moody Radio, the oldest Christian broadcaster, founded in 1926 by Moody Bible Institute. Other national radio ministry programs, such as "Family Talk" from Dr. James Dobson, are delivered by internet and air on a

revenue-sharing basis. Grace 102.9 has never had its own studio but produces programs at a local recording studio.

**RW** You say you are on a first-name basis with some at the FCC. Describe your dealings with them through the years.

**Broomall:** Friendly. Cordial. Productive.

The FCC has serious, chronic, ongoing database and IT problems that frustrate me and my high-level FCC staff contacts. Information about a given station should be the same, for example, in the Consolidated Database System and in the Licensing and Management System, but sometimes it is not. It's frustrating to take one step forward and two backward. I blame inconsistency in regulatory enforcement and interpretation not on the government but on human nature.

**RW** Hypothetical question: If you were to serve as an FCC commissioner, what would be the first few things to address?



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**Broomall:** LPFM is unique among all broadcast services with no commercials and 100 watts or less. When it was established in 2000 one of the commissioners called its founding a "rocket docket."

While I'm not a libertarian, I believe the role of the FCC related to LPFM should be limited to technical interference. Most of the regulations related to board membership, localism, mission statement and assignments are inconsistent, with loopholes the size of semi trucks, and should be eliminated.

**RW** What are a few things people should know about you outside of broadcast?

**Broomall:** I processed "Top Secret/Eyes Only" messages as a communication specialist in Vietnam. I'm interested in long-distance radio and TV reception, DXing. I operated an advertising and printing business at Five Points in downtown Atlanta. Over a period of 20 years I wrote professionally more than 10,000 résumés.

I'm also active in my church as a Reformed Christian. I've served as a deacon. I've also been on the founding board of two Christian schools. Last, but not least, I outlived three wives over a period of 50 years.



**Above**  
Broomall speaks at WPCG(LP) earlier this year. He recently retired from its board.

**RW** Your late wife Henri was involved in the business.

**Broomall:** Henri died three years ago of a rare blood disease, thrombotic thrombocytopenic purpura or TTP. She was not only my wife but my live-in radio consulting partner from the beginning. Almost daily I see passwords and FCC filings she set up or handled.

In 2016 when Mike Huckabee, who once owned an LPTV station, was running for president, I was upset with the FCC about something. A friend of ours knew the person running his campaign in Georgia. I told Henri, "If Huckabee gets to be president I'll use my contacts and ask to be named an FCC commissioner." Immediately Henri responded, "You are going to Washington without me."

**RW** And what has been the most satisfying part of your career?

**Broomall:** Helping nearly 300 LPFM applicants or licensees. Speaking at National Religious Broadcasters conventions about LPFM and underwriting workshop panels. And I'm grateful that at 83, my best opportunities might be in the future. My new website LowPowerFM.info summarizes what I am busy doing now. **R**

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# BUYER'S GUIDE

Signal Monitoring, Remote Control, Test & EAS

## About Buyer's Guide

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

## Tech Update

### Aldena Offers "EMF Safety Under Control"

Aldena's recently introduced ABM meter is a compact, handheld, broadband electromagnetic field meter.

"ABM is designed to measure and control field strengths in compliance with personal health and safety regulations and requirements under international limits including ICNIRP, IEC and IEEE," the company states.

The company offers a range of E-Field/H-Field probes covering various frequency ranges, DC to 65 GHz. Probes are interchangeable and plug-and-play, with individual calibration certificates.

The ABM is compact and weighs only 11 ounces. It is equipped with GPS, temperature/humidity sensors and a multi-data logger function for storing measurement results.

Aldena manufactures antennas and RF coaxial components for broadcast, civil, military and other applications.

Its new Measuring & Monitoring Division develops EMF measurement meters, probes and antennas. Its EMLAB software is a specialized tool to design and calculate array radiation patterns and coverage area or identify health and safety EM risks.



It also can calculate human exposure to RF fields (NIR prediction) to verify compliance with international limits.

Info: [www.aldena.it](http://www.aldena.it)

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## Tech Update

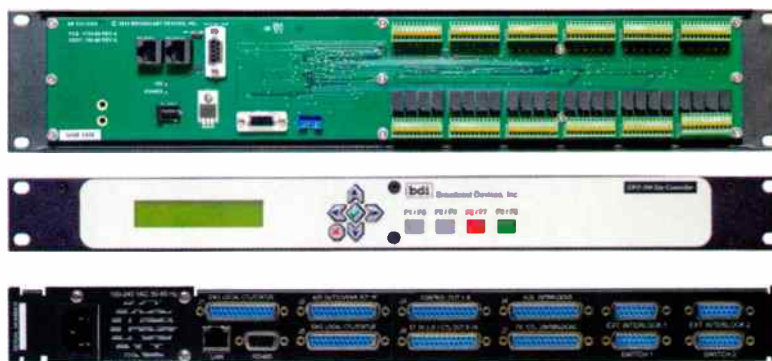
### BDI Offers Affordable Remote Control

Broadcast Devices describes its SWP-300 Remote Control as a complete remote-control solution at about half the cost of other systems. It is suitable for main, auxiliary and translator sites or as a secondary remote control for backup.

"The SWP-300 features direct plug-in interface to all popular RF motorized switches for transmitter changeover operations. In addition the SWP-300 controllers have direct interface capability to up to two BDI DPS-100D True RMS power meters."

Parameters displayed on a DPS-100D power meter, including forward/reflected power, temperature, transmission line pressure and six general-purpose inputs, are converted for display on the SWP-300 with no scaling needed.

The SWP-300 series features a single-connector interface for control of two transmitters including TX On/Off and Interlock control. In addition to direct control of two transmitters, the unit features 16 control outputs, eight status inputs and four analog inputs for legacy equipment. Also included are local interfaces for optional pushbutton control or for interface to other remote control systems.



An optional IOX-24 24 channel expansion panel can expand the capabilities of the basic SWP-300 chassis to include 24 additional relay outputs, status inputs and eight additional analog inputs.

The SWP-300 series has Ethernet interface and is SNMP-capable. Front-panel controls include master transmitter on/off and motorized switch control. Front-panel display of transmitter selected to air, forward and reflected power, temperature and transmission line pressure is available.

The SWP-300 is furnished with a GUI software package for use with Windows 8, 10 and 11. The series is available in one and two RF switch models.

Info: <https://broadcast-devices.com>



## Tech Update

### Broadcast Tools Has Your Silence Sentinel

The AES Audio Sentinel 4 >> Web is a web-enabled four-channel AES/EBU digital audio silence monitor.

"Each of the four AES inputs can be configured for silence, stereo out of phase, and AES error monitoring," says manufacturer Broadcast Tools.

"Inputs may be configured to act as two separate mono channels, allowing the user to monitor up to a total of eight different mono audio sources."

The AES Audio Sentinel 4 >> Web can be configured and monitored locally and/or remotely over any IP network, including private networks, IP-based industrial control networks and the internet. Users can operate it with a desktop browser or web-enabled (HTML5) mobile device.

Email notification can be configured to alert up to eight recipients when silence or out-of-phase audio is detected. SMTP user name and passwords using SSL/TLS (Gmail etc.) or Base64 authentication are supported.

Logging of system status along with the site ID can be emailed in time spans from once an hour to once a day. SNMP traps and SET/GET allow multiple units to be monitored and configured with SNMP management software.

Info: <https://broadcasttools.com>



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**Tech Update**

## Manage Your Rack Environment With Tri Temp

Burk Technology notes that environmental problems can damage expensive equipment and lead to off-air conditions. HVAC equipment failure, power outages and human error can cause catastrophic problems, especially when running unattended.

"Broadcast equipment requires comprehensive monitoring of environmental conditions to detect problems as early as possible," Burk says.

The new Tri Temp sensor array makes it easy to build a temperature profile of your entire rack facility, whether at a transmitter site or the studio.

"Tri Temp's three temperature sensors are pre-wired in series for mounting at the bottom, middle and top of each rack, providing a real-time view of heat rise from air inlet to outlet," Burk explains.

"Wire multiple Tri Temp units to your Burk Climate Guard or Plus-X EM Environmental Monitor for complete rack room coverage."

Climate Guard has colorful web-based charts that display variations in heat distribution over time, tracking normal fluctuations due to HVAC operating cycles as well as identifying abnormal temperature variations.



"Increasing temperature at the middle or top of a rack can help pinpoint an equipment fan failure, while rising temperature across multiple racks can indicate degraded air handling or an AC failure in the rack room."

Climate Guard alarm thresholds trigger instant alerts via email, text and SNMP, giving operators warning of impending failure conditions. A web interface displays current and historical sensor data and alerts along with live camera feeds and allows system configuration.

Plus-X EM Environmental Monitors bring additional benefits of integration with an ARC Plus remote control system. Jet Active Flowcharts in ARC Plus can respond to temperature events, enabling backup cooling systems, shutting down non-critical equipment or shifting to backup facilities. AutoPilot custom views integrate temperature data with other critical broadcast system parameters.

Rack temperature monitoring with Tri Temp works with Burk Climate Guard, Plus-X EM Series and STM-4D.

Info: [www.burk.com](http://www.burk.com)

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**Tech Update**

## Tunwall Controllers Beef Up

Tunwall Radio has added SNMP v2c to its TRC Series coaxial switch controllers.

Users can remotely perform commands and check status via SNMP or a built-in web server. Remote connections can also be made via rear-mounted terminal strips.

Key switches allow for local mode operation, locking out SNMP control as well as wired remote commands. SNMP and wired status



will work with the local key switch on.

The front-panel switch-position indicators clearly show the RF signal path and load status. An auto transfer mode allows for changing transmitters automatically

if the main fails. Load testing is protected via the automatic load interlock.

Two SNMP-enabled models are available. The TRC-1N is for a single switch, antenna, two transmitters and dummy load. The TRC-1PA-N adds an antenna interlock feature. SNMP v2c can be added as an option for multi-switch and custom-designed controllers.

Info: [www.tunwallradio.com](http://www.tunwallradio.com)





**Tech Update**

## DASDECs Get V5.0 Update

Digital Alert Systems has released its Version 5.2 software for compatible DASDEC and One-Net emergency messaging devices.

This is the third release in the Version 5.0 series and includes the latest FCC compliance features, which broadcasters must implement by December.

The company says it also has made the system more secure by fully encrypting the data files and adding whitelisting that restricts access to the device.

"Several changes in Version 5.2 are subtle modifications to the text displayed during an alert, with specific changes to the NPT and EAN, which will now be referred to as 'Nationwide Test' and 'National Emergency Message,' respectively," it said.

"In addition, text referring to a Primary Entry Point (PEP) station is now rendered as 'United States Government,' while an EAS station changes to 'EAS Participant.'"

The text is further controlled by whether the alert originates from EAS or CAP. Also, because the new FCC rules require changes to Digital Alert Systems Triggered CAP Polling, the previous selectivity by Alert Node has been removed, forcing it to be always on.

"Under the hood, the file system is now fully encrypted, so data at rest is inaccessible to bad actors trying to exploit or physically compromise a device."

Additional security updates include IP whitelisting, which allows access only from predefined IP addresses or domains and further sanitizes input values to eliminate cross-site scripting (XSS) exploits.

This update is free to stations enrolled in the company's Software Assurance Plan or users who purchased a new DASDEC unit or participated in the company's UpTrade program since October 2022. The cost for other users varies.

Info: [www.digitalalertsystems.com](http://www.digitalalertsystems.com)



# Digital Audio Solutions



## AES Switcher Sentinel® 4 XLR

Web-based AES Switcher/Silence Detector

The AES Switcher Sentinel 4 XLR is a web-based, transparent, four input, one output switcher with mechanical latching relays designed to pass AES/EBU digital audio. It features XLR connectors for audio I/O. It has a browser-based HTML5 web interface and supports SSL/TLS email (Gmail, etc.), SMS-email notification, as well as SNMP. The unit monitors its AES output signal for AES errors, audio silence and stereo out-of-phase conditions.



## AES DA 1x6

XLR AES Distribution Amplifier

The AES DA 1x6, six output, one input AES/EBU digital audio distribution amplifier is ideal for distributing AES signals or wordclock. Features include: AES activity detector with alarm LED and relay output, signal bypass on loss of power: Input to Output 1, and dual power supply inputs for redundant power with an optional second power supply.



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## Tech Update

### Inovonics 541 Is an Award Winner

Inovonics has released the fourth generation in its FM modulation monitor line. It earned a Radio World "Best of Show" Award at IBC2023.

"The all-digital model 541 combines detailed DSP signal analysis with a menu-driven touchscreen display, plus webserver-based total access for remote operation, including measurements, graphical data and direct web-browser audio monitoring of the off-air program," the company stated.

"With a 5-inch LCD touchscreen, the 541 displays essential modulation data graphically on the front panel or can be viewed remotely via web."

The monitor provides intuitive, menu-driven setup from the front or remote setup and operation. Its built-in webserver may be addressed over any IP network by computer or mobile device. It also supports SNMP remote control and monitoring.

Features include graphic front-panel and remote display of level metering; FFT spectrum analysis of IF passband, MPX baseband and program audio; and oscilloscope display of program audio and stereo XY.



Alarms are provided for a range of signal faults, with tallies and SMS/text or emails to specific individuals for various alarm conditions. All alarms are logged chronologically as well.

The 541 has analog, AES3-digital, HTTP/UDP web streaming and independent AoIP-streaming program audio outputs, plus an FM composite/MPX baseband output.

Its BandScanner utility scans the FM spectrum and displays each station with its signal level, PI code and call sign. StationRotation mode enables automatic sequential monitoring of multiple station presets.

The 541 collects and logs a history-over-time of FM and audio signal parameters. It provides accurate program loudness measurement to the human perception ITU-R BS.1770 ("LU") loudness specification. And it will stay on-channel and retain measurement setups through signal and power losses.

Info: [www.inovonicsbroadcast.com](http://www.inovonicsbroadcast.com)

## Tech Update

### Rev96 Is Sage Update for FCC Deadline

Sage Alerting Systems reminded its users about the Rev96 update for the Sage Digital Endec.

"This update addresses recent changes by the FCC to its Part 11 rules, including giving priority to CAP messages over an identical legacy message, and updating the text for national alerts," the company said. The FCC rules take effect Dec. 13, 2023.



The Rev96 update also includes usability improvements, including a login/out audit log and emailed weekly alert logs. The update is available from Sage distributors with a list price of \$159. Check Sage's website for additional information and availability.

Rev96 is compatible with Sage's Alert Portal product, an optional software add-on, allowing for browser-based origination of alerts. This is useful for stations with Monthly Test or other origination responsibilities, as well as public safety organizations that use legacy origination as a backup to IPAWS.

Info: [www.sagealertingsystems.com](http://www.sagealertingsystems.com)

## RAM SYSTEMS

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Tech Update

# Suitelife Systems Offers Control

Suitelife Systems' Axess software supports broadcasters' hardware and RF transmitters, providing control, monitoring and management from the engineer's desktop, whether on-prem, virtual machine or in the cloud.

The Axess AI can be programmed to perform automated operations based on inputs from the equipment being monitored and controlled. "The operator visual interface makes creating connections and viewing broadcast networks a simple process."

It can integrate hardware interfaces across multiple platforms such as tower lights, servers and IP-connected devices, including legacy gear.

Axess stays up-to-date with new interfaces as a broadcast network grows; it is scalable, enabling users to aggregate data from multiple stations under one or more network or regional operation centers.



"We maintain a constant data stream between the hardware and the Axess Hub 24/7 as well as logging information for pattern and challenge resolution, keeping all data securely inside your network."

Axess also saves time by automating EAS reports, keeping engineers informed of how transmitter sites are running and diagnosing site issues remotely.

Info: [www.suitelifesystems.com](http://www.suitelifesystems.com)

# Some voices need work



THE AUDIOARTS VOICE 1 has all the tools and secret sauce of the Wheatstone M-1 microphone processor. But it's got more: WheatNet-IP, AES67, remote GUI control, password protection, real time clock and presets—complete with scheduler. It can be controlled from the OLED display and, of course, your desktop computer.

Benefit from our design experience  
**CONTROL YOUR SOUND**



## Tech Update

### Gorman-Redlich Releases CAP Software Update



Gorman-Redlich has published a software update for its CAP-DEC 1 converters to bring users into compliance with new FCC rules by the Dec. 12 deadline. The changes include prioritized CAP polling, changes in the text for the EAN (Presidential) event code and a new script for the National Periodic Test or NPT.

The Gorman-Redlich software update will update the clock on the EAS unit to internet time and allow the RWT to be sent from a remote location or scheduled for a future time and date using Teamviewer or any other remote program.

President Jim Gorman says customers should make sure they are running the most updated versions of EAS software.

This update is for anyone running a version of the CAP program V2.76.3 or later. If a station has done all previous required updates, the cost for the update is \$150.

Info: [www.gorman-redlich.com](http://www.gorman-redlich.com)

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## Tech Update

### WorldCast Launches MC6



WorldCast Systems has introduced a test and measurement solution for FM and DAB broadcasters called the Audemat MC6.

WorldCast highlights the MC6's compact design and robust construction for field use. It is a follow-on to the company's MC5, which is for FM measurements. "With

multi-DAB measurement capabilities featuring two receivers and additional multi-FM receivers, it solidifies its position as the most comprehensive solution in its class," the company says.

The MC6 supports DAB/FM drive tests and optional GoldenEar for mathematical and objective quality ratings of DAB and FM signals during drive tests. It incorporates user-customizable features for automatic measurement reports, which WorldCast says reduces operator workload and enhances efficiency. The MC6 scales to accommodate growth and provides a user-friendly graphical interface.

It is expected to be available for delivery by the end of 2023, with pre-orders receiving discounts of up to 20%.

Info: [www.worldcastsystems.com/](http://www.worldcastsystems.com/)

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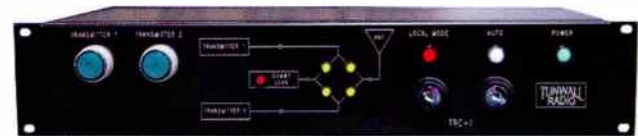
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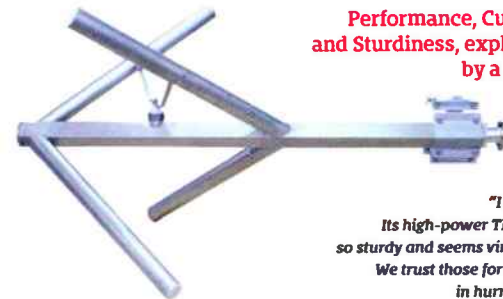


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DAVID HOXEMG, ADX Communications, Pensacola, Florida

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## GPIO Made Easy



### Box-O-Relays 6

The Broadcast Tools Box O' Relays 6 is a six channel optically isolated relay module. It's new design is perfect for converting GPIO outputs from AoIP systems and other devices to dry contact closures.

Compatible with WheatNet Blade RJ45 GPIO ports configured as GPIO outputs or with GPIO xNodes using the optional Broadcast Tools COA-15/RJ DB-15M to RJ45 Breakout Adapter.



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## How to submit

Radio World welcomes comment on all relevant topics. Email [radioworld@futurenet.com](mailto:radioworld@futurenet.com) with "Letter to the Editor" in the subject field.

I am attaching two photos, one of Don, the other of his headstone, which demonstrates how much Don loved the radio business.

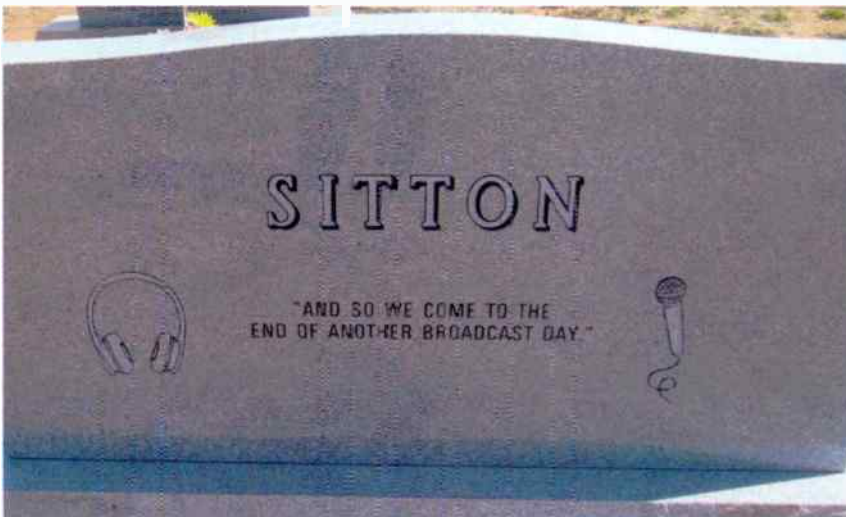
*Kerns Garza  
Chief Operator  
KRFE Radio  
Lubbock, Texas*

## Remembering Don Sitton

A very nice article on sightless listeners ("Radio and the Blind: An Evolving Relationship").

I miss the days when I would build switches and buttons to make the late Don Sitton's radio job easier. Don was one of triplet brothers, born in Idalou, Texas, and all of them sightless.

For Don's entire childhood the radio was everything to him. He graduated from Texas Tech University with a Mass Comm degree and finished his career with KPET Lamesa. Folks in Lamesa loved Don and his work at KPET very much until disease took him away from us.



## Congress Has Options

It is too bad that several automobile manufacturers decided to dictate to the world what they can listen to and what they can't by removing the AM broadcast band from their "interconnected" dashboards. They don't seem to be concerned about the strong objections raised by not only the radio industry but also members of Congress.

Broadcaster Neal Ardman suggested recently that AM car radios may perform poorly (translation: making them perform properly costs too much) because of RF interference emitted by electric vehicles in excess of FCC limits. If that's the case, the FCC has ample authority to enforce those limits.

But there are also ways for Congress to act.

One is following the model of the All-Channel Receiver Act that brought UHF tuners with adequate performance standards to all TV receivers. Another approach might be to enact legislation requiring that at least the broadcast radio component of automobile and truck dashboards be removable and replaceable by consumers at independent radio shops.

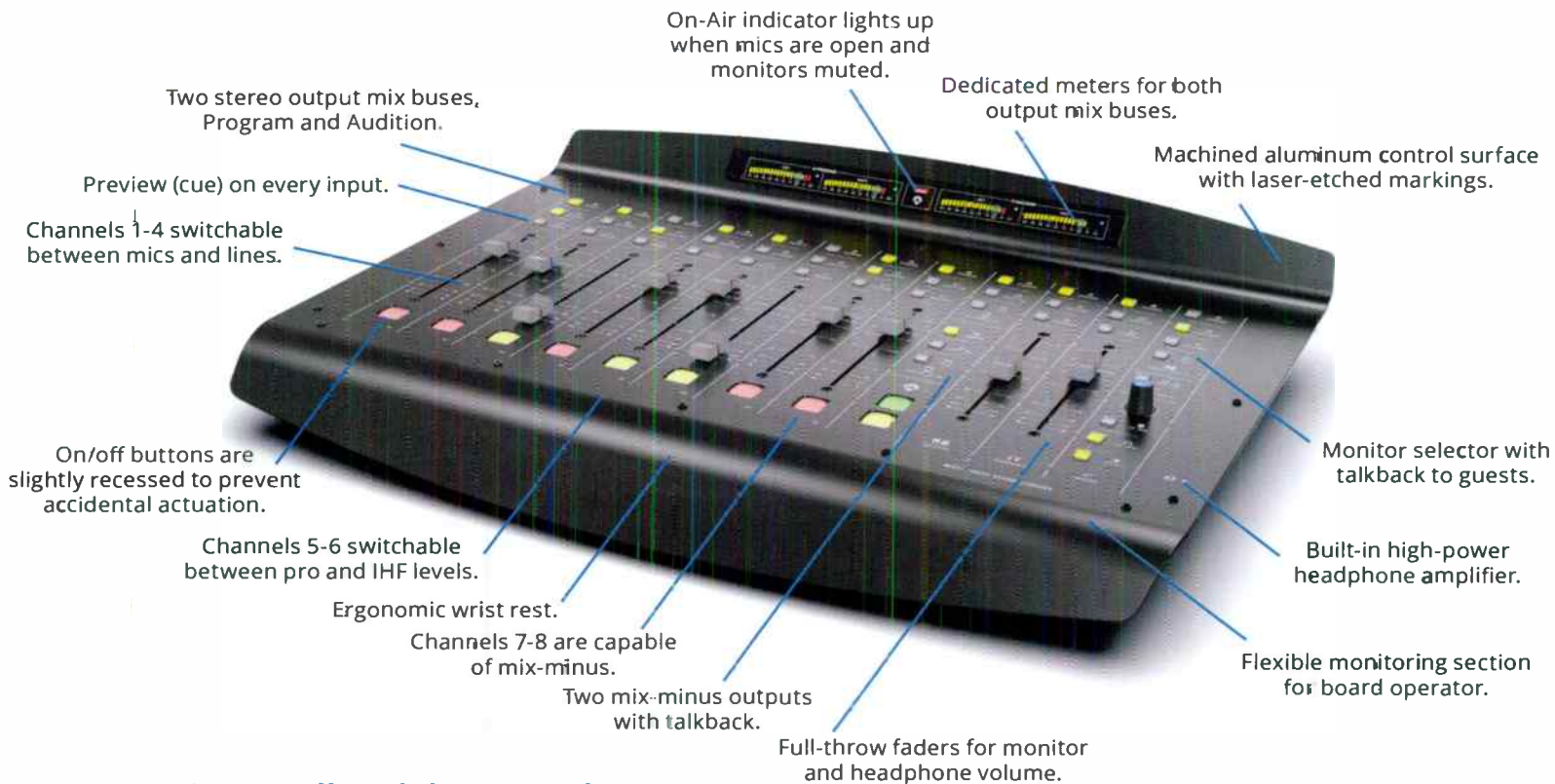
That kind of requirement would be highly unacceptable to automobile manufacturers, who are moving in the direction of controlling and combining all content access in their vehicles and charging consumers for more and more of that access. They could react by removing all broadcast radio, including FM, from their vehicles, a move that hopefully would alienate more customers than manufacturers could tolerate.

The other reaction would be to continue to offer AM radio, with proper grounding and filters to make sure that AM reception functions properly.

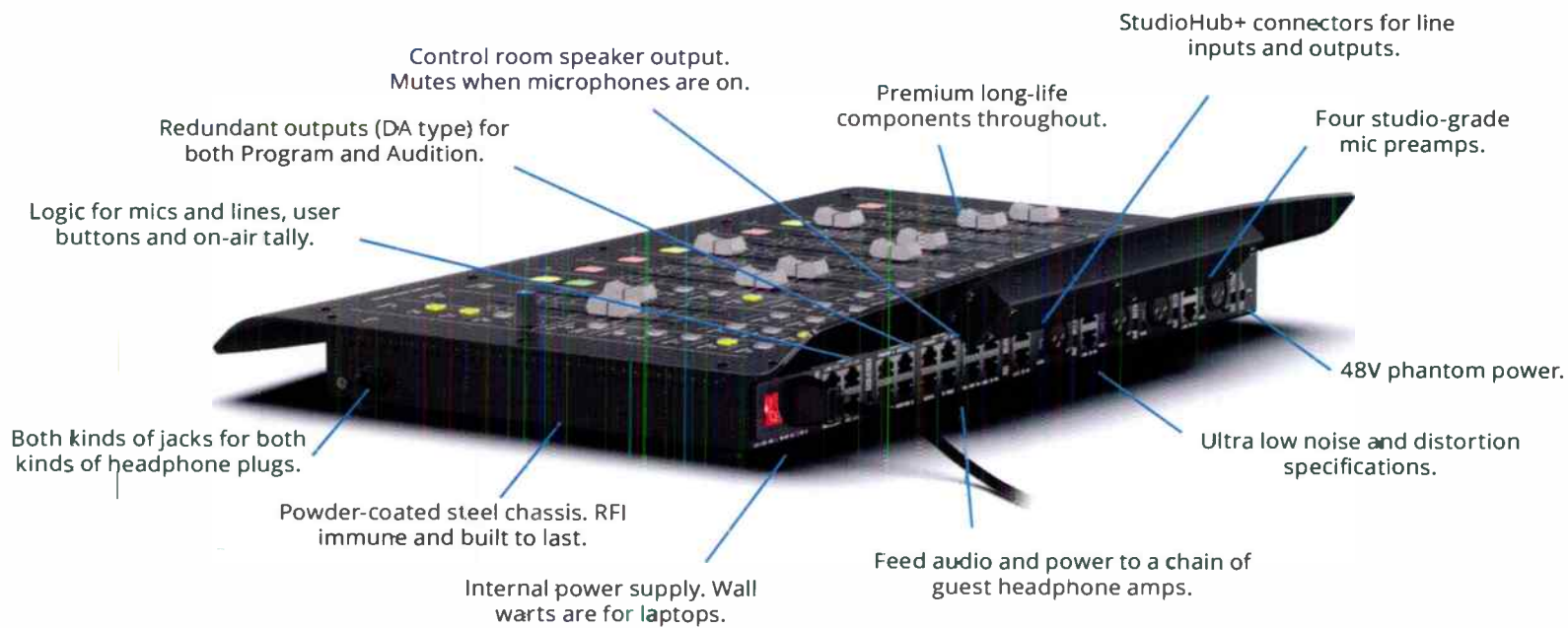
The FCC has recently expressed increased interest in ensuring that all receivers are designed to operate in an increasingly crowded spectrum environment. Preserving quality AM reception could easily be part of the FCC's effort. If Congress does not want to navigate the receiver thicket on its own, it could at least pass a bill clarifying the FCC's authority to act.

*Peter Tannenwald  
Retired Attorney*

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- Four-band equalizer: low/high shelf plus two-band parametric
- User-adjustable multiband crossover frequencies
- Independent multiband compressor and leveler can be operated separately or in combination
- Multiband spectral manager

- Newly developed bass management
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- Metering for all input and output levels and dynamics processing

#### FM PATH

- New distortion-masked FM peak clipper
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- RDS/RBDS generator, static and dynamic
- Precision FM stereo MPX generator with multiplex mask filter
- Baseband192 built in for 192kHz digital MPX link to transmitter

- Support for ITU.BS-412 MPX
- Ten seconds of FM/HD diversity delay
- Test oscillator

#### HD/STREAM PATH

- Low/high shelf plus two-band parametric equalizer
- HD/Stream final processing accepts audio from unprocessed input, output of AGC, or output from multiband limiters
- Oversampled precision look-ahead limiters for exceptional final peak control
- Specialized dynamic high frequency protection for low bitrate codecs; also operates in wideband (>12kHz) and <12kHz modes
- ITU-BS.1770 loudness metering and controller