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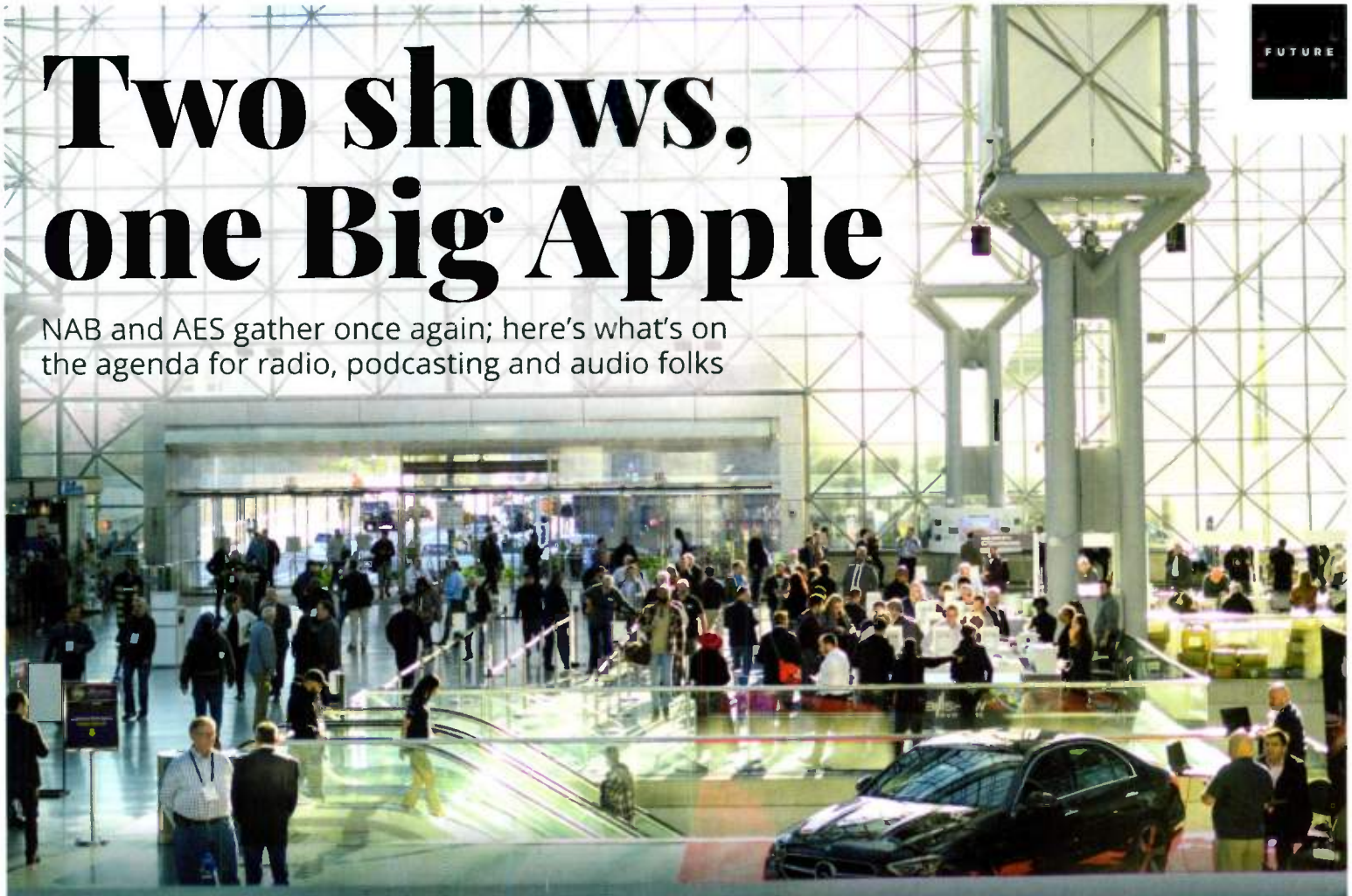
FUTURE

Two shows, one Big Apple

NAB and AES gather once again; here's what's on the agenda for radio, podcasting and audio folks



FM stations, take a good look at yourself

You now have a useful new tool to do self-inspections thanks to SBE and NAB.

Create a cable: MP3-to-phono

Chuck Gloman wanted to listen to his MP3 music play through his vintage radio.

Legacy hardware = learning tool

College senior Jason Eusebio describes how he put some older AoIP gear to good use.

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Lunch with a bit of PEP

WJR hosts emergency alerting community

Paul McLane
Editor in Chief

In July the engineering team at Cumulus Media station WJR(AM) in Detroit hosted members of the emergency alerting community from around southeast Michigan for a tour of its transmitter site.

I spotted the group photo in the newsletter of the Michigan Association of Broadcasters and thought it seemed an excellent example of how broadcasters can interact with local authorities.

In recent years the Federal Emergency Management Agency has been conducting a program to harden Emergency Alert System infrastructure at several dozen of the country's 77 Primary Entry Point stations in the National Public Warning System.

These PEP stations, as most RW readers know, work with FEMA to provide emergency alert and warning information to the public before, during and after incidents and disasters. They're also a primary source of initial broadcast for a national alert. They need to withstand natural disasters and man-made events to ensure continuity of operations.

The "all-hazards" FEMA upgrades include increased sheltering capabilities, expanded broadcast capacity and sustainable power generation for all types of hazardous events. Studios in standalone modules ensure that PEP radio stations are capable of broadcasting during and after emergencies when other communication sources may be down.

WJR is the PEP station for Michigan and in 2018 it was the first in the country to receive the upgrade.

Dan Kelley, MAB's director of technical services and co-chair of Michigan's State Emergency Communications Committee, told me that he and Jaclyn Barcroft of the Michigan State Police Emergency Management and Homeland Security Division met a while back with Manny Centeno. As the program manager for the FEMA's Integrated Public Alert & Warning System, he was responsible for coordinating these upgrades. (Centeno recently was promoted to IPAWS director.)

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World Radio History

Above
Inside the modular studio.

Manny suggested offering a tour of WJR at some point to raise awareness about the facility. So Dan and Jaclyn Barcroft reached out to Keith Bosworth, Cumulus regional director of engineering for the Great Lakes Region, to schedule a visit and lunch.

The tour attracted representatives from the Michigan State Police Emergency Management and Homeland Security Division, Michigan Association of Broadcasters, City of Dearborn Emergency Management Division, City of Detroit Homeland Security and Emergency Management, Canton Township Emergency Management Division, City of Livonia Office of Emergency Preparedness, Macomb County Emergency Management and Port Huron-based radio station WPHM(AM). Many of the people who attended are responsible for issuing emergency alerts to the public during an emergency or disaster.

Dan told me that most broadcasters and alerting authorities in Michigan stand behind the same mission of working together to provide lifesaving information to the public quickly during emergencies and disasters. The state EAS plan was approved by the FCC in late 2022, and the Southeastern Michigan EAS region recently met to start working together to update their own area EAS plan.

Dan added that the station visit impressed him. For one thing, he said, WJR has no fewer than three 50 kW transmitters that can go on the air at any time, another 10 kW as a backup, and inside the FEMA shelter on site is another 5 kW transmitter. Let's hear it for redundancy.

(You can see striking images of the main Art Deco transmitter building by Googling "WJR transmitter building" and then clicking "Images." Got an idea for how to work better with your local alerting authorities? Email me at *radioworld@futurenet.com*.)

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Self-inspection guides are a powerful new tool

NAB and SBE stepped in to fill a gap left earlier by the FCC

Writer

Randy J. Stine

Radio World's lead news contributor wrote about EAS in U.S. territories last issue.

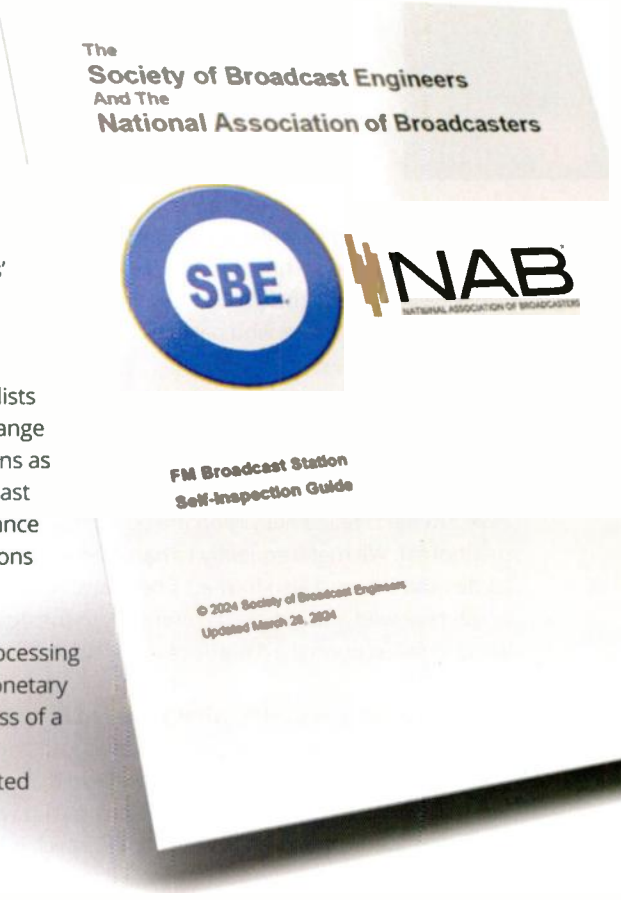
No one wants to run afoul of the FCC during an inspection. The Society of Broadcast Engineers and the National Association of Broadcasters are offering members a new way to help protect their licenses and assets.

They released a self-inspection guideline for FM radio stations this spring. It is available to SBE and NAB members via download from the organizations' websites. There is also a TV version; and guides for AMs, LPFMs, translators/boosters and distributed television services are planned.

The FCC stopped publishing self-inspection checklists in 2003, but rules and policies have continued to change since then. These guides are designed to help stations as well as contract inspectors in the Alternative Broadcast Inspection Program in evaluating a station's compliance with FCC rules and regulations. In some states, stations that participate in the ABIP can receive a three-year exemption from routine FCC inspections.

Rules violations can lead to delays in the FCC's processing of an application, penalties including substantial monetary forfeiture, a shorter license authorization or even loss of a station's license, according to the document.

Ched Keiler, chair of the SBE committee that created the guides, said the documents provide an up-to-date, standardized guidance to help broadcasters comply. Sections of the 71-page SBE FM Broadcast Station Self-Inspection Guide cover a variety of topics, from authorizations and programming related rules to EAS, public inspection file and an array of technical requirements. There's a glossary and a helpful guide to common abbreviations. Key information is linked to relevant text in the Electronic Code of Federal Regulations. The SBE further enriched the guide by providing helpful "Recommended Practice" notes in a series of callout boxes.



> **SBE has long been known for its role in education of broadcast engineers. It made a lot of sense to take on a project of this magnitude.**

SBE and NAB emphasize that these guides have not been approved or endorsed by the commission. They don't cover every regulation, nor are they intended as legal advice or opinions. But they reflect a great deal of work and expertise. Stations can use them to assess compliance with regulations most likely to pose an enforcement risk.

Ched Keiler spoke with us about the initiative.

What is involved in putting together an ambitious document like this?

Ched Keiler: The industry has long recognized that there was a need to replace the original FCC Check List documents.

World Radio History

Above
Ched Keiler

They fulfilled their role back in the 1990s and early 2000s but simply grew out of date as the industry moved on.

The Society of Broadcast Engineers had been discussing the deficiencies of these documents for some time. SBE has long been known for its role in education of broadcast engineers. It made a lot of sense to take on a project of this magnitude.

The SBE Board of Directors decided in April 2022 to proceed with this project. They placed the project under its Government Relations Committee, which I chair. We knew this was going to be an ambitious project so I selected members for a newly formed subcommittee and we worked diligently to bring this project into fruition. There were many man hours spent on the project, along with significant monetary cost to SBE. I want to thank all those who partnered to bring this project to where it is today.

The guides are meant to be used by anyone who wants to help bring their facilities into compliance.

Whose input did you rely upon?
Keiler: I relied heavily on the committee that I mentioned. We met frequently to hammer out what the guides should say. I also formed a relationship with NAB, which reviewed and supplied comments to the documents. We also relied upon third parties for review and comments.

How did you decide what topics to include?
Keiler: We initially followed what was outlined in the prior FCC Check List documents. We did add and delete material as appropriate. We also came up with the concept of Recommended Practice or RP, which is basically a recommendation that a station should follow but is not required to. We decided not to label these "Best Practices" because there are so many variables that may or may not apply in an individual situation or station.

If a radio engineer were transported from the year 2003 to today and picked up this guide, what would they notice that's different from back then?
Keiler: I think a radio engineer would see considerable changes that have occurred in the rules over time. For example, digital HD Radio or IBOC was in its infancy and many of the FCC rules that govern that service were not in place with the earlier FCC ABIP guides.

The SBE FM Guide was created to assist in providing guidance on how to comply with both the IBOC standard and the FCC rules and regulations regarding proper operation and compliance.

Are there one or two sections you feel will be the most useful?
Keiler: There are many that can be beneficial to the broadcast engineer. One instance that comes to mind concerns FM modulation. I can remember the days of "loudness wars" with FM modulation in which one station competed with another to overmodulate in order to sound louder to the listener.

I came across this situation recently. One of my major-market clients wondered why the signals in his market sounded so poor. It turns out the stations were competing to be the loudest in the market, and thus grossly overmodulationg.

> **"The committee had numerous conversations about the granular scope of each section to assure that we did not create new rules."**

We cover this issue in the SBE FM Guide. If the stations in that market had followed the FCC regulations and the SBE FM Guide's Recommended Practice, this situation would not have occurred.

Were there any particularly difficult aspects of the process?
Keiler: I was very concerned that we were not creating new rules that didn't exist within the FCC rules and regulations while maintaining the thoroughness and integrity of the guides. The committee had numerous conversations about the granular scope of each section to assure that we did not create new rules.

Do you have two or three tips that you wish more stations would follow?
Keiler: I would recommend that readers of the guides strongly adhere to the areas of the guides that speak about FCC compliance. I also think that readers should consider the Recommended Practices and try to deploy them to the best of their ability within their operations.

Turn the page to take our sample self-inspection quiz!

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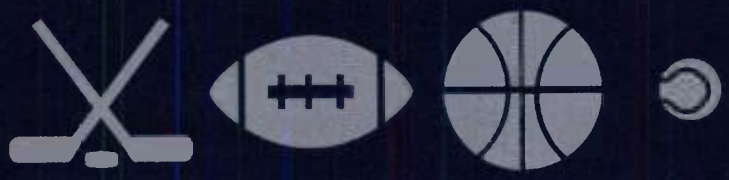

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AoIP: SMPTE ST2022-7, Ember+, WheatNet-IP, Dante		✔

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Take the Quiz

The new SBE FM Guide is a rich resource. Test your knowledge against these six sample questions, which we've based on information provided in the guide:

Q1: You've discovered that a member of the station staff broadcast EAS tones inappropriately as a special effect in a radio spot. The FCC requires that you notify it. Do you know the email address to use?

Q2: Many FM stations use Broadcast Auxiliary Services in the form of studio-transmitter links, intercity relays, remote pickup units and transmitter-studio links. Most such licenses are automatically renewed with the main station license. What should the station do if the BAS facility has been discontinued or the station moves its STL facilities?

Q3: Before recording an outgoing phone conversation for broadcast, the licensee must tell the other party of its intention to broadcast the conversation, unless the other party may be presumed to be aware. In what circumstances can the station make that presumption?

Q4: Regarding your station's Public Inspection File, the FCC should automatically upload the authorizations, filed applications, filed ownership reports, filed EEO documents, contour maps and "The Public and Broadcasting Manual." But it is the licensee's responsibility to make sure these items are in place. What should you do if they are not?

Q5: Fill in the blank: Generally, antenna structures that are higher than _____ above ground level or that may interfere with the flight path of a nearby airport or could represent an obstruction to an aircraft must be studied by the Federal Aviation Administration and registered with the FCC.

Q6: Which types of FM stations are exempt from the requirement to have installed operational equipment capable of transmitting the EAS protocol?

Answers:

A1: Should any inappropriate use of EAS tones occur, the FCC requires that it be notified by email to FCCOPS@fcc.gov within 24 hours of discovery. (See page 19 of the guide.)

A2: BAS licenses that are no longer in use but still authorized and reflected in the FCC's ULS database should be cancelled. This requires action by the station. Also, many stations move studios and their associated STL facilities while neglecting to modify the associated BAS licenses. Such moved facilities are considered unauthorized and require new or modified licenses; they also can create frequency coordination conflicts. (See page 12 of the guide.)

A3: Such awareness is presumed to exist only when the other party to the call is associated with the station (e.g. an employee or part-time reporter), or where the other party originates the call and it is obvious that it is in connection with a program in which the station customarily broadcasts phone conversations. (Page 16.)

A4: The authors of the Guide suggest that the licensee contact the PIF Help Desk for assistance, and consider manually uploading the missing docs to the appropriate Additional Documents folder. Periodic confirmation that all documents can be retrieved from the public-facing (not the admin page) PIF is recommended. The public-facing PIF must be accessible from a link on the station's home page. (Page 21.)

A5: 60.96 meters or 200 feet. (Page 31)

A6: Class D FM, low-power FM, FM booster and FM translator stations are the exceptions to the encoding equipment requirement, while the decoding requirement applies to all FM stations except boosters and translators. (Page 39.) But the fact that EAS encoding is optional in certain broadcast services does not relieve those stations from other EAS requirements; please see the appropriate guide for the relevant service.

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Secure your remote tent with this solid little tip

Doug Amacker has this advice: "Put it in a bucket!"

John Bisset
CPBE
The author is in his 34th 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*.

"A great wind is blowing, and that gives you either imagination or a headache." Catherine the Great is quoted as saying so. Perhaps she'd set up a remote broadcast or two in her time.

Doug Amacker is vice president and general manager of the Oxford Media Group including WBZK(FM) in Oxford, Miss. Wind brought him headaches during remote broadcasts because the feet of his pop-up tent could not be secured to asphalt or concrete. So Doug came up with the idea pictured here.

Buy yourself some empty paint cans and a bag of Quikrete or similar brand concrete mix at Lowes or Home Depot.

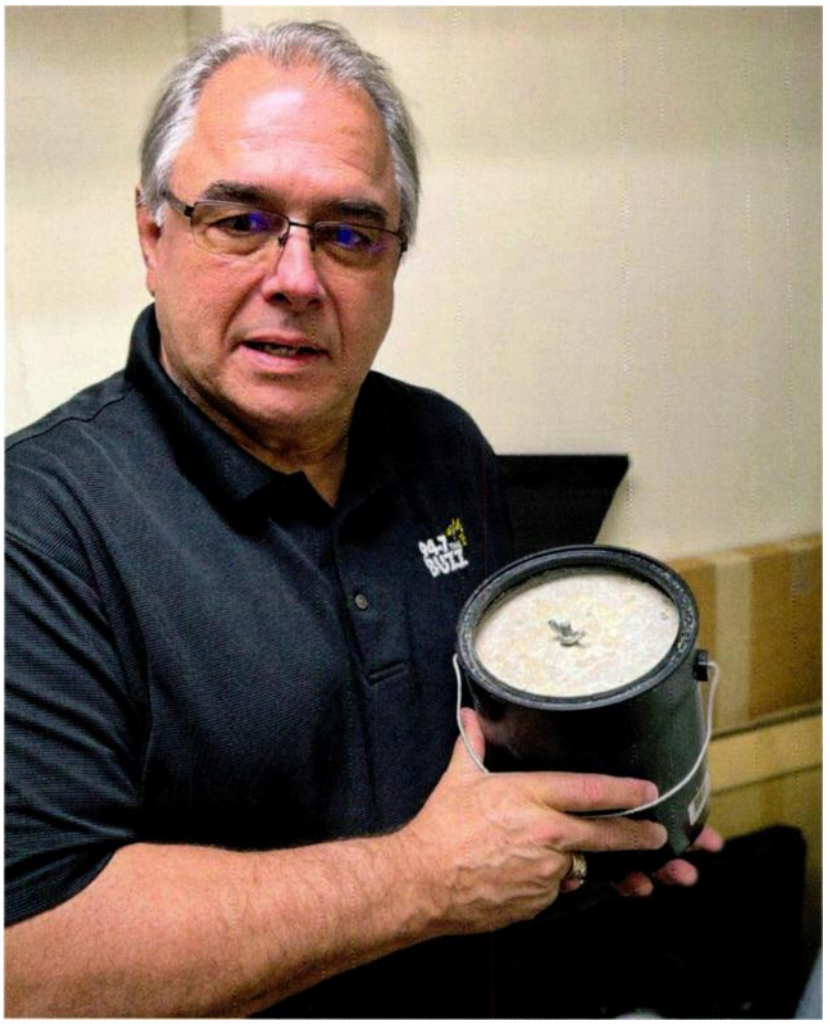
Your tent legs probably have holes in each flat metal foot, as seen in the second photo, but if not you can create them with your trusty drill.

Then select four bolts to match the holes in the mounting feet. The bolts should be 4 to 5 inches long. Cover the last inch of the threads with electrical tape or with Vaseline or other petroleum jelly, to prevent the concrete from getting into the "business end" threads of the bolt.

Fill each paint can with your Quikrete and sink the bolt, threads up, into the concrete. Make sure the bolt is centered and vertical, and that only an inch or so protrudes from the concrete. If you like, you can thread several nuts and fender washers along the length of the bolt to expand the anchor's surface area set in the concrete.

Set the buckets aside and let the mixture harden for at least a week.

Then for your next remote, after you've set up your tent, you can lift



Top
WBZK GM Doug Amacker and his concrete bucket.

Below
Doug attaches the footer of each tent leg into one of his customized buckets.

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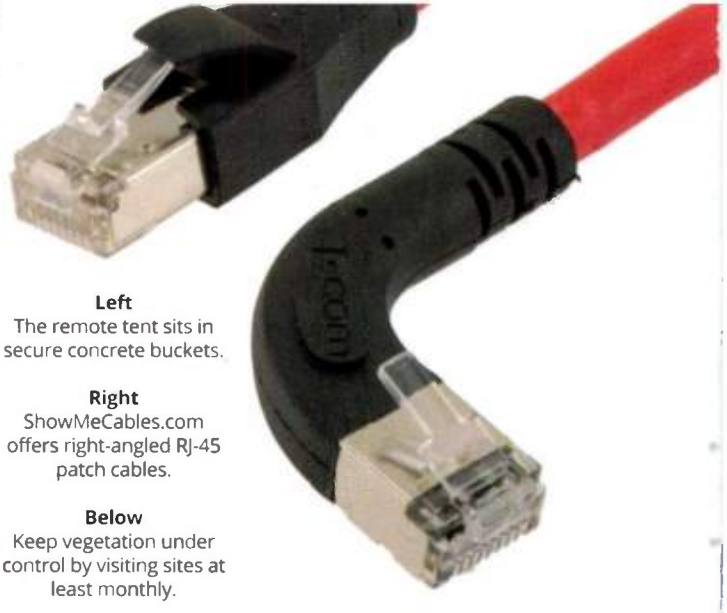
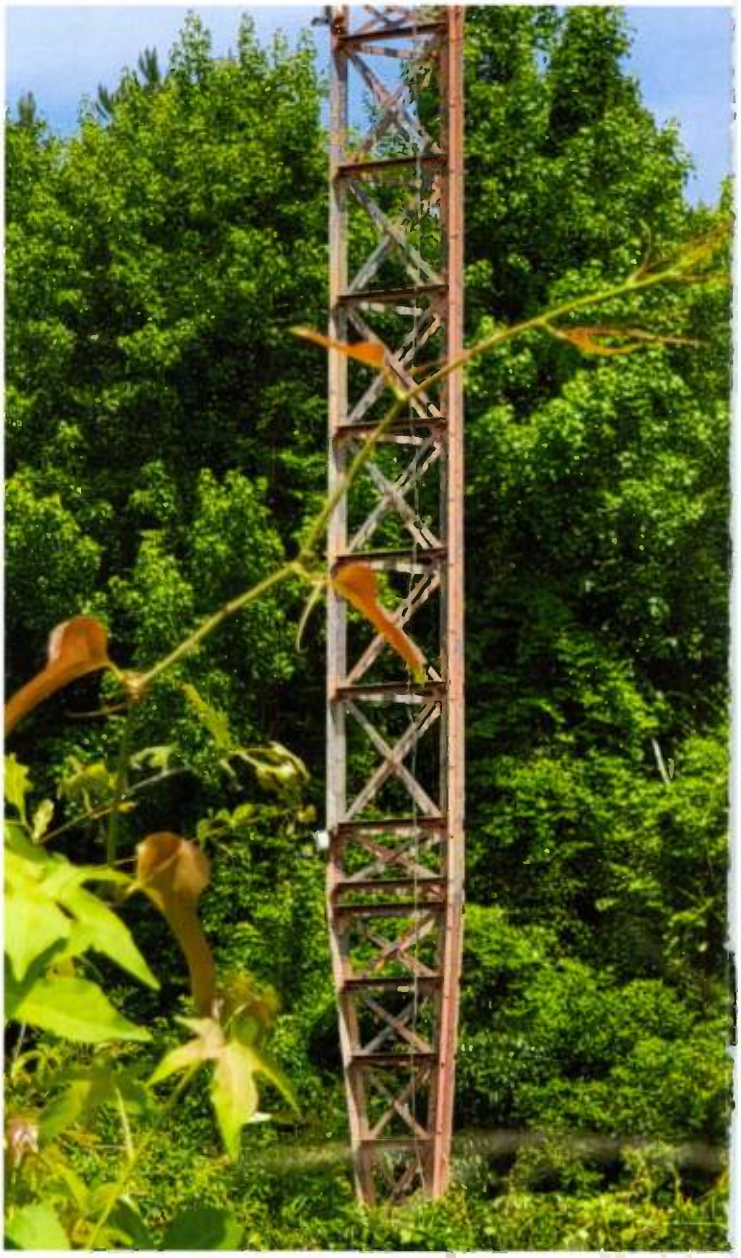


Left
The remote tent sits in secure concrete buckets.

Right
ShowMeCables.com offers right-angled RJ-45 patch cables.

Below
Keep vegetation under control by visiting sites at least monthly.



each leg onto the bolt-in-the-bucket. Use a wingnut and a fender washer to secure the leg to its new stand. Then let those winds blow!

They got the angle "right"

What's more satisfying than a tidy wiring installation? It's in our DNA as radio engineers.

Frequent contributor Dan Slentz found that ShowMeCables.com has released a variety of right-angle RJ-45 patch cables. These are shielded Cat-6A and come in your choice of seven colors.

Patch cord lengths are from 12 inches up to 20 feet. Dan notes that these could come in handy in a data center or a radio studio that uses today's popular AoIP systems using RJ-45 cabling for their wiring. They can be ordered directly from the website.

Some cutbacks are good

There was a time when a broadcast engineer had only one or two stations for which to be responsible. Multiply that by 10 or more, and maybe you aren't able to visit your sites regularly. So it's not surprising that many of us may discover undergrowth like we see in the last photo, which we originally shared last month. Watch out for situations like this, given all the rain we've had in much of the U.S. (The tower also needs a fresh coat of paint.)

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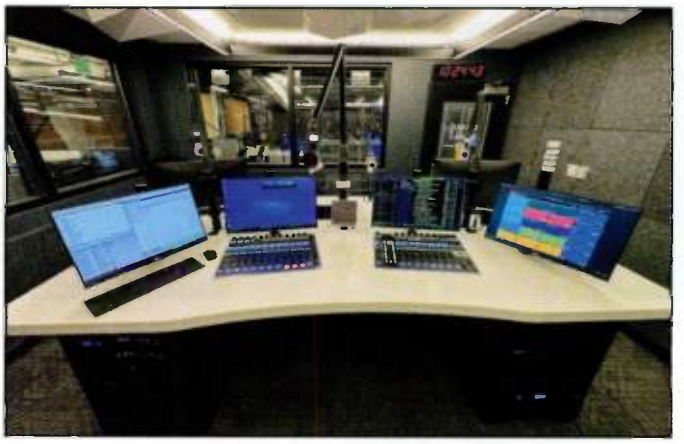
- **Remote-in Engineering:** The WheatNet IP studios are accessible remotely for regular maintenance and occasional troubleshooting by RadioDNA or other Lotus engineers.

Intelligent AoIP Networking by Wheatstone



Project Management by SCMS

System Integration by RadioDNA

Every single bit of this is first class. It's the best and most advanced studios we have in the company. —**Jason Houts**, Lotus DOE

Lotus is a privately owned group with 48 radio stations in 10 major U.S. markets, with several using WheatNet IP for audio networking.

Photos provided by RadioDNA

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World Radio History

courtesy NAB Show New York

Writer
Paul McLane
Editor in Chief

NAB, AES gather once again in New York

Here's what's on the agenda for radio, podcasting and audio folks

How to Go

Where: Jacob Javits Convention Center, New York City

When: Oct. 8–10, 2024

How: *nabshow.com/newyork2024* and *aesshow.com*

October brings the return of the NAB Show New York conference and the separate but collocated AES Show New York at the Javits Convention Center in the Big Apple.

The NAB show this year will emphasize "Culture, Creativity and Commerce." The event last year drew about 12,300 people, almost a quarter of whom had technical job titles, according to the show website.

Many of the techie folks are drawn by an exhibit floor that also provides access to AES Show booths via connecting hallways (see a list of sample exhibitors on page 20).

Radio-related content includes a forum about radio and podcasting issues; the Marconi Radio Awards; and presentation of the National Radio Award to David Santrella.

NAB: Forum

The "Radio + Podcast Interactive Forum" takes place on Wednesday Oct. 9 from 10 a.m. to 3:10 p.m.

"Innovators in radio, podcast, tech and marketing share winning strategies to leverage technology for content and profit." These sessions will include roundtables at which attendees can share ideas and network.

"It Takes a Team: How Talent Works Across the Team to Create Winning Shows" — Podcast and radio talents discuss how to create successful shows and promotions. Guests include Patty Jackson, host on iHeartMedia station WDAS(FM) in Philadelphia; Sarah Jenness, executive producer of The Moth podcast; and Harlen Lobley, director of sales and sports director for AlphaMedia East Texas. Consultant Mike McVay moderates.

"How Marketing and Technology Work Together to Grow and Engage Audiences" — This session promises to provide perspectives from marketing and technology experts about promotions and monetization strategies and how technology can support those efforts. Speaking are Jason Hoch, CEO and chief creative officer of Wavland, and Alex Roman, CTO at MediaCo New York. The moderator is Julie Koehn, president of Lenawee Broadcasting.

"The New Playbook: Producing Innovative Sports and News Content" — A panel of news and sports radio programmers, podcasters and tech professionals talk about fresh approaches including the role of AI. They include Sarah Foss, CTO of Audacy; Mary Menna, regional VP and market manager for Beasley Media Group Boston; and Jonathan Williamson, executive producer and head of production at Men in Blazers, a soccer media network.

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2024 FALL

Product Planner

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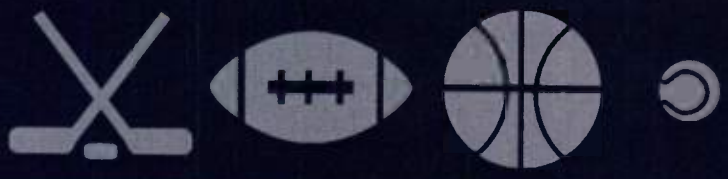
Gear Up for Sports Remotes



Affordable Option: Bridge-IT II and ViA

Gear up for summer and fall sports with Bridge-IT II - the ultimate affordable, high performance stereo IP audio codec and pair it with ViA, the sports remote broadcast dream machine. Both codecs support multiple network interfaces, hitless packet switching using SmartStream PLUS, Fuse-IP network bonding, plus connection backup.

Pro Option: Gateway 4 and ViA

Our pro option for covering sports includes the powerful Gateway 4 codec which supports 2 simultaneous stereo connections, or 4 mono connections. Gateway 4 includes dual NICs and dual AoIP ports, dual internal power supplies, plus multiple layers of redundancy with SmartStream PLUS, Fuse-IP and connection backup.

Features	Bridge-IT II	Gateway 4
Stereo, 2 x Mono	✔	✔
Triple mono, Stereo + Mono IFB, 2 x Stereo, 4 x Mono		✔
AoIP: AES67, SMPTE ST2110-30, Livewire +, Ravenna	✔	✔
AoIP: SMPTE ST2022-7, Ember+, WheatNet-IP, Dante		✔

Scan for more information

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Here's your Fall Product Planner!

Paul McLane
Editor in Chief

The pages that follow provide a look at the latest or pending new products from almost four dozen leading radio and audio equipment manufacturers and service providers.

You'll find transmitter switch controllers, economical analog console surfaces, enterprise automation software, new FM transmitter models and tools built on artificial intelligence.

Also remote audio contribution products, monitors for your streams, microphone table stands, multi-purpose audio processors, products to manage power line problems and systems to make your presence in the car dashboard look better.

Manufacturers continue to explore how to offer more tools through subscription, how to pack more features into their hardware and how to beef up the lower-priced end of their product families, for both the studio and the transmitter site.

We hope you'll explore these offerings and patronize our industry's vendors, especially the 22 sponsors who made this ebook possible.

Got a comment or idea? Email me at radioworld@futurenet.com

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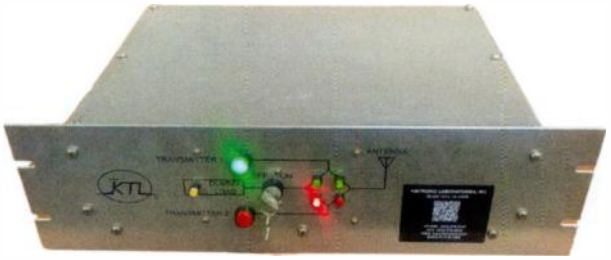
Keep in Control With Kintronic Labs



The new Kintronic Labs model MADC-1LR Main/Standby transmitter switch controller is designed for control of motorized coaxial switches for switching FM and TV transmitters or open-frame RF contactors for switching AM transmitters.

It features a key-operated interlock bypass for easy operation with a dummy load and failsafe logic to ensure safe switch movement by muting RF signals. The unit offers both local and remote control with upcoming support for SNMP.

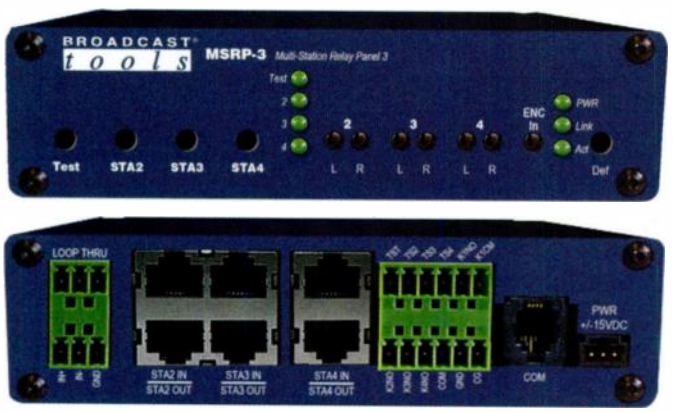
Kintronic is the oldest continually operating AM antenna system provider in the Unites States.

Info: www.kintronic.com

Broadcast Tools Ships New EAS Switcher

The MSRP-3 is a three-station analog stereo EAS relay/switcher, following in the footsteps of the original Multi-Station Relay Panel (MSRP) designed by Broadcast Tools for the Sage ENDEC in 1996.

"The MSRP-3 provides additional alert audio distribution and transparent audio interrupt switching for the Sage ENDEC and other EAS encoders," the company says.



"Together with the single balanced stereo switched audio interrupt relay built into the ENDEC, an ENDEC and MSRP-3 will provide interrupt switching for four stereo audio paths. Each alert insertion can occur simultaneously on one or more station outputs, but alerts cannot be overlapped."

Standard-pinout RJ-45 station audio input and output jacks allows for plug-and-play installation with Cat-5 or Cat-6 patch cables. The encoder audio input is a balanced monaural 3.81 mm pluggable terminal block, with pass-through. Control is via RS-232 serial port or optional TCP/UDP Ethernet port, and contact closure inputs. SPST test and station relay outputs are included to provide status.

A surge-protected universal switching desktop power supply with an IEC AC inlet is included. Three units may be mounted on the optional Broadcast Tools RA-1, a 1 RU rack shelf.

Info: www.broadcasttools.com

DJB Radio Offers Wide Area Automation

An automation package built for multi-market operation is the latest offering from DJB Radio.

DJB Zone includes a live log editor, waveform-based voice tracking and integrated audio editor. Users can voice track from anywhere using iVT, DJB's remote tracker.

"Share audio assets between markets with a single mouse click and view all markets in a single window," the company says.

"Program logic, background recording and satellite closures and monitor all stations in your group from a web browser."

DJB Zone's log scheduler can be set to create schedules automatically or ingest from third-party music and traffic systems. Email alerts are prompted by problems with log creation or asset delivery. Custom logic interfaces for Wheatstone, Axia and SAS provide integration with leading AoIP providers.

DJB Zone On Air now has an on-screen mixer to control remote audio and local playout channels. "Centralize or run locally with audio, program log and database redundancy on every local machine or backup to the cloud for added peace of mind."

Info: www.DJBRadio.com

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Make Connections With Tieline's Bridge-IT II

The Bridge-IT II codec, now shipping, offers a full-featured front panel with an OLED screen, keypad and menu navigation buttons.

"Unlike other low-cost alternatives," Tieline says, "it also has professional XLR I/O connectors, and a vast suite of encoding options as standard. It is also an affordable edge network device that acts as a flexible media converter."

It accepts analog, AES3 or AoIP audio sources and can convert these to AES67/ST2110-30, Livewire and Ravenna-compliant audio streams.

"By natively supporting these AoIP protocols, the codecs seamlessly integrate into AoIP infrastructure at the broadcast plant. This delivers simple discovery and routing of AoIP audio sources and destinations and facilitates ingesting or transmitting SIP trunks for communications and/or IFB feeds."

The codec supports multi-unicasting and multicasting; Tieline says a single codec could replace thousands of dollars of additional codec equipment, reducing reduces costs and a network's carbon footprint.

For affordable STLs, the Bridge-IT II includes enhanced backup options to support failing over to one of three options: an alternative LAN connection or attached cellular modem; pre-recorded audio files on SD card; or an HTTP Icecast or Shoutcast stream.

Reliability is bolstered by advanced packet loss strategies like hitless packet switching, data aggregation of multiple IP interfaces and Forward Error Correction.

A 1 RU Bridge-IT Xtra II version with dual internal power supplies, dual AoIP ports and dual Ethernet ports is pending.

Info: www.tieline.com/Bridge-IT-II

An Azalea Blooms at Audioarts

Wheatstone says its new Audioarts AML-8 Azalea "is not just another analog facelift" but that it has been re-engineered from the inside out.

The eight-channel board includes a USB port and external power supply to protect critical components and add to its service life.

"This sleek little console is quality engineered with pro faders and separate on/off buttons each and includes Wheatstone exclusive features such as Super Quiet mic preamps to bring out the best in vocals."

It is intended for home studios, voiceover booths, remote trucks or on-air studios and is one of three new Audioarts consoles.

The company also introduced the digital DML-8 Verse and DML-12 Lyric with USB/Bluetooth and an optional WheatNet-IP app for direct digital output to WheatNet-IP audio networks. The consoles received a Radio World Best of Show Award at the NAB Show.

Info: www.wheatstone.com/aml

MaxxKonnect Wireless Adds Satellite

"We've partnered with ViaSat to offer reliable satellite internet along with our proven, prioritized LTE service," said Josh Bohn, president/CEO of MaxxKonnect, which is now part of Triple Helix Technologies.

"The Ka band service includes unlimited bandwidth for a fixed price, public static IP and free installation."

Paired with a MaxxKonnect Wireless LTE system, Bohn said, this service can provide a reliable connection for full-time STL systems, giving reliability that rivals wired services.

MAXXKONNECT WIRELESS

"We've been looking to add a satellite product to our lineup for some time," Bohn said. "I'm excited that we finally have the opportunity to offer our customers truly redundant wireless connectivity — with a terrestrial LTE product, and space-based satellite product."

He cited download speeds that average above 100 Mbps, with upload speeds ranging from 4–8 Mbps. Service will be available beginning in Q4 of this year and will be available from MaxxKonnect representatives and broadcast dealers.

Info: maxxkonnect.com

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Network with us at NAB NY.

Telos Alliance® loves making connections. After all, we invented Livewire®, the first AoIP networking protocol designed specifically for broadcasters. Networking is in our DNA.

Visit us at NAB New York in Booth #1308 to see our newest ideas and innovations, all designed to help you do more, create imaginatively, and connect better with listeners and viewers. Because when it comes to networking, nobody connects like we do.

Omnia® Forza FM

NEW! Omnia® Forza FM brings superior Omnia audio processing for FM + HD/DAB to the virtual realm. Featuring all-new wideband and multiband AGCs and limiters optimized for FM, the Frank Foti-designed Silvio clipper from Omnia.11, an integrated stereo generator, and Kantar and Nielsen watermarking options. With Forza FM, crafting a stellar on-air sound is easier than ever. Its unique single-page HTML-5 interface with "smart controls" allows novices to adjust multiple parameters with a single control, while retaining fine-tuning options for processing pros. Forza FM is the virtual audio processing solution you've been waiting for.

Axia® StudioCore & StudioEdge

NEW! Axia® StudioCore & StudioEdge are the latest high-density studio infrastructure devices for Axia AoIP networks. **StudioCore** is the new integrated engine for Axia iQ, Radius, RAQ, and DESQ mixing consoles, comprising a 24-channel mixing engine, built-in Ethernet switch, internal power supply, and CAN bus card with multiple channels of digital, analog, and Livewire+ AES67 I/O. **StudioEdge** features the same complement of I/O and integrated switch sans mixing engine, providing a compact endpoint in studios with Quasar mixing consoles, or an ingest/routing/monitoring solution in TOCs and machine rooms.

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Telos VX® Duo

NEW! Telos VX® DUO, the newest member of the VX family of VoIP broadcast VoIP phone systems, gives broadcasters all the ease of use and high-quality audio found in larger VX systems - but at a price point that puts VoIP within the reach of any budget. VX Duo provides 2 channels/hybrids (expandable to 4, 6, or 8) and is fanless and silent - perfect for studios or control rooms. It's compact: three units fit on a 1RU rack shelf!! And it connects directly to Livewire+ AES67 networks and works with familiar Telos® VSet phones, integrated console call controllers, and VX-compatible call screening software.

Telos® ZephyrConnect

NEW! Telos® ZephyrConnect is a high-density software codec solution for transporting large numbers of channels between two or more locations. Base license includes 2 codec channels, 16 Mixis, and 16 Modi, with the ability to expand up to 64 channels. Coding algorithms include AAC, AAC-LD, HE-AAC (plus v2), MP2, MP3, linear PCM, and optional Enhanced aptX™. Dual, diverse-path, end-to-end connections are available for high-reliability applications.

Telos Infinity® Virtual Commentator Panel (VCP)

NEW! Telos Infinity® Virtual Commentator Panel (VCP) extends the award-winning Telos Infinity VIP virtual intercom platform with commentary/announcer features remotely accessible from anywhere in the world via PCs, tablets, or smartphones with HTML5 browsers, or with the Telos Infinity VIP app for iOS and Android devices. Perfect for sports coverage or reporters on location. It features instant switching between on-air and intercom feeds and a customizable monitor mix of IFB, program, mix-minus, and aux sources, each with individual gain controls. VCP integrates with Elgato Stream Deck + using a dedicated Stream Deck plug-in for hardware control if desired.

GET CONNECTED:

In addition to the new products we've already mentioned, Telos Alliance has even more to see at NAB New York. Check out the latest updates to our flagship Axia Quasar XR and Quasar SR mixing consoles, see the new Linear Acoustic® AERO series of DTV audio processors, get a hands-on demonstration of the unique Axia Altus virtual mixing console, and see 25-Seven® PDMX, the virtual program delay manager software that moves the "dump" button from the rack to talent's personal devices. Telos Alliance never stops innovating for you.

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Futuri AudioAI Enhances Local Content

Futuri says AudioAI, formerly known as RadioGPT, is creating new possibilities for local commercial production and programming with AI systems that connect directly into your sales CRM and automation system.

"Clone a voice or choose a voice from our library, instantly create spec spots, create podcasts automatically, create AI DJs, cover every daypart with live/local information (based on what's trending) and weather forecasts, and use AI voices in imaging/production," the compay says.

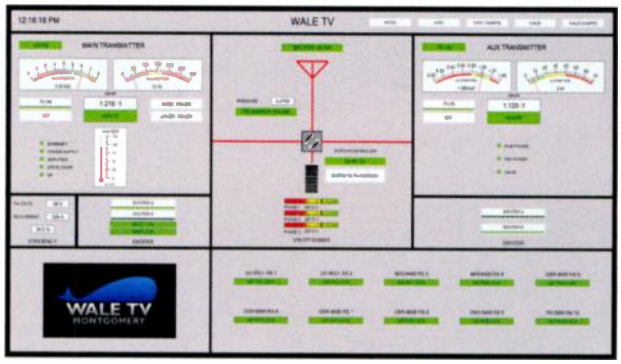
For station imaging, the platform can save time and reduce costs with AI-powered voice content. "Create realistic voiceovers that give your station a unique identity without the usual production hassle."

For voice tracking, Futuri AudiAI can keep listeners connected by enabling hosts to produce segments that sound as if they're broadcasting live from your coverage area.

For weather, the platform can keep your listeners informed with up-to-date weather reports using AI-generated voices that sound local.

And the new CoHostAI and CallerAI features offer more ways for live talent to interact with listeners and foster connections.

Info: FuturiMedia.com



Burk's ARC NOW Simplifies Control

Burk Technology says its ARC NOW makes installing a new remote control system quick and easy, saving time and money.

"Burk's product experts will configure your ARC Plus or ARC Solo system for you, complete with monitoring and control points, automated functions using Jet Active Flowcharts, email and text alarm notification lists, periodic log capture, report distribution and a comprehensive AutoPilot custom user interface."

Drew Woods, VP of operations at Woods Communications Corp., installed ARC NOW for remote control systems at Alabama TV stations WCOV, WIYC and WALE. The implementation for WALE is shown.

ARC NOW services include configuration of ARC Plus and ARC Solo remote control units, creation of AutoPilot Custom Views and system automation setup using Jet Active Flowcharts.

Info: www.burk.com

ERI Builds New Compact Bandpass Filter

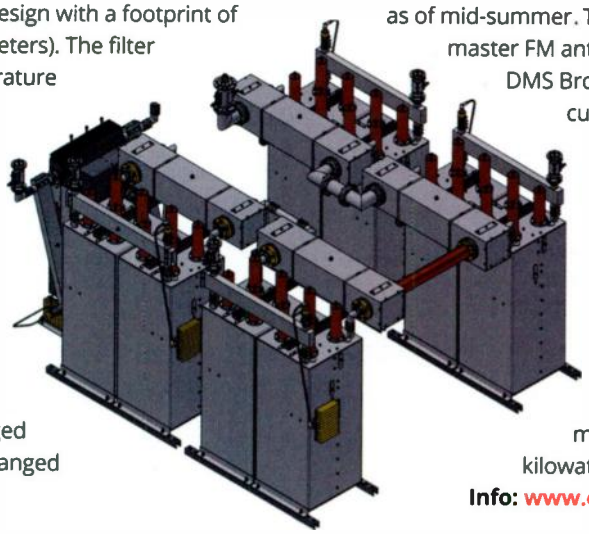
The 940 Series is a new compact FM bandpass filter from Electronics Research Inc. with an innovative form factor and construction to provide the smallest available footprint FM bandpass filter capable of handling up to 5 kW average power.

The filter is a four-section single cabinet design with a footprint of less than 18 by 21 inches (497 by 523 millimeters). The filter includes the same Invar and bellows temperature compensation technology used in other models of ERI's medium- and high-power FM filter products. The filter contains a cross- coupling standard for additional isolation in combiner systems with closely spaced frequencies.

The filter is rated to handle up to 3 kW (depending on tuning) at the output after insertion losses, convection-cooled, and the rating is increased to 5 kW with a forced air-cooling fan. It includes 1-5/8-inch unflanged input and output connections, and the EIA flanged version is optionally available.

The filter can be used for intermodulation product suppression or configured as an FM channel combiner. A constant impedance configuration, which is also very compact, is also available.

Pictured is a 940 Series FM channel combiner in production at ERI as of mid-summer. The system is an expansion of an existing master FM antenna and combiner system owned by DMS Broadcasting in the Cayman Islands. The current system combines three FM stations into an eight-bay Axiom Master FM Antenna. The expansion ordered from ERI will add five more FM stations to the system for a total of eight full-service FMs. The expansion includes an ERI Model 935 constant impedance combiner module and four FI940 constant impedance FM combiner modules. The total combined power output after the system modifications are complete will be nearly 18 kilowatts.



Info: www.eriinc.com

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Telos Adds to Axia Family

Telos Alliance has added two products to its Axia line of AoIP studio consoles and accessories.

"StudioCore will initially serve as a brand-new console engine for Axia iQ, Radius, RAQ and DESQ surfaces and is the successor to the long-running QOR.32 engine," the company said.

It maintains the 24-channel mixing engine from QOR.32 as well as an internal power supply and five-port Ethernet switch, but it adds an eight-channel monitor matrix system and offers a Livewire+ AES67 stream capacity of 32 inputs and 32 outputs. (The front and rear panels are shown here.)

"StudioEdge is a high-density I/O device designed to complement the Axia xNode family of products. It can be used as an all-in-one I/O solution in control rooms of any size, or as an ingest station or routing and monitoring solution in TOCs and machine rooms."

Both products are built on a common 2 RU fanless hardware platform that includes an integrated five-port Ethernet switch with PoE, and a 5-inch color IPS LCD touchscreen display for local control of routing, I/O and audio levels.

I/O includes four selectable mic/line inputs, eight dedicated line inputs and outputs, and three digital inputs and outputs that are user-configurable as AES/EBU, S/PDIF and USB Audio, which Telos said eliminates the need for an IP driver for stereo applications.

Also included are two headphone outputs with independent DACs and built-in amplifiers, a built-in audio file player via USB data port, and four GPI/O ports. A second internal power supply is available optionally.

Info: telosalliance.com

WorldCast Previews More FM AiO Models

Worldcast Systems plans to expand its Ecreso FM AiO Series transmitter lineup by adding two products and a major software update.

"The new additions extend the AiO Series' portfolio up to 2 kW, meeting the medium-power needs of broadcasters with 1 kW HR (high redundancy) and 2 kW transmitters in a compact 3U form factor," the company said.

The new models have dual hot-swappable power supply units, two fans and two RF pallets, intended to ensure maximum on-air time even in the event of component failures.

The new 1 kW HR and 2 kW models are scheduled to ship early next year. WorldCast plans to highlight these new models at the upcoming IBC show.

Worldcast is also releasing software V3.3.0 for the full AiO Series family.

"With this version, WorldCast Systems has focused on SFN applications with the integration of a built-in GPS receiver for internal clock references but also 10 MHz and 1 PPS outputs for peripheral equipment."

The APT IP Decoder has been updated to integrate APT SynchroStream technology, for audio content synchronization over the network. The APT IP decoder a new Hot Standby Mode for automatic stream switching in case of connection loss.

And the AiO Series now supports the latest SNMP v3 revision, which enhances security and management capabilities.

Info: www.worldcastsystems.com

Aldena Acquires Delta Meccanica

Aldena, celebrating its 45th year in business, has acquired Delta Meccanica, which makes RF coaxial passive components.

Founded in 1979, Aldena is a supplier of antennas, software and services for radio and TV and has provided products for digital network rollouts in DAB+, DVB-T2, ATSC and ISDB-T.

"After years of strong and deep successfully collaboration, the acquisition of Delta Meccanica represents a significant step in Aldena's growth strategy," Aldena said in its announcement.

"This well-respected company, known for its designing and fabricating RF coaxial solutions, brings with it decades of experience and a strong reputation in filters and combiners engineering solutions. ... The addition of Delta Meccanica's advanced technologies and skilled workforce will enable ALDENA to further improve its production processes, meet increasing customer demands, and explore new markets."

Info: www.aldena.it and www.deltameccanica.com

World Radio History

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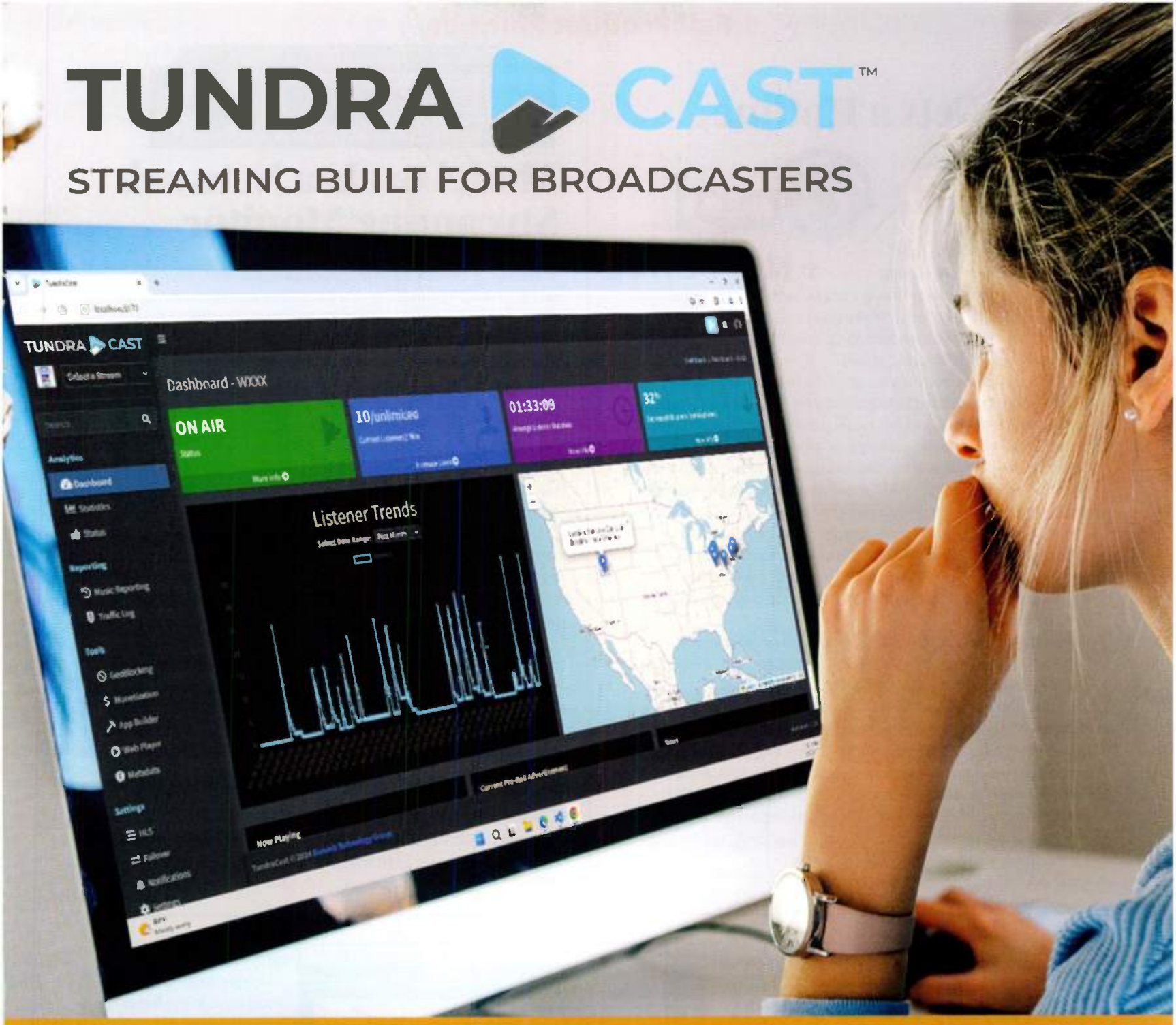

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World Radio History

Gagl Gets a Hotline

Comrex describes Hotline as a major new feature for Gagl, its cloud-based remote audio contribution service.

It will enable a single user to connect to a Comrex codec with high-quality audio by calling a phone number, with no special equipment required. "Gagl enables users to send and receive audio through common web browsers to Comrex hardware IP audio codecs (Access or BRIC-Link)," it said.

With a computer or smartphone plus a headset, high-quality audio can be transmitted bidirectionally from up to five remote participants with minimal latency, providing a simple way to get anyone on the air. Gagl is available for $35/month.

Hotline will allow one of the five participants within a Gagl session to connect by dialing a phone number while dramatically improving the quality of the cell phone audio for on-air use.

Gagl + Hotline provides a 10-digit phone number with each subscription. A guest or reporter can call the number using an AT&T, T-Mobile or Verizon cell phone. Callers don't need to install an application or use special equipment, they just dial the phone number.

"Hotline circumvents traditional telephone networks, so audio isn't compressed to G.711 to meet PSTN standards. As a result, the caller's audio is delivered in full-fidelity, HD Voice quality."

Gagl + Hotline can be set up to join an existing Gagl conference session or to answer phone calls and transfer them to a Comrex codec using an optional security PIN. Thus a single contributor's mobile phone can provide studio quality by dialing a number without requiring a browser or app.

Gagl + Hotline is available for U.S. subscribers at this time. Gagl + Hotline and Gagl Solo, a new free tier of Gagl designed for single connections, will be available later this year.

Info: www.comrex.com/products/gagl

Model 611 Is a Network Streaming Monitor

"If you're not monitoring your stream 24/7, it is really easy for a server to drop a connection or a third-party aggregator to drop it without you being aware of it," says Ben Barber of Inovonics.

"There are software programs that can monitor your stream, but a dedicated hardware box is the best option."

Inovonics offers the Model 611 Streaming Monitor, which can manage HLS streams as well as HTTPS streams, and provides useful diagnostics. It monitors metadata, stream quality, dropped packets, ping and audio buffer quality.

This is the company's second-generation dedicated hardware solution for uninterrupted monitoring of network streaming audio, such as online internet radio and other applications.

The 611 provides balanced analog and AES-digital outputs, self-logging alarms that constantly check for audio loss, stream loss and internet loss. If the stream is lost for whatever reason, the 611 continuously strives to reconnect. Online alarm notifications alert personnel with e-mail or text messages.

The 611 also monitors the connection between the listening device and server, and when lower quality is required to keep the "audio playing," lower-bitrate chunks are served.

It also has the ability to do StreamRotation, so it can sequentially monitor multiple streams. "With the graphing in Streaming Monitor you can quickly see which streams are 'louder' or 'softer' than others," Barber said.

"It doesn't mean that the loudness wars of OTA radio need to happen, but a similar loudness or levels should be maintained between streams of similar formats. If a listener changes streams, they don't want to be constantly changing the volume level."

Info: www.inovonicsbroadcast.com/product/611

ENCO Adds Voice Cloning to SPECai

ENCO has expanded the capabilities of its SPECai ad creation platform.

"SPECai is a game-changing ad creation platform that allows radio broadcast sales teams to create compelling, localized spec ads on demand within seconds in front of clients," it says. "Leveraging the power of generative AI models, SPECai is the first AI production solution focused on creating scripts for commercials, with subsequent conversion of the spec ad text to human-sounding speech."

Its workflow delivers multiple script options for each spot and provides account managers with creative tools to build professional-sounding spec ads, including various male and female voice options, voice tones and a music bed library. Clients can approve ads in the moment.

ENCO has added a voice cloning feature that gives SPECai users more customization, diversity and choice. It replicates the voice of the client, air talent or other presenter upon analyzing an audio sample; users can then customize it suit the tone or emotion.

Info: www.enco.com/products/specai

World Radio History

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Sell Graphic Ads

Get More Listeners

Grow Revenue

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Available on GV2 transmitters!

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Learn more at nautel.com/hdtestdrive

*HD Radio trial or full license required. USA and Canada only, conditions apply.

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nautel

World Radio History

New Features for NextKast Automation

NextKast has rolled out a series of updates to improve the efficiency and reliability of its radio automation software.

"One of the standout features of the new Music Scheduler integration is its seamless operation within the nextKast radio automation environment," it said.

"This cohesive system eliminates the need for separate scheduling software, reducing the complexity and potential for errors in the scheduling process."

Users can now manage their entire playlist creation, scheduling and automation from a single platform. "This year even more time was spent to add new song pick rule options enhancing what is possible with the nextKast integrated Music Scheduler."

Features include an improved wizard to import from many third-party automation systems, making it easier to migrate to nextKast.

Refinements to the game/event scheduler ensure precise timing, while improvements to the built-in traffic system provide more accurate break fills.

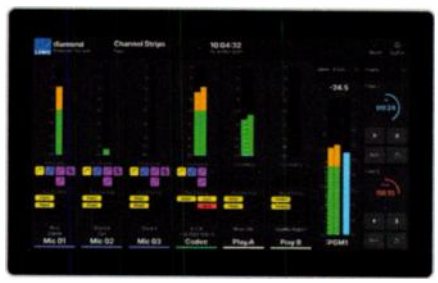
Category management had been enhanced using the MobileVT web interface. "Manage and move tracks, add new tracks with cue points, and check played statistics all from any web browser anywhere in the world."

Improved email alerts warn about missing traffic logs, playlist log or audio files.

And a new "Pick Error Details" window is indicated by the "Red Track Alert" feature in the integrated music scheduling software. "These enhancements enable users to easily identify and understand why a track deviated from the scheduling rules."

Info: www.nextkast.com

Lawo Shows New Solutions at IBC



At IBC in Amsterdam, Lawo will show a new Virtual Extension module.

"For diamond or crystal consoles equipped with the optional Virtual Extension module, Lawo provides a standard configuration and application," the company said.

"Each fader strip is augmented with a real-time bargraph display and tallies that illuminate when DSP processing is active, plus bus assignment indicators and an info-strip with source name and details."

An interactive parameter control page is shown when a channel's Access mode is activated. "Just touch the screen to trim voice processing and other DSP parameters, fine-tune delay times, recall console snapshots, load audio sources and adjust source and monitor gain."

When using the Virtual Extension Module, two, four, six or eight slots on diamond frames or two slots on crystal frames can be filled with program output meters, loudness metering, user short-cut keys, a synchronized clock, event timers or video feeds.

"Operators who prefer to use their favorite touchscreen monitor for control and information instead of the diamond or crystal Virtual Extension module can use the included desktop app, which works with any standard touchscreen display."

Info: www.lawo.com

BSI Plans Upgrade for Simian Pro

The flagship software of Broadcast Software International is receiving an upgrade.

"Simian Pro has long been a standard in the industry. Simian Pro 3.0 will have a new look and new features including, but not limited to, a new and improved database, and our value-added TransferConvert program for customers with a valid TechAdvantage Plan," the company states.

"The TransferConvert program easily downloads your files from any FTP or HTML site on your schedule and then converts them to the format you desire. It can also convert files in bulk, adding them directly to your database."

BSI said the program's ease of use and cost-effectiveness make it suitable for small-market or single stations looking to streamline their operations.

Info: www.bsiusa.com

BSI Broadcast Software INTERNATIONAL

World Radio History

Why do mobile phone calls sound like #$!& on the radio?

Why does Gagl + HOTLINE sound so much better?

Upgrade your caller audio with Gagl + HOTLINE

Comrex Gagl is a cloud-based service that enables up to 5 users to connect to a Comrex hardware IP audio codec by simply opening a link in a common web browser. The audio from all participants is "Gagl'd" together, and all can hear each other as well as the return audio from the studio codec.

With **Hotline**, one participant can join a Gagl session by **dialing a phone number**. No special equipment. No specialized knowledge. **Just a good old fashioned smartphone call - except they'll sound like they're in the studio.**

Which Gagl is right for you?

	Gagl	Gagl + HOTLINE
Price	$35 USD/month	$50 USD/month
Number of contributors	Up to 5	Up to 5
Connect via web browser	✓	✓
Connect via phone call	✗	✓
Available worldwide	✓	U.S. only

Scan to see how Gagl + Hotline has helped Reach Media

"The Hotline feature allows for that HD quality audio to come shining through."
– Nick Crapanzano, Broadcast Engineer, Reach Media

COMREX

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World Radio History

New Product From Myat's Elbow Room

Myat has introduced a Forged Brass 6 1/8-inch Elbow in 50-ohm and 75-ohm impedances.

"This forged outer conductor provides broadcasters with unmatched strength where it's needed most: at the elbow," the company says. "No more 'split seams' at the base or top of the tower installation."

The forged outer conductor is machined to exacting dimensional tolerances that cannot be met using traditional fabrication techniques, Myat says. This ensures that the elbows deliver consistent, superior electrical performance at all operating frequencies.

Info: www.myat.com

GatesAir Introduces 2 kW Flexiva GX

GatesAir has added the Flexiva GX2K to its transmitter line, supporting 2 kW of analog FM in a compact chassis that occupies two rack units.

It is also about to begin shipping the 3 kW GX3K. The GX line now has six power levels, ranging from 50 watts to 6 kW.

"The compact, high-density architecture of Flexiva GX low-power models accentuates the value proposition of the Flexiva GX line for the FM engineer," it says.

The transmitters promise a strong power-to-size ratio for all six power levels by using the latest LDMOS technology. GatesAir says the line delivers overall efficiency ratings up to 76 percent, supported by third-generation PowerSmart high-efficiency architecture.

GatesAir also has enhanced the GUI for all six models, including integrated audio playback and a supporting playlist manager. Options include GPS receivers for SFN support, and GatesAir's Intraplex IP Link 100e module. It integrates within Flexiva GX transmitters, enabling IP connectivity of FM audio and data from the studio. This reduces rack space requirements inside RF facilities with limited open real estate.

The Flexiva GX family can be configured to serve large national or regional FM single-frequency network (SFN) deployments. They also now support N+1 configurations through GatesAir's Multi-System Controller device, enabling large national network operators to build flexible consolidated transmission sites that meet stringent uptime requirements.

Info: www.gatesair.com

radio.cloud

BEST OF SHOW 2024 RADIOWORLD WINNER

Radio playout studio and programming suite

The #1 cloud platform for customizing network and local content

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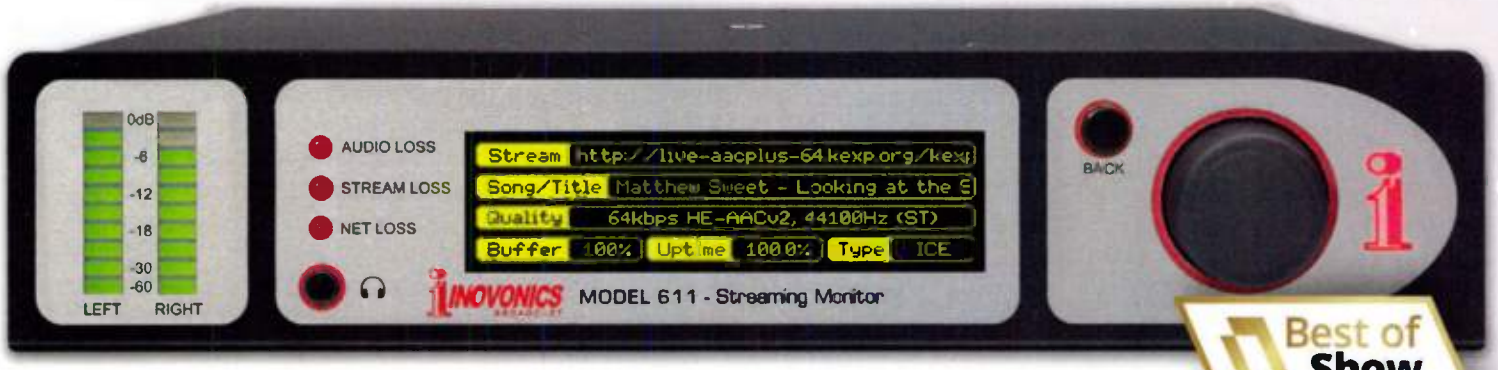
OPTIMIZE YOUR STREAMING EXPERIENCE

MODEL 611

NETWORK STREAMING MONITOR



Best of Show 2023 RADIOWORLD WINNER

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The 611 is Inovonics' second generation dedicated hardware solution for uninterrupted monitoring of network streaming audio, such as online Internet radio and other streaming applications.

FEATURES

- Support for HTTP and HTTPS streams.
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- Stream Rotation – the 611 will rotate through preset streams sequentially monitoring one stream at a time.
- Failover Support: Preset back-up streams with customizable failover triggers.
- Easy front-panel setup uses jog-wheel menu navigation and the front-panel readout. The corresponding Web interface offers a detailed presentation and additional options.
- Adjustable output levels for Analog L/R and AES-digital.
- Alarms & notifications via email or SMS for audio loss, stream loss, internet loss, and high ping time.

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PRODUCT PAGE
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INOVONICS BROADCAST

World Radio History

Angry Audio Ships Its New Console

The Rave! console from Angry Audio is now shipping.

The first four of its eight faders can select between microphone or stereo line inputs, providing extra flexibility. Operation is facilitated with two program output mix buses, two mix-minus outputs with talkback, flexible monitoring for the board operator, and a monitor feed to studio guests with talkback. The board also features automatic monitor muting and warning light tally outputs when the mics are open.

Installation is simple thanks to the StudioHub+ RJ45 connectors for line inputs and outputs, XLR inputs for microphones, and an external rack mount power supply. The console includes mic and line remote logic, and preview (cue) on every channel. The board provides smooth faders and avionics-style switches with LED illumination, encased in a sleek, low-profile desktop design.

Also new from Angry Audio are specialized mic processors designed to work with the unique characteristics of popular professional mics. The SMooth is for use with the Shure SM7, while the REbel is for Electro-Voice RW30, RE27 and RE320 mics.

"SMooth's microphone preamp stage offers ultra-high gain and low noise, providing the clean gain necessary for the insensitive SM7 mic. Unlike other solutions that use inline boosters, SMooth's mic preamp circuitry delivers 70 dB of gain with a noise figure only 1.5 dB above the theoretical minimum, ensuring plenty of pure sound without the hiss. This makes the SM7 sound clearer and more precise than ever before."

Similarly, the REbel was designed to enhance the unique qualities of those EV models. "The adjustment bands were created so you can subtly fine tune the sound, making setup a breeze."

Info: angryaudio.com

World Radio History

Sticker Shock.

(The good kind).

Meet the Logitek Mix-It radio console. The AoIP console with every feature you need at a price you can actually afford.

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Solaris Is High-Density AEQ Codec

Recently introduced by AEQ is Solaris, a high-density multi-channel audio codec.

The codec is intended for multiple STL links, remote contributions and other broadcast applications. It can be purchased with eight bidirectional stereo channels and upgraded in groups of eight channels, to build up to 64 channels in a single 1RU 19-inch form factor.

Audio I/O is via IP using Dante (AES-67 compatible). Redundancy can be added with a second Ethernet port where required.

Audio coding algorithms include Opus in various flavors, G.722, G.711 and uncompressed PCM audio (16 bit). Several

MPEG-4 AAC modes plus apt-X are available as licensed options.

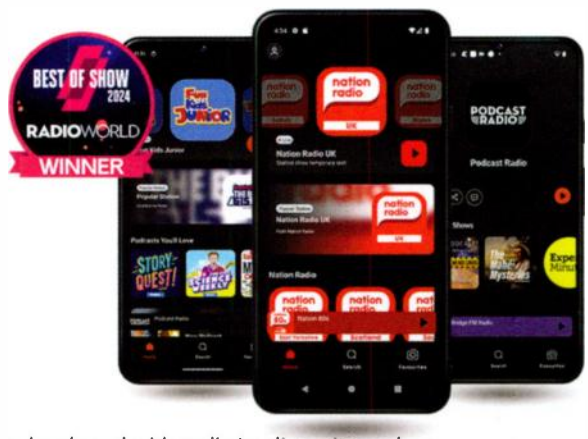
Communications can be established using SIP, either server-based or serverless, or RTP.

Calls can be made manually, using an internal directory or from a list of prior calls per channel.

The unit can be controlled remotely using a Web interface that allows configuration and operation of the unit. Diagnostics tools are included such as Syslog, SNMP, CPU load and memory usage. AEQ plans to support integration with ControlPhoenix.

Info: www.aeqbroadcast.com

Xperi's AIM Player Is a Versatile Audio Platform



All in Media (AIM), a subsidiary of Xperi, offers AIM Player, a versatile audio platform that supports a range of devices and systems.

They include mobile apps for iOS and Android, in-car mirroring for CarPlay and Android Auto, TV platforms such as Android TV and Apple TV, Android automotive app and smart speaker integrations.

Nation Broadcasting recently launched the Nation Player app powered by AIM Player technology, which is a free to access radio and audio app for the U.K.

Additionally, AIM Player can be integrated with DTS AutoStage, which Xperi describes as "the only independent media platform creating a unique in-car infotainment experience that seamlessly integrates audio, radio with streaming video and soon even games, offering personalized content to everyone in the car." It was developed with radio/audio as its anchor.

DTS AutoStage is deployed in some 7 seven million vehicles globally, adding over a million vehicles in Q2 2024. To that list, BMW has begun utilizing DTS AutoStage in their X5, X2 and MINI family of vehicles.

Info: www.thisisaim.com/aim-player and dts.com/autostage

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World Radio History

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World Radio History

Nautel Lets You Get Behind the Wheel

Nautel's HD Digital Radio Test Drive program allows broadcasters to trial HD Radio transmission for up to six months.

HD Digital Radio Test Drive
Your station On Air with Digital!

"Unlock listeners, content and new revenue potential without needing to install and purchase $40–50K of HD gear," it states. "If you're a broadcaster with an aging transmitter this is a great opportunity to experiment with new formats, languages or even short-term, pop-up event stations. Stations will see the impact on listener retention and engagement when album art or graphics are displayed on the auto dashboard."

The program takes advantage of Nautel's software-based "Just Add Audio" air chain. This capability in Nautel GV2 transmitters is Gen4 ready, allowing users to test HD1, 2, 3 and 4 streams without the need to purchase external equipment such as Importer, Exporter and Exgine. The GV2 also incorporates a software processor, Omnia for

Nautel, which covers all FM and HD Radio audio processing feeds and provides Livewire AoIP inputs for all audio streams.

HD operation is achieved through a software license from Nautel; its license fees are waived for six months from the date of activation.

Info: nautel.com/hdtestdrive

OMB Expands Transmitter Offerings

New from OMB is the latest member of the EM 1000 family of transmitters.

The EM 1000 HPPS Compact offers AC efficiency of more than 73% and typical RF efficiency of 84%, the company said.

Features include redundant amplifier modules, advanced protection against load mismatches and internal single-phase transient suppressor.

The transmitter also provides automatic power reduction at night and redundant, hot-pluggable power supplies.

Info: omb.com/electronic-system/radio/fm-transmitters

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RAVE! Radio mixing console.
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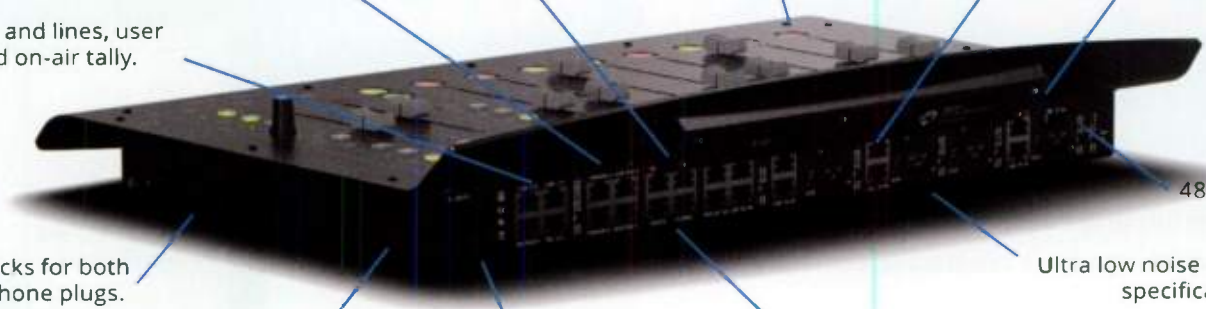

© 2024 Angry Audio LLC

www.angryaudio.com/rave

World Radio History

H15 Is New Console From Arrakis

Arrakis Systems is expanding its H Series console line.

It launched the H10 last winter and highlighted it for its modern design, robust capabilities and intuitive interface. "The H10's versatile functionality makes it an ideal choice for both small and large broadcast environments, providing users with a seamless and efficient workflow," the company said.

Now Arrakis has released the H15, a larger version of the H10. It includes two mix-minus busses, one to five mic channel inputs, Bluetooth and USB connectivity.

H Series consoles are analog consoles that are software-controllable. "This groundbreaking feature bridges the gap between the tactile familiarity of analog consoles and the modern efficiency of digital control," Arrakis states. "Users can now enjoy the best of both worlds, combining the rich, authentic sound of analog with the versatility and precision of software-based management."

Info: www.arrakis-systems.com

Aqua Expands Cobalt Options

Aqua Broadcast is expanding the list of available options for its Cobalt FM Transmitters.

"This expansion includes the integration of a new optional IP codec directly into the transmitter," it said.

"This is specifically designed for studio-to-transmitter links. The IP codec can synchronize with microsecond accuracy, thanks to the implemented latency control. This precision ensures seamless transmission and synchronization."

The new IP codec supports a range of audio formats including MPEG-1 Layer 2, MPEG-1 Layer 3, the MPEG AAC family (including the new xHE-AAC and AAC-ELDv2), as well as Opus, Ogg Vorbis, PCM and Enhanced aptX.

The Cobalt range was developed in collaboration with 2wcom. Aqua said the integration of the codec provides advanced synchronization, broad codec support and increased connectivity options.

Info: www.aquabroadcast.co.uk

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MADE IN THE USA

World Radio History

World Radio History

Myriad Studio/Cloud Hybrid Radio

Myriad Playout from Broadcast Radio has served the radio market for 25 years. The Myriad 6 release combines advanced scheduling and automation with intuitive, user-friendly broadcast tools for live studio shows and remote contribution.

Features include AI Voice Links, contextual song information and live Autohooks.

Released in 2023, the native cloud version of Myriad, called Myriad Cloud, offers a professional radio playout and automation platform, running natively on MS Azure.

"Myriad Cloud offers feature parity with its desktop sibling, meaning stations no longer need to compromise when switching to cloud," the company says.

"Our propriety BR Live technology allows for live, real-time radio shows featuring multiple presenters operating from any device from anywhere in the world via a web browser. The system also includes native cloud-based music, jingle and advert scheduling combined with advanced Voice Tracking, and everything else you need."

By combining Myriad 6 Playout and Myriad Cloud with the company's multi-direction replication technology, stations can leverage the creativity of live, studio-based radio with the convenience of a cloud-based solution.

"Content is automatically replicated between Myriad Cloud and one or more Myriad 6 Playout systems automatically handling content and schedule distribution. Stations can freely switch between local playout in their studio, and their Myriad Cloud system, freeing up studio time and resources."

Myriad Cloud also offers a thin "edge" client that can be installed at your transmission site. It's not dependent on web connectivity for playout.

Info: www.broadcastradio.com

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AES DIGITAL D.A. ROUTES DIGITAL AUDIO TO FOUR DESTINATIONS!
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World Radio History

RCS AudioDisplay Supports Interactivity on the Dash

RCS now offers AudioDisplay, intended to help stations develop new revenue streams through more granular management of their text and image advertising content, delivered in sync with their audio.

"RDS and HD Radio advertising campaigns run whenever an ad break is on air," the company says.

"With each campaign supporting technology-specific content, use a short punchy message for RDS receivers and something a little more detailed for HD Radio, and include an image."

AudioDisplay is part of RCS's RCS Cloud App portal, allowing users to access various cloud applications from any browser or operating system.

"Use your local single sign-on and corresponding password to access AudioDisplay from any device, anywhere," RCS states.

Once logged in, you'll see three subtabs: Campaigns, My Stations and Groups. My Stations will include your pre-configured stations that can be combined further into groups, like custom, market or format, via the Groups subtab. Aside from basic station metadata information, there is an option for RDS Delay (ms) and HD Delay (ms) for precise on-air delivery. Users can also define specific schedules.

In addition to handling regular "now playing" metadata,

AudioDisplay allows a traffic department to override unused commercial stopsets or spot blocks to feature a specific campaign or multiple campaigns.

RCS says AudioDisplay can pay for itself over a short period.

Info: audiodisplay.com/

World Radio History

Tascam Introduces "Self-Contained Workstation"

Tascam has debuted the Model 2400 Live Recorder and Mixing Console with Audio Interface.

"Building upon the attributes found in the company's Model 12, Model 16 and Model 24 product offerings, the new flagship Model 2400 provides an integrated 24-track digital recorder, a 22-channel mixer and a 24 In / 22 Out USB audio interface," it stated.

This targets professional music recording, home use, live recording and rehearsal environments and sound reinforcement applications.

Its digital recorder can capture the recording and mixdown of live performances to an SD, SDHC or SDXC card without the need for a PC or other DAW.

"With its integrated USB audio interface, the Model 2400 facilitates linked operation with DAW control for extensive editing and high-quality production."

Tascam said the bus configuration provides the operability of an analog mixer, with a design that facilitates compatibility and expandability with studio peripherals via its MIDI interface.

Features include 16 Tascam XLR mic preamplifiers, 12 channel inserts, five Aux sends and four stereo sub mixes.

MIDI In /Out ports include support for MIDI Time Code (MTC) and MIDI Clock/Song Position Pointer (SPP) Out.

There is a Click Out jack with a TAP Tempo function.

For production environments, the 2400 offers DAW transport control and Record Ready functionality via HUI/MCU protocol emulation. It offers expanded Insert capability for channels 1–12 for the integration of EQ or Compression and there is Digital EQ and Compression on the Main buss.

A MeterBridge app, downloadable for free, provides a meter bridge for its 24 channels on a PC or Mac.

Info: tascam.com/us/product/model_2400

Digital Audio Solutions

AES Switcher Sentinel® 2+1

Web-based AES Silence Detector

The AES Switcher Sentinel 2+1 is a three channel AES/EBU silence monitor with an integrated 3×1 AES switcher, with a browser-based HTML5 web interface. It monitors two AES sources and one analog to digital (ADC) source. When silence and/or phase error is detected on the primary AES input it can automatically switch to a back-up input via mechanical latching relays. Other features include: SSL/TLS email (Gmail, etc.), SMS-email, and SNMP.

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.

World Radio History

Summit Revamps TundraCast Audio Streaming

Summit Technology Group has released its improved TundraCast Audio Streaming product, highlighting an intuitive web-based admin portal, monetization tools, advanced geo-blocking and toolset for HLS streaming, metadata management and SoundExchange reporting.

"TundraCast has delivered on promises to include geo-blocking on the country, state and county level to allow stations to comply with contracts that embargo sports remotes or other syndicated programming," Summit said.

"The geo-blocking feature can be controlled in the admin portal or by using TundraCast's secure API, allowing for control from a stations' automation system."

To alleviate regulatory burdens, TundraCast includes cloud-based logging and reporting tools that automate the process of SoundExchange reporting. They include scheduled report generation and direct submission to SoundExchange.

Lead Developer Evan Roach said the cloud-based logging and reporting tools automate essential compliance tasks and provide real-time monitoring and control. "TundraCast has long boasted the highest quality bitrate in the broadcast industry and, with the addition of the TundraCast admin portal, now has the tools broadcasters expect in a powerful yet intuitive streaming solution."

Plans start at $79 per month with a 60-day trial. An Enterprise Plan allows larger groups to purchase a license as a private-cloud

architecture or collocate a private server in Summit's data centers.

Separately Summit announced that its PostMaster Cloud Connect has been integrated into Inovonics' Model 732 Advanced Dynamic RDS Encoder. "The latest firmware revision of the Model 732 now includes the ability to connect to a PostMaster channel and monitor for dynamic metadata," the companies said.

The integration give users an easy and cyber-secure means of getting PAD Data to the Model 732 RDS Encoder without the need for a static IP address or complex configuration of firewall rules.

Info: www.summittechgroup.com

World Radio History

Add Headphones With Henry Guest Pod II

Henry Engineering's updated Guest Pod II is a useful solution anywhere you need headphone listening facilities. Just feed audio into the 1/4-inch TRS jacks on the back.

Each Guest Pod II has a pair of RJ-45 connectors so that multiple units can be daisy-chained to create a multi-listener system. The audio and power will be "cloned" to all units in the system, making installation quick and easy using common Cat-5 cables. There's no need for multiple power supplies or audio DAs.

A multi-unit system can be powered using a wall transformer or a Henry Engineering Power Pod. One Power Pod will operate up to 10 units.

Because each Guest Pod II has an isolated amplifier, there's no interaction between units, even if different types or brands of headphones are used. The audio quality is excellent and not affected by the number of units in a system. Each user has a Volume control, plus both 1/4-inch and 3.5-mm headphone jacks.

Guest Pod II has user-assignable buttons that are typically used for "Cough" and "Talkback" functions. These illuminated buttons can be configured for any pin-out and are terminated on a third RJ-45 connector for connection to any console or control hub.

Guest Pod II can be mounted to any tabletop or attached to the underside of a counter or desk.

Info: www.henryeng.com

World Radio History

Radio.Cloud Unveils "Assistant AI"

Radio.Cloud says its latest product is meant to be a host's best friend and take the manual work out of show prep.

The feature is called Assistant AI. It gives hosts a research assistant to help with inspiration for live talk breaks and voice tracks.

"Fully integrated into Radio.Cloud's playlist, Assistant AI allows hosts to choose the specific talk break, the content to prep for and how much content to provide. Examples include local news, local weather, station promos, relevant information about the next artist and song, and more."

Assistant AI generates a block of text and some additional bite-size pieces of key information. Hosts can use part or all the content on-air; the company says most choose to use the text as inspiration for their live break or voice track.

"This removes the manual research step which saves hosts enormous time over a four-hour shift, especially while working on-air at multiple stations."

The next step in development is giving hosts the ability to choose an AI voice or a cloned voice to use as a co-host for certain talk breaks. "By highlighting part of the generated content, hosts can pick a voice and create a co-host for nimble back and forth in a live or voice tracked setting."

Radio.Cloud says it sees a benefit to radio stations and hosts. "Assistant AI is the perfect middle ground between a traditional prep service and a fully AI voice tracked station. Hosts increase efficiency and productivity thanks to AI doing research, but with the product built into Radio.Cloud the specific content generated is way more tailored to your stations than previously possible."

Info: www.radio.cloud

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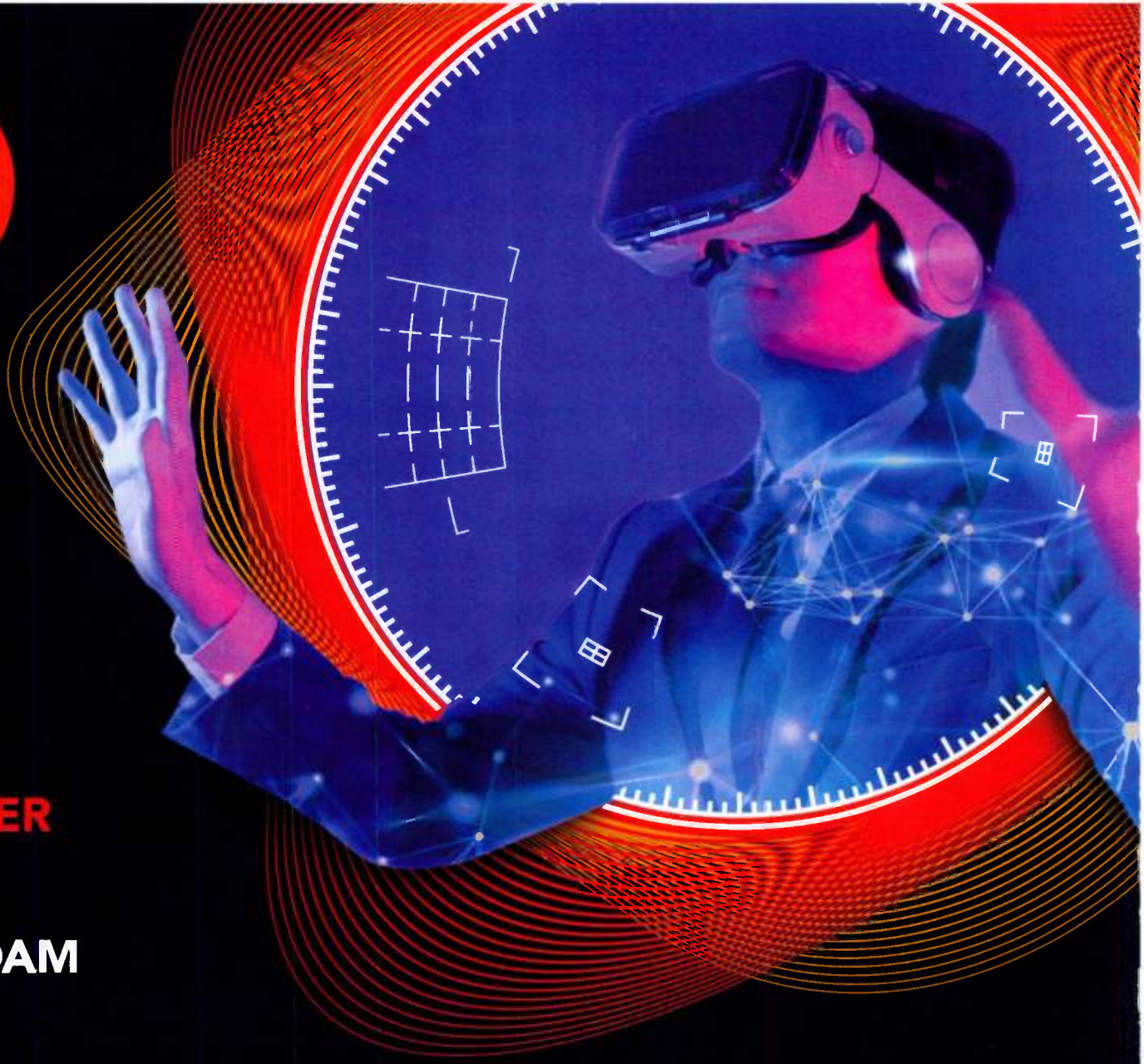

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"Innovative Sound Design and Video Strategies for Radio and Podcasts" — Matt DeGroot is VP of production for Crooked Media/Pod Save America. Yervant Keshishian is sales engineer, trainer and technical director of Varto Technologies. Dan Hirschl is VP of engineering for Red Apple Media and chief engineer of WABC. John Clark is senior vice president of emerging technology and executive director of NAB PILOT.

"Leveraging Data Insights to Improve Programming, Promotions and Bottom Lines" — Panelists explore how radio and podcast programmers and producers use data to hone in on audiences and understand where the opportunities are. Dan Bobkoff, CEO of Rhyme Media; Laura Ivey, director of research at Edison Research; Sam Milkman, executive VP of Coleman Insights; and Colby Tyner, senior VP of programming for Radio One and Reach Media. Consultant Andy Meadows is moderator.

Left
Marconi recipients in 2023.

Below
Dave Santrella will receive the National Radio Award.

NAB: Honors

David Santrella will be honored with the 2024 National Radio Award.

The NAB said he has been a pivotal figure in the radio industry for nearly 40 years.

"Since becoming CEO of Salem Media Group in January 2022, he has led the company through significant growth, particularly in its digital platforms. Under his leadership, Salem has launched the successful Salem Surround, Salem Podcast Network, SalemNOW and Salem News Channel, establishing the company as a leader across 30 markets."

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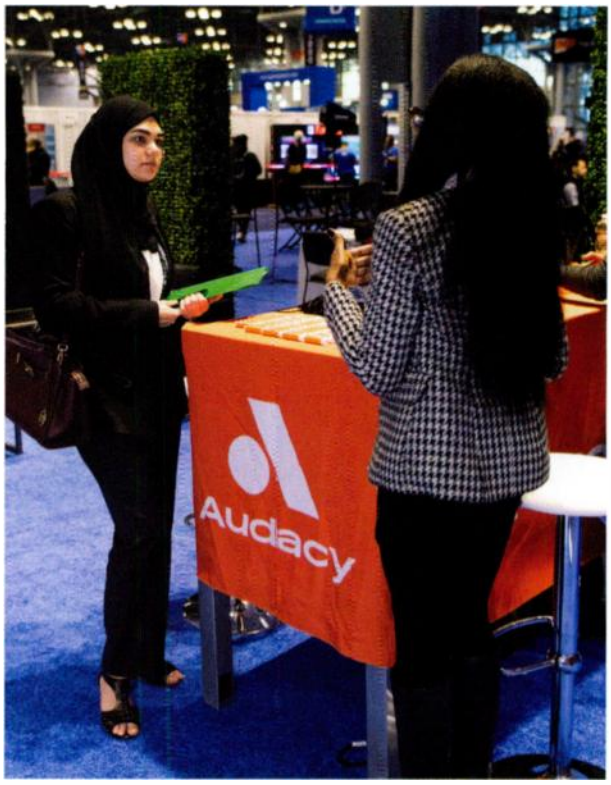

Right
Networking on the show floor.

He chaired the NAB Joint Board of Directors from June 2021 to June 2023 and has served on the board of the NAB Leadership Foundation.

"Santrella's career began in Chicago, where he worked with NBC's WMAQ and CBS's WBBM before joining Salem in 2001," NAB said.

"He quickly ascended through the ranks, taking on roles of increasing responsibility, including operations vice president, president of Salem's Radio division, and eventually president of Broadcast Media."

NAB President/CEO Curtis LeGeyt called him "a leader whose belief in radio's unique ability to serve the public is second to none" and highlighted Santrella's "public service ethos, along with a keen business acumen and authentic leadership style."

NAB Marconis and Elections

The evening of Oct. 9 will bring the 2024 NAB Marconi Radio Awards, given at a dinner event that also will be live-streamed. The awards recognize radio stations and on-air personalities for excellence.

A big category each year is Network/Syndicated Personality of the Year. In 2024 Reach Media/Urban One has three of the five finalists. They are Erica Campbell, D.L. Hughley and Rickey Smiley. Also making the finalist cut are Dan Patrick of Premiere Radio Networks and Enrique Santos of iHeartMedia.

Another notable category is Legendary Station Manager of the Year. Finalists for that include Julie Koehn of Lenawee Broadcasting, Joe Bell of Beasley Media Group, Nick Martin of Big River Broadcasting Corp., Timoty P. Davies of Urban One and Bennett Zier of Audacy.

And with an eye on November, the show will feature an Election Coverage Summit.

"Key topics will include improving trust in political coverage with a deep dive into RTDNA's research and best practices to address skepticism about media bias," organizers said on the website.

"The summit will also tackle ensuring verified news in the age of AI and social media, discussing how stations are combating misinformation and the rise of deep fakes. Also important is how journalists prepare their audience for the aftermath of the election and stay safe while covering political events."

Below
Equipment by D.W. Fearn, AEA, Great River Electronics and other manufacturers grace a booth at last year's AES Show.

Courtesy AES

AES Sampler

While all that is going on, the Audio Engineering Society will be holding its annual flagship event for audio professionals, enthusiasts and exhibitors next door within the Javits Center.

The society expects around 10,000 people to attend and promises workshops, panels, demos and training sessions.

Program details were limited as this issue of Radio World was being prepared but the list of session headlines provides insight into the range of topics.

The session "NPR's Tiny Desk" will provide a look at the history of that popular program and where it's headed next. Another will explore the evolution of live radio remotes.

A presentation called "BBC Pop Hub" will describe the move of Europe's largest radio station. Another will dive into generative AI and machine learning workflows in audio.

A "town hall" will explore issues around diversity, equity and inclusion. Other topics on the AES agenda include adventures in live streaming, audio design, the state of the music business, sustainability in music technology manufacturing and the technical legacy of Robert Moog.

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NAB NY & AES Exhibit Sampler

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Tuesday, Oct. 8
(AES only):
1 p.m.–6 p.m.

Wednesday, Oct. 9:
10 a. m.–6 p.m.

Thursday, Oct. 10:
10 a.m.–5 p.m.

The following is a sampling of exhibits of interest to radio. See show websites for a full list. NAB New York and AES New York are collocated, with a shared exhibition floor providing access to both shows via a common hallway.

Adder Technology	NAB 1107
AEA Ribbon Mics	AES 535
Amazon Web Services	NAB 929
ATC Labs	NAB 759
Audinate	NAB 646
Audio History Library & Museum	AES 445
Audio-Technica	AES 447
AxelTech	NAB 1414
BIS – Broadcast Integration Services	NAB 1104

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Courtesy of NAB Show New York

Courtesy of NAB Show New York

Calrec	NAB 1213
Clear-Com	AES 129
Comrex	NAB 739
Dale Pro Audio	AES 343
Dalet	NAB 1146
DekTec	NAB 1104
ENCO Systems	NAB 907
Eutelsat	NAB 737
Eventide	AES 523
Fraunhofer IIS	AES 237
G&D North America	NAB 921
GatesAir	NAB 947
Genelec	AES 3D06
Independent Audio	AES 442
Lawo	NAB 1013
Nautel	NAB 1227
Nextologies Limited	NAB 4B3

Patchamp/All Mobile Video	NAB 1205
Radioplayer Worldwide	NAB 1334
RCS	NAB 1327
Rohde & Schwarz USA	NAB 1207
Solid State Logic	AES 119
Sonifex	AES 341
Sound Devices	AES 318
Soundproof Windows	AES 444
Stagetec	AES 226
Synthax/Digigram	AES 329
TBC Consoles	NAB 1111
Telefunken	AES 335
Telos Alliance	NAB 1308
Walters-Storyk Design	AES 347
Wave Central	NAB 1064
Wheatstone	NAB 1212
WideOrbit	NAB 838
WorldCast Systems	NAB 666

Courtesy of NAB Show New York

Courtesy of NAB Show New York

World Radio History

Create an MP3-to-phono cable

Wouldn't you love to have your MP3 music play through your vintage radio?

Writer
Chuck Gloman
Associate Professor and Chair, TV/Film Department

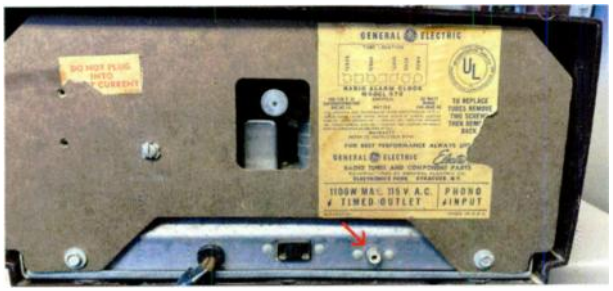
If you have a vintage AM radio, it's sometimes difficult to receive local stations unless you live in a larger city. Those living on the fringe or in the country might not be able to tune in many stations. Wouldn't you love to have your MP3 music play through your vintage radio?

Soon I intend to write a how to article adding MP3 capabilities to any radio. But many vintage radios already have a phono input to allow your radio to play music from your turntable (Fig. 1). Some older radios may have a 1/4-inch phono input. This article will help you with either type; just substitute a male 1/4-inch phono plug where I mention and illustrate a male RCA phono plug.

If your radio already has a phono input, can you just attach your MP3 player to it via a cable? Yes and no.

If you have a male phono or 1/4-inch connector on one end of the cable and a male 3.5 mm (1/8-inch mini) headphone connector on the other, you can physically plug it into the female input on the radio ... however, it won't work. If you get any sound at all, it will be very low because on an impedance mismatch. With a minor bit of surgical doctoring (cutting the cable) and two minor implants (resistors), you will have a cable that connects both instruments and the sound quality will be as good as the radio's speaker can reproduce, all for almost no money.

Not having a cable with a male-to-male RCA phono on each end and male-to-male 3.5 mm headphone connector on both ends of the other, I decided to create my own from two cables: an RCA-to-RCA and a 3.5 mm headphone-to-3.5 mm headphone. Upon completion, I would have two cables that did exactly what I needed them to do (Figs. 2 and 3).

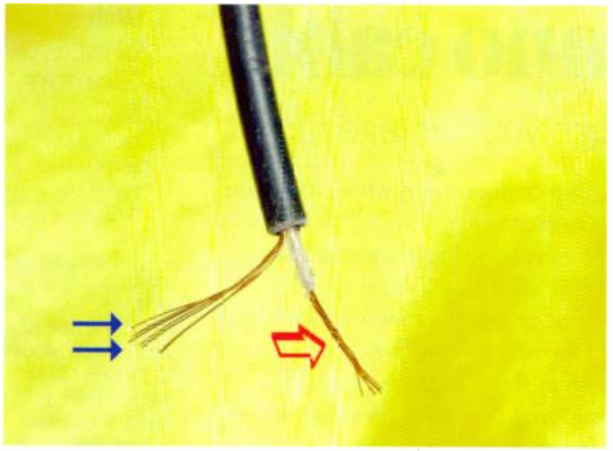


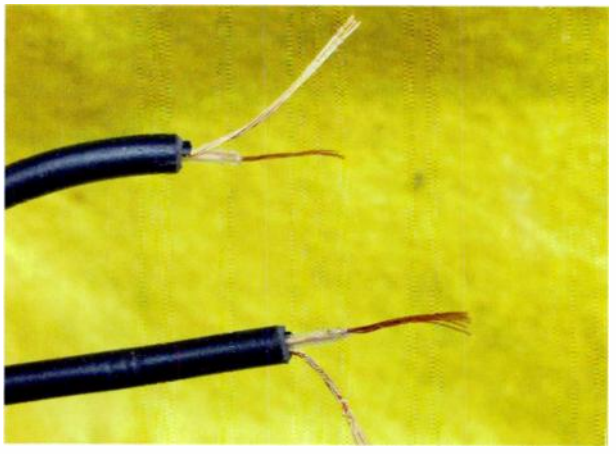
Left
Fig. 1: The rear of a vintage RCA Model 572 Alarm Clock Radio. The red arrow shows the RCA phono input.

Fig. 2: A male-to-male RCA phono cable with yellow plastic and a male-to-male 3.5 mm black headphone cable.

Fig. 3: Another view of the two cables I used to create two wires. Note that the tips on the 3.5 mm male connectors are TS (Tip/Shield) for monaural use.

World Radio History





Left
Fig. 4, at top: The cable has been cut. Notice the different size wires. The Blue arrows point to the shielded wire and the red arrow points to the tip wire. Just remember, you need to connect tip to tip and shield to shield.

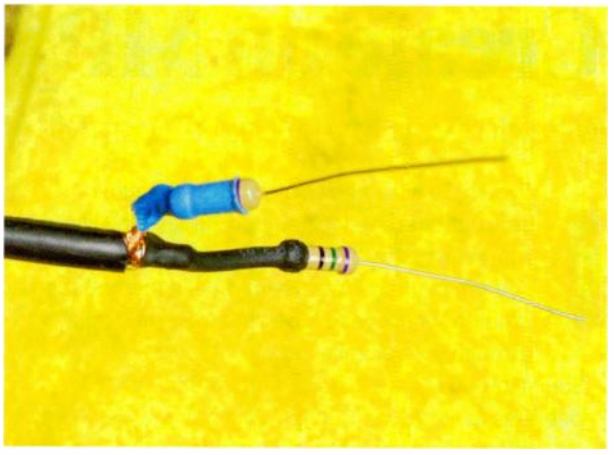
Fig. 5: The ends of both cables have been stripped. Make sure you have enough wire exposed.

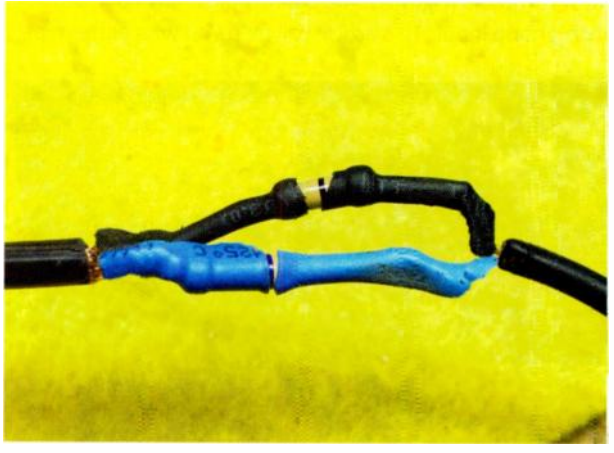
Fig. 6: Two identical 75-ohm, 1/2-watt resistors. It doesn't matter which end you use; there is not a positive or negative side in a resistor.

Right
Fig. 7, at top: Both resistors with the tubing shrunk over the end. You want to make sure your shield and tip wires don't touch.

Fig. 8: Both ends of the cable are covered with shrink wrap. No wires are exposed for possible shorting.

Opposite page
Fig. 9: Your cable is now covered and the goiter underneath is hidden.





The next step is the hardest: You must cut your cable and strip it to reveal the wires. As I mentioned, I had two cables and I cut each one exactly in half. It doesn't matter where you cut it; I thought that the middle was easier. Be careful when you strip the wire because the center strands (within the white core) that connects to the tip of the male plug are quite fine. The wires under the black shielding are also quite fine so be careful here too (Fig. 4).

Now that you've cut and stripped both wires on both ends, you are ready to connect the resistors (Fig. 5). These resistors restrict the flow of the signal to allow you to hear the sounds from your MP3 player.

The choice of the ohm rating of the resistors isn't critical. However, the lower the ohm rating, the louder your signal from the MP3 player will be. This means you won't have to crank the volume too much to hear the signal. I chose two 75-ohm 1/2-watt resistors (Fig. 6).

To keep everything neater, I slid heat shrink tubing over the cable to protect the soldered connections. Take each end of the resistor and wrap the copper wire around it and remove the excess resistor lead. Once both ends are connected (shield to shield and tip wire to tip wire), solder the wires to the resistor leads. Slide the heat shrink tubing over the soldered lead and shrink the tubing (Fig. 7).

World Radio History

Once you have one side soldered, connect the other side, and shrink the tubing in place. It's not very pretty, but functional (Fig. 8).

Some people might stop here. Although colorful, there's still too much at stake not to cover the resistors entirely. Get a larger piece of heat shrink tubing and cover the entire resistor splice. It will still look slightly Frankenstein, but you now have a cable that will last for years (Fig. 9).

Now you have a cable (in my case two) that will connect an MP3 player and a radio with a phono input. Turn the MP3 player on, wait for the radio to warm up, and "listen to the music!"

Reach the author at chuck.gloman@desales.edu.

A Tip About Tips (and Rings and Sleeves)

Speaking of male 3.5 mm headphone plugs, there are three types of "tips" to be aware of:

TS or ***Tip Sleeve*** (aka "mono mini") plugs have a tip for the audio signal and a sleeve for the ground. There are only two wires to deal with in this type of monaural connection. This is the type I used because my vintage radio doesn't have a stereo speaker. This set-up needs two resistors.

TRS or ***Tip, Ring, Sleeve*** (aka "stereo mini") is the most common type of 3.5 mm connection. The tip of a TRS plug is for the left-channel signal. The ring is for the right channel. And the sleeve is for the ground wire. This will give you a stereo signal, but you'll need three resistors because of the extra channel.

TRRS or ***Tip, Ring, Ring, Sleeve*** (aka "stereo mini with microphone") connections are used in headsets or earbuds that include an inline controller and a built-in mic. The tip is for the left channel, and the first ring is for the right channel. The second ring is for the ground, and the sleeve is for a microphone channel. This is not necessary for our conversion purposes and is too expensive.

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WYSL jumps at an opportunity

The AM station in upstate New York is taking advantage of some new elbow room

WYSL "Voice of Liberty" is a Class B AM station on 1040 kHz, owned by Radio Livingston LP and headed by Robert Savage. Licensed to Avon, N.Y., immediately south of Rochester, the station also serves the western Finger Lakes area and has two FM translators. It promises listeners that it is "locally owned and fiercely independent in an era of predictable, reactionary corporate radio."

In the fall of 2022 Savage realized that the 20 kW DA-D four-tower facility that the station had built in 2006 for daytime operation was protecting three stations that no longer existed. "These had been either co-channel or adjacent-channel facilities on 1040 and 1050," he said.

"Since we had a Nautel AMPFET-25 transmitter with a designed maximum power of just under 30 kW running leisurely at 20 kW, and the WYSL antenna components were capable of higher power, we saw this as an opportunity."

More Projects

This story is excerpted from the ebook "Awesome RF Buildouts." Read about other projects at *radioworld.com/ebooks*.

Accordingly, the company engaged in planning with Chief Engineer Mark Humphrey, longtime consultant Bill Sitzman and the RF engineers at Kintronic Labs for an upgrade that would largely use existing facilities.

Sitzman did the allocation work and wrote the application. Humphrey ran a radial from a co-channel station and did the method of moments antenna proof of performance. The Kintronics phasing system was modified and presents a low VSWR common point to the Nautel transmitter. Cris Alexander of Au Contraire Software, who wrote the ACSModel software used for the method of moments analysis, provided assistance on the project.

"This process produced a redesign of the array utilizing a supplemental phase-extension network and cabinet for existing Tower #4, as well as component swaps in ATUs at two other towers," Savage said. "The pattern-switching equipment and Gorman-Redlich antenna monitor were retained without modification."

The resulting DA-3 system was filed with the FCC for a CP in January 2023, and the permit was issued in May.

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The AES Audio Sentinel® 4» Web can be configured and monitored locally and/or remotely over a LAN or the Internet. Users can operate this product using a desktop web browser or web-enabled mobile device. App Store not required. Email notification may be configured to alert up to eight recipients when silence, out of phase audio, or AES error is detected.

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"Kintronic completed the Tower 4 phasor cabinet in a remarkable six weeks, and it was installed at WYSL in late July," Savage said.

By year's end the method-of-moments antenna adjustments produced a license application ready for FCC analysis, with the result that a grant was issued in February 2024.

"The new 27 kW coverage has been gratifying, with much better general coverage to the east and west as well as improved signal strength in the two main lobes Remarkably, even with a critical-hours reduction in power from the 2006 level of 13.2 kW to a new level of 10 kW, the redesigned pattern provides better general coverage."

There was no change in nighttime operation, as WYSL retains its 500-watt DA-N authority and operation from 2006. The station utilizes all four towers on all three patterns.

For daytime and critical hours operation, it runs the Nautel AMPFET-25, and at night it runs a Nautel J-1000 at 500 watts.

"Our standby transmitter is the excellent BE AM 2.5 we purchased in 1996," he added. "The nostalgic RCA BTA 1-R we signed on with in 1986 for 500-watt NDA operation on 1030 kHz had been donated to the nearby Antique Wireless Association Museum in 2007; it was operable when retired."

An earlier WYSL was a prominent AM station in western New York state; today that station is WWWS.

This iteration of WYSL began life as a 500-watt daytimer on 1030 kHz in the 1980s. It moved up one channel in 1997, when it began 24-hour broadcasting and it has had several power increases since then. Today it is also heard on two FM translators.

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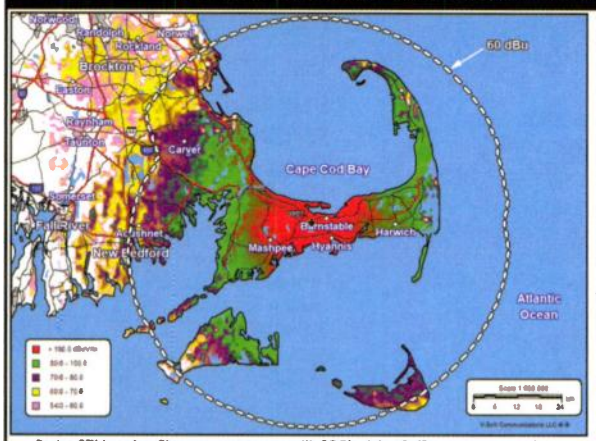

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Don't throw away your old hardware just yet

A grasp of digital audio starts with understanding analog principles

Audio and radio technology continues to evolve at an astonishing rate, leaving technicians and engineers to adapt to new equipment and attempt to retrofit legacy equipment for modern applications. As audio transitions from physical cable runs to audio over IP, analog equipment moves toward obsolescence.

However, AoIP networks still require physical infrastructure and incorporate analog principles. I realized that as an aspiring broadcast engineer, I would need to develop a better understanding of how AoIP systems are built and deployed.

With help and equipment donated by Telos Alliance and the Salem Radio Network, along with the guidance of my academic advisor Dr. Andrew Gladding, chief engineer for WRHU Radio Hofstra University, I decided to design and build an AoIP system using legacy broadcast hardware as a way to expand my knowledge of the subject.

Above
The equipment was used to create a makeshift AoIP network to broadcast a pop-up outdoor concert on Hofstra University's campus.

Two-month project

As a high school freshman, I fell in love with audio engineering when I saw my first audio rack. A 10-channel analog mixer, a graphic equalizer and two amps were all it took to make me want to dive in and start twisting knobs and pushing buttons.

Analog equipment first enticed me into the craft, and its widespread accessibility helped me quickly hone my skills. The lessons I learned from using analog equipment as a young engineer have served me well, and as I now look forward to my professional career, I wanted to be able to offer future students the same opportunity.

For this reason, I designed an independent study for my spring semester that would accomplish this goal. The task was to use legacy Telos Axia hardware, specifically generation one analog and microphone nodes, to create a wireless audio over IP network from scratch. While this equipment may be somewhat outdated for many commercial applications, the fundamentals it reflects are still beneficial, and it acts as a great piece of intro hardware for future students. Additionally, I felt that having experience with the Telos Livewire infrastructure would be a major asset for my professional skill set.

Using six IP-configured Telos Axia blades, a QOR frame, Cisco switches and wireless 1-Gig wireless point-to-point system, this equipment laid the blueprint for a makeshift, over-the-air AoIP network that we intended to use for a pop-up outdoor concert on Hofstra University's campus.

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The build process for the network began in late February 2024, and the concert date was in late April, so I had two months to build, design and troubleshoot this system in preparation for a live band multi-mix.

The project required me to arrive an hour before class every week to develop and build the system. Throughout the build process, I encountered several snags, such as the mixing console initially not fitting correctly in the rack mounts and the network having issues handling heavy multicast traffic payloads with stability and reliability. But with some ingenuity, research and trial and error, we overcame the technical obstacles associated with this project.

There were still daunting physical obstacles to overcome. For example, the wireless links for the blades in the stage box and the static rack were tested effectively in a controlled environment during the build process. During the test phase in the shop, the two links were about half a foot apart, while in the practical environment, they would be some 500 feet apart, and the signal would have to circumnavigate a building blocking its path across campus. Additionally, the Cat-6 cable necessary for our wireless transmitter had to be snaked from inside the heart of WRHU's mainframe through the ceiling conduit and then outdoors through an underground pipe to its position on the WRHU STL mast outside the Lawrence Herbert School of Communication. This work, some of it done in the rain, was painful and exhausting but imperative to the system's success.

After multiple tests involving carrying the 40-pound stage box across campus and endless hours of troubleshooting collisions between multichannel PCM audio packets, the two ends of the system were locked and seemingly ready for the big test.

Show time

On April 24, my focus shifted from the AoIP infrastructure to the live mix infrastructure for the outdoor concert. Dr. Gladding and other class members got the system in position for its secondary mix transmission while I built the 5,000-watt front of house system on the campus quad. The main static rack of the system would live in a studio inside the Herbert School and feed into a secondary broadcast mix while the stage box received physical inputs from a snake split 500 feet away.

When 1 p.m. came, the concert began and crystal clear audio was received in the studio in real time, down to the two-track output for broadcast over the FM, proving this project a success. The system has shown its efficacy and will serve WRHU and its infrastructure as a learning tool and a means of wireless production.

This project was about using legacy equipment in a modern context and challenging the prevailing thinking in contemporary audio. Nowadays, audio engineering is often seen as a digital practice, whether it's AoIP or DAWs to create and transport content. However, it's crucial to understand that all these digital practices are built on analog operations, and a solid grasp of digital audio starts with understanding analog principles and basic signal flow.

On a personal level, this project marks my first foray into creating the infrastructure of an AoIP network, a skill that will undoubtedly serve me in the future when dealing with MADI or DANTE-configured spaces. This was a successful exercise in repurposing yesterday's technology for tomorrow. The results were a personally fulfilling learning experience. This journey of personal and academic growth would not have been possible without the invaluable collaboration between Dr. Gladding, Telos Alliance and Salem Radio Network.

Top
Help and equipment were donated by Telos Alliance and the Salem Radio Network.

Above
The author snakes Cat-6 cable for the WiFi antenna.

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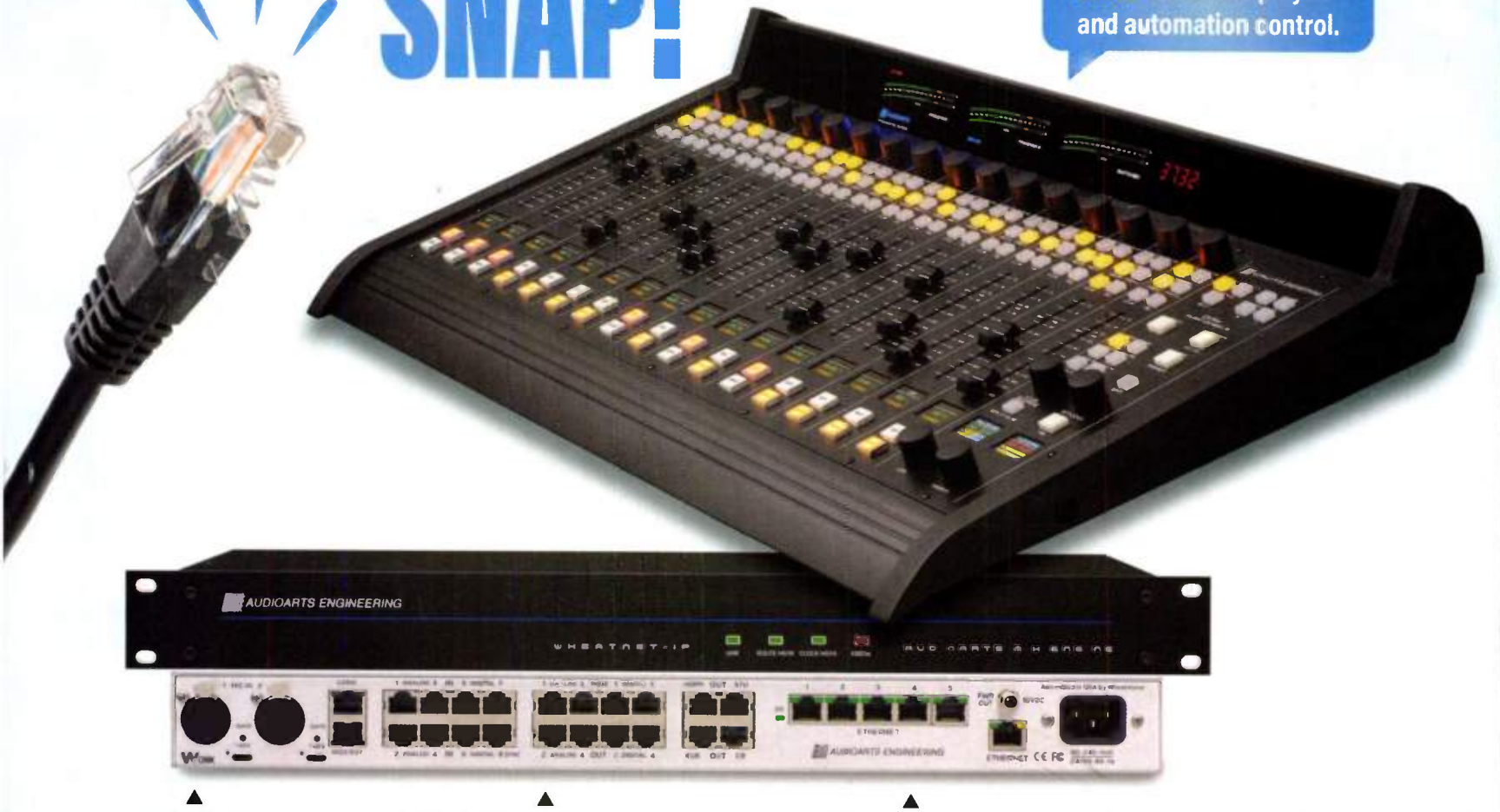

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