

RADIO WORLD

Your guide to radio technology

radioworld.com | October 26 2022 | \$5.00

“Over-technologied & under-prepared”



FEMA advises Americans to keep a radio in their disaster preparation kits. Is radio holding up our end of the bargain?



Hey, where's my radio?

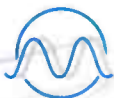
Paul Kaminski searches for the radio controls in a 2022 Lexus NX 350.

Stop yer fumbling

It's amazing what you can accomplish with tweezers and a rubber band.

Buyer's Guide

A roundup of new signal monitors, remote control and EAS gear.



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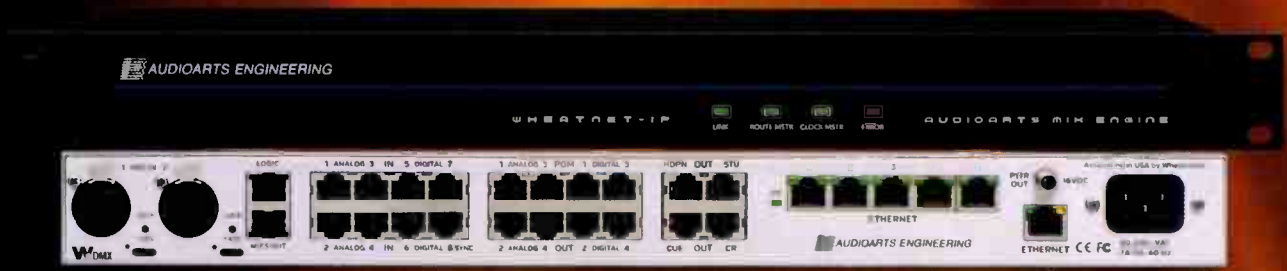


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CONTENT

Managing Director, Content & Editor in Chief Paul J. McLane,
paul.mclane@futurenet.com, 845 414 6105

Content Producer & SmartBrief Editor Elle Kehres,
elle.kehres@futurenet.com

Technical Advisors Thomas R. McGinley, Doug Irwin

Technical Editor, RW Engineering Extra W.C. "Cris" Alexander

Contributors: Susan Ashworth, David Bialik, John Bisset, Edwin Bukont, James Careless, Ken Deutsch, Mark Durenberger, Charles Fitch, Donna Halper, Alan Jurison, Paul Kaminski, John Kean, Gary Kline, Larry Langford, Mark Lapidus, Michael LeClair, Frank McCoy, Jim Peck, Mark Persons, Stephen M. Poole, James O'Neal, John Schneider, Dan Slentz, Dennis Sloatman, Randy Stine, Tom Vernon, Jennifer Waits, Steve Walker, Chris Wygal

Production Manager Nicole Schilling

Managing Design Director Nicole Cobban

Senior Design Directors Lisa McIntosh and Will Shum

ADVERTISING SALES

Senior Business Director & Publisher, Radio World

John Casey, john.casey@futurenet.com, 845 678 3839

Publisher, Radio World International

Raffaella Calabrese, raffaella.calabrese@futurenet.com, +39-320 891-1938

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Head of Print Licensing Rachel Shaw licensing@futurenet.com

MANAGEMENT

Senior Vice President Group Elizabeth Deeming

Vice President, Sales & Publishing, B2B Aaron Kern

Vice President, B2B Tech Group Carmel King

Vice President, Sales, B2B Tech Group Adam Goldstein

Head of Production US & UK Mark Constance

Head of Design Rodney Dive



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Don't sell that license

Why colleges shouldn't bail on radio



Paul McLane
Editor in Chief

Whenever I read about a college or university that has decided to sell its radio station, I slap my forehead.

I'm not the only one. Ken Freedman, general manager and program director of nonprofit WFMU in Jersey City, N.J., recently wrote a thoughtful commentary on our website laying out five reasons

that educational institutions should think twice about such sales. (WFMU is not affiliated with a school but has its roots in college radio, having been owned by Upsala College until shortly before that institution closed in the 1990s.)

"Universities that sell their radio stations often view their FM license as though they were just another piece of real estate," Freedman wrote. "They're not." Don't sell a station thinking that you can easily get another one because it probably ain't gonna happen, he says. Spectrum remains a valuable and scarce commodity.

"Oh, we won't want another one," the college might reply. But Freedman reminds such license-holders that they can't predict the future; consider that the FM and AM bands both experienced unexpected second lives at separate times in the second half of the 20th century.

He also wrote about the importance of radio in times of crisis and disaster, especially for communities not well served by broadband internet service.

Further, "Universities that offload their radio stations usually attempt to set up a digital-only streaming studio for the students who still desire broadcast experience," Freedman wrote. But that approach can end up being much more expensive to maintain.

And don't discount the appeal of radio and broadcast media to younger generations (or university stakeholders including alumni). While radio's prestige in American culture isn't what it once was, common wisdom on that topic consistently undervalues radio's ongoing appeal and role in American life.

Ken Freedman's commentary is one in a series that we've featured from the National Federation of Community Broadcasters. Find it at <http://radioworld.com>, search keyword Freedman. Meanwhile I think we might be able to identify numerous additional good reasons for colleges to keep their stations. I welcome your thoughts at radioworld@futurenet.com.

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On the cover

The CCRadio Solar is an example of the type of radio suitable for an emergency kit. Made by C. Crane, it can be powered by its solar panel or hand crank as well as batteries. See related article, page 29.

SBE Chapter Opens in Eastern Europe

IEEBE

INCORPORATION OF EASTERN EUROPE BROADCAST ENGINEERS

The Society of Broadcast Engineers has given its blessing to a new chapter that will serve engineers in eastern Europe.

Ten people in the Republic of Georgia recently became members with the intent to form a chapter serving Georgia, Armenia, Azerbaijan and Moldova.

The group becomes Chapter 148 Eastern Europe. It has incorporated as the Incorporation of Eastern Europe Broadcast Engineers, or IEEBE, and named its officers, with Davit Robakidze as chair.

The chapter plans a conference in December in Tbilisi.

SiriusXM Plans a Broadcast Center in Miami

SiriusXM will have a presence in Miami, opening a broadcast center next year. "The venue will feature a 50-seat performance space and several artist-first radio and recording studios, in addition to office space," the company said.

It will be at 2340 Collins Avenue in Starwood Capital's new Miami Beach headquarters, shown, and will be used by the satellite radio operation, Pandora and Stitcher.

"Miami is a vibrant center for music, art, entertainment and sports and the SiriusXM studios will be a mecca for talent on promotional tours in the area. The studios and programming will celebrate the city's rich Hispanic and Latinx culture with exclusive live performances, broadcasts, podcasts and events," the company said.

The announcement was made by President/Chief Content Officer Scott Greenstein.

An opening date has not been announced.

Current facilities that support SiriusXM are its headquarters in Rockefeller Center in New York; studios and a performance space in West Hollywood; and studios and offices in Washington and Nashville.



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Photos by Paul Kaminski

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The author, a longtime RW contributor, has hosted more than 1,450 episodes of msrpk.com's "Radio-Road-Test" since its premiere in 1993. His Twitter handle is msrpk.com.

Above
Big infotainment screens have a place in the dashboards of today's new cars, including the compact luxury Lexus NX 350.

Big screens, no knobs: Where's my radio?

A test drive of this Lexus is a reminder of how the tuning experience is changing

Where's my radio? And what will it look like in the future? Radio is still available in the dashboard of new cars, but it can take more effort to find it these days.

I experienced this when I drove the 2022 Lexus NX 350 for episode No. 1450 of my automotive review program "Radio-Road-Test."

The NX 350 uses the company's new Lexus Interface infotainment system. Seeking radio, I found stations "hiding" behind big menu screens that I had to navigate first. Traditional tuning knobs and buttons are replaced by steering wheel controls, touchscreens and voice commands. Thanks to machine

learning, the infotainment system also can remember the user's music or content choices, whether a podcast, Percy Faith, Poco or Pittsburgh Pirate baseball.

I asked Corey Proffitt, head of communications for Toyota North America, about this trend away from dedicated controls.

"Customer feedback and input was a number one priority. Voice control offers a quick and safe solution," he said.

"If presets are programmed, you can easily make the frequency change via steering wheel buttons or by touchscreen."

He said this new system was the result of four years of testing and development. It combines over-the-air broadcast and satellite with web-

based metadata including station logos and art; the IP portions are delivered through a partnership with Gracenote, the data and technology company owned by Nielsen.

AM radio is part of the Lexus system and there are no plans to remove AM radio reception capability in Lexus vehicles, according to Proffitt.

Updates to the system can be made over the air via the on-board modem with subscription-based internet access, or through the customer's home Wi-Fi network, a dealer visit, or USB upload.

Pressing questions

When I test-drive cars that have next-generation infotainment systems, I find myself asking questions that

Connected Cars

I feel radio broadcasters need to answer soon, if not immediately:

Is radio programming sufficiently memorable to convince a listener to go through a multiple-step procedure to tag a station as a favorite? Will listeners make that effort?

How will listener behavior evolve as radio increasingly becomes just one of multiple options on main or sub menus? And as more streaming and hybrid radio options come into the car market?

What should radio managers and engineers know to help their organizations compete in this shifting environment?

Joe D'Angelo, Xperi's senior vice president, global radio and digital audio, was among panelists who discussed such these questions at this past spring's NAB Show.

He said broadcasters and programmers first must attend to "the little things" to make sure their programming is discoverable.

Analog-only stations, he said, should focus anew on the quality and consistency of their RDS data. He said RDS remain a powerful tool to connect with listeners in the 300 million or more cars that display it.

Stations using HD Radio, he continued, should take advantage of the technology's multicasting, Artist Experience and station logo features. Some 85 million cars can receive HD Radio now, he said.

D'Angelo also urged broadcasters to "make sure that you are prepared to distribute metadata that describes you to your audience and that makes it easy for them to find you. Not just on the station level but also on the program level."

Xperi hopes its DTS AutoStage platform will catch on as an advanced tool to help broadcasters compete in the dashboard against "Big Tech" offerings.

It is pitching it as a global hybrid radio solution, and it has partnerships with major broadcast names like ARD, Audacy, BBC,

Right
Here's the menu where users can select audio sources on the Lexus infotainment system. Radio (including FM and AM) appears as an option along with my Samsung phone, Apple Music and Amazon Music. The latter channels can be delivered by tethered data access from a smartphone, or by subscription-based internet access from the vehicle's on-board modem.

Below
After a search through the menus, Eureka! The radio screen on the Lexus infotainment system. Note that stations not sending metadata show up with a plain default radio icon.



Bauer, Beasley, Cox Media, Cumulus, FM World, Global Radio, NPO, radiko and Radio Maria. DTS AutoStage is part of the Daimler MBUX infotainment system used in vehicles like the Mercedes-Benz S-Class, and Xperi hopes more carmakers will adopt it soon. If that happens, it becomes even more important that stations populate their visual channels.

Bigger changes coming

Meanwhile, NAB's PILOT technology arm and its partners have been working to convince Google to integrate radio in its Android Automotive operating system for vehicles.

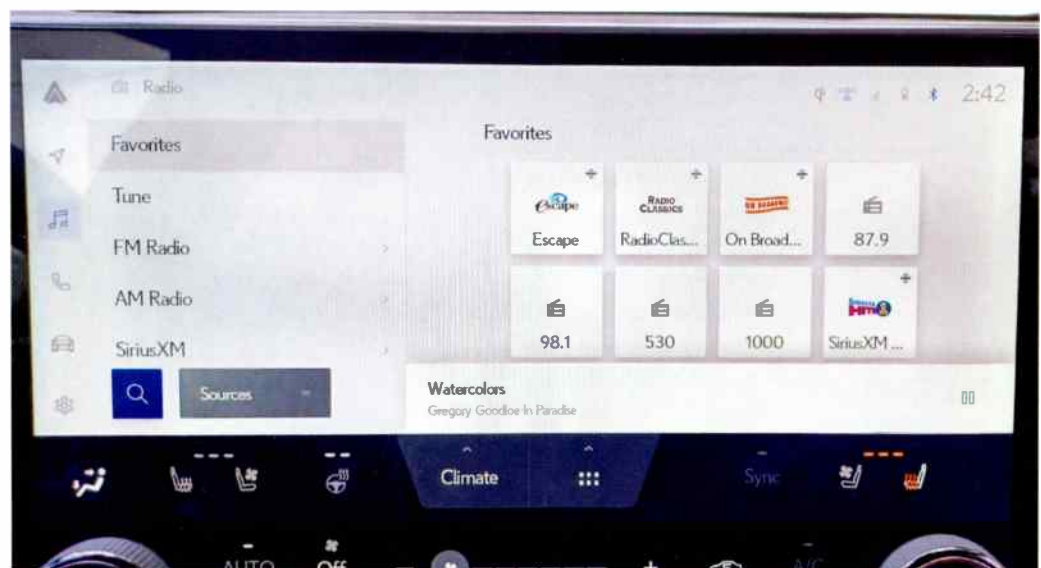
Android Automotive (not to be confused with Android Auto, which runs on a consumer's phone) is

an operating system and platform that runs directly on in-vehicle hardware, a "full-stack," open source, customizable platform to power infotainment applications.

The OS is expected to be available in about half of new cars within the next seven years; General Motors, Ford, Audi and Stellantis are among those with plans to integrate the platform. That means it will play an important role in how radio stations and content are accessed and perceived.

Executive Director John Clark says PILOT has presented Google with recommendations.

"This round of development work is finished," he said this summer. Xperi did much of the development work on the project; also involved are Beasley Media Group, iHeartMedia,





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Connected Cars



Left
SiriusXM display for a typical channel.

Middle
Here's how the Lexus infotainment system presents an FM HD Radio station.

Bottom
The HD-2 channel of 101.7 WLTB in Johnson City, N.Y., is programmed as 102.5 The Vault. WLTB uses this HD-2 to feed an FM translator on that frequency.

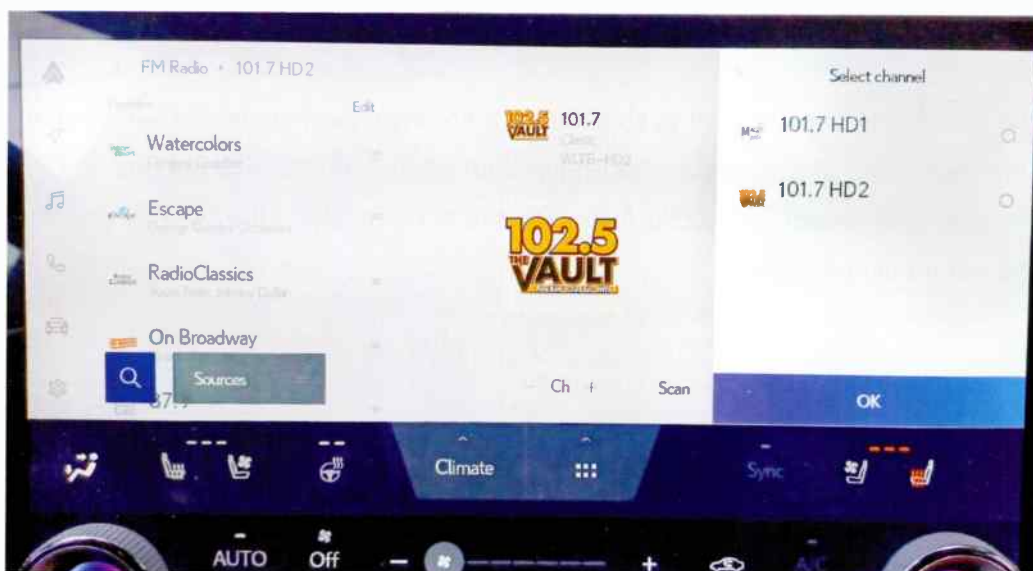
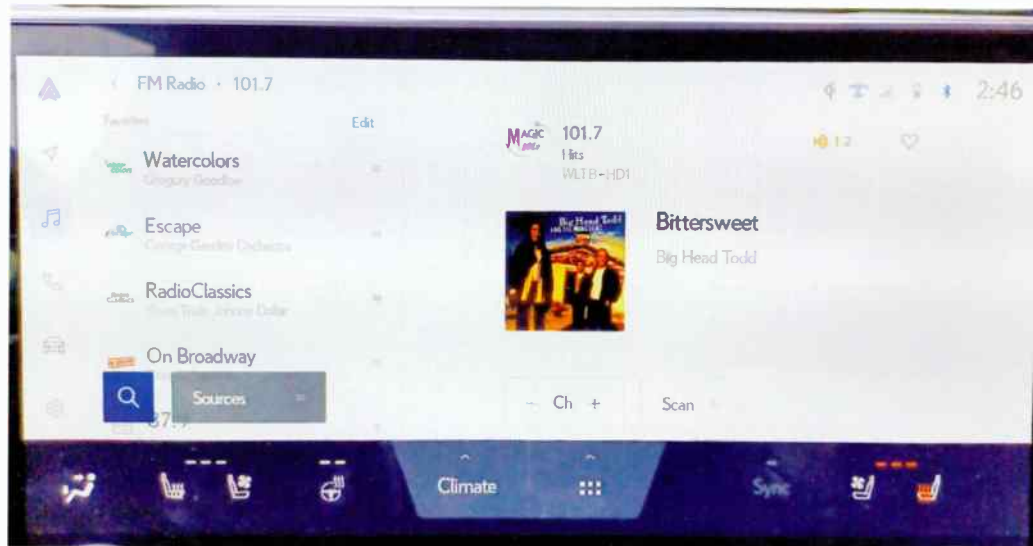
Audacy, Salem Media Group, NPR and BBC, and they took input from Ford and Audi.

"We've had additional conversations with the Android Automotive team, and they are looking at our work, our recommendations and the gaps we identified," Clark said. "There has been no confirmation regarding how they may or may not act on the recommendations, but it is under review."

Radio, I think, is still the king of the automotive dash; once you find it in a dashboard, you appreciate its intuition and appeal. But clearly, broadcasters cannot take their presence in cars for granted.

Managers and engineers need to pay attention to their visual presence and their metadata. They should adopt an active mindset about managing their product with the dashboard in mind. And they should track initiatives like those described above — to be aware of them, if not engage directly — to make sure their stations and their programs will still be discoverable by their listeners in the future.

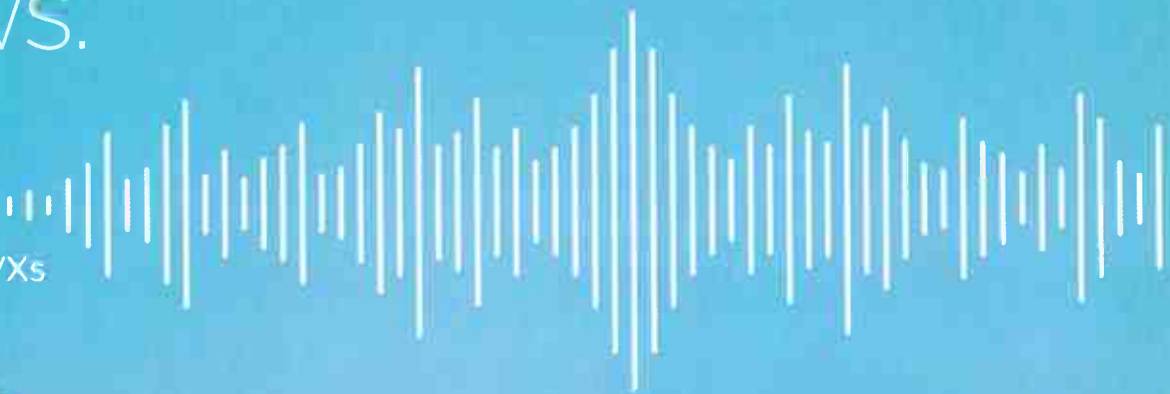
In future articles we'll continue to show how radio stations appear in various new-era infotainment systems. 🎧



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John Bisset

CPBE

The author has spent over 50 years in broadcasting and is in his 32nd year writing Workbench. He handles western U.S. radio sales for the Telos Alliance and is a past recipient of the SBE's Educator of the Year Award.



Tips Please

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

A simple way to add a third hand

This trick can save you from fumbling with hardware

Art Reis, K9XI and principal of Chicago's Radio Art Enterprises, offers a tip that, while simple, can save you a lot of aggravation.

The best part: You only need a pair of tweezers, a rubber band and maybe a tube of silicone sealant.

With the advent of 5G afflicting our C-Band satellite receivers, a lot of engineers have found themselves climbing ladders to get to their satellite LNBS, to add filters or change them out for new models with built-in 5G filters.

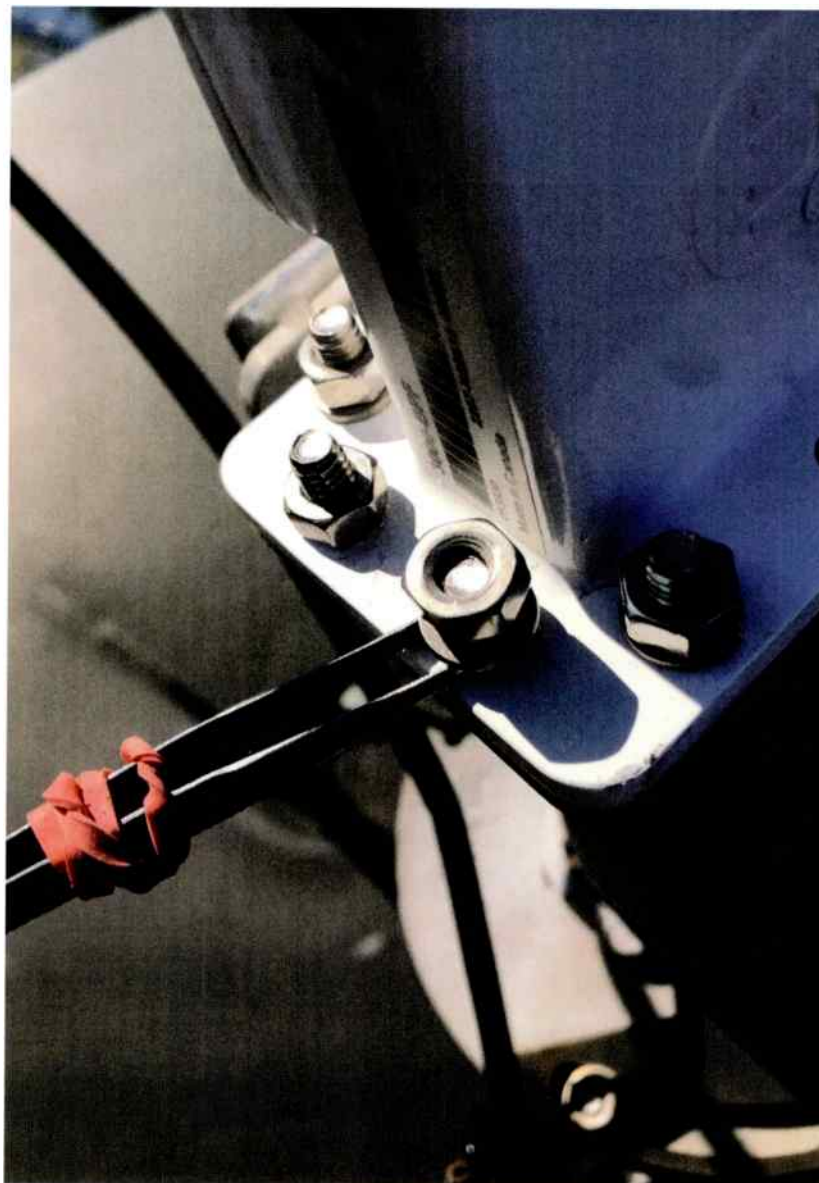
But it's a real pain to remove and replace the hardware attaching an LNB to a feed horn. The hardware has a bad habit of falling out and, more often than not, getting lost in the grass or weeds below the dish.

Years ago, a tower rigger taught me to install vertically mounted bolts with the nut on top. In other words, don't drop the bolt through the hole. Pass it up from the bottom. This way, if the nut came loose and fell off, the bolt would fall out, making it easier to see that a bolt is missing.

This is a great idea, except that juggling the device you are securing and holding that bolt until the nut gets started can be difficult. This is especially true for satellite dish LNBS. Here's where Art's tip comes in handy. (In Art's situation, the LNB was being changed out.)

Wrap the rubber band around the tweezers enough times to hold the tweezers closed. As you remove the nut, open up the tweezers and clamp them around the bolt below the lock washer before you remove the nut, as shown in the first image.

The tweezers prevent the bolt from falling out after the nut is removed from the LNB feed horn, as seen in the second image.



The rubber band provides enough force to hold the bolt in place but not deform the bolt threads as vise grips might.

This technique also lets you use two hands or a pair of needle-nose pliers to place the lock washer and nut back on the bolt before tightening.

Art cautions us to hand-tighten the hardware until all the mounting bolts are in place.

So what's the sealant for? The square rubber gasket between the LNB and the feed horn is held in place with a

Right
The tweezers are attached to the bolt as the nut is removed.

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Left

After the nut is removed, the tweezers hold the bolt in place effectively.

Above

The iLive AC Cube costs \$26 from Walmart, but it might be unwieldy.

Right

Bill Ruck keeps a supply of Jameco one-foot power cords in his vehicle.



11

little of the sealant, and that gasket must be used to ensure a water-tight connection.

Alternatively, if you have one of those little packets of silicone grease that come with coaxial RF connector kits, smear that grease around the groove in which the gasket is seated. Then add the gasket and the LNB to the feedhorn.

The idea is to not lose that gasket and also make sure it is seated properly as you mate the two surfaces.

If there is no gasket, or it gets lost or destroyed, a bead of sealant placed in the groove between the LNB and the feed horn will suffice, though it's not as attractive a solution because it may ooze out as you tighten the bolts. Still, the sealant will provide a waterproof seal.


Wart removal

San Francisco veteran broadcast engineer Bill Ruck writes that he too belongs to the "I Hate Wall-Warts Club."

In the Sept. 14 column, we suggested using a three-prong to two-prong AC adaptor to prevent wall-warts from occupying more than one AC outlet. Bill says that an AC Cube (search: iLive AC Cube at Walmart.com) is another possible solution;

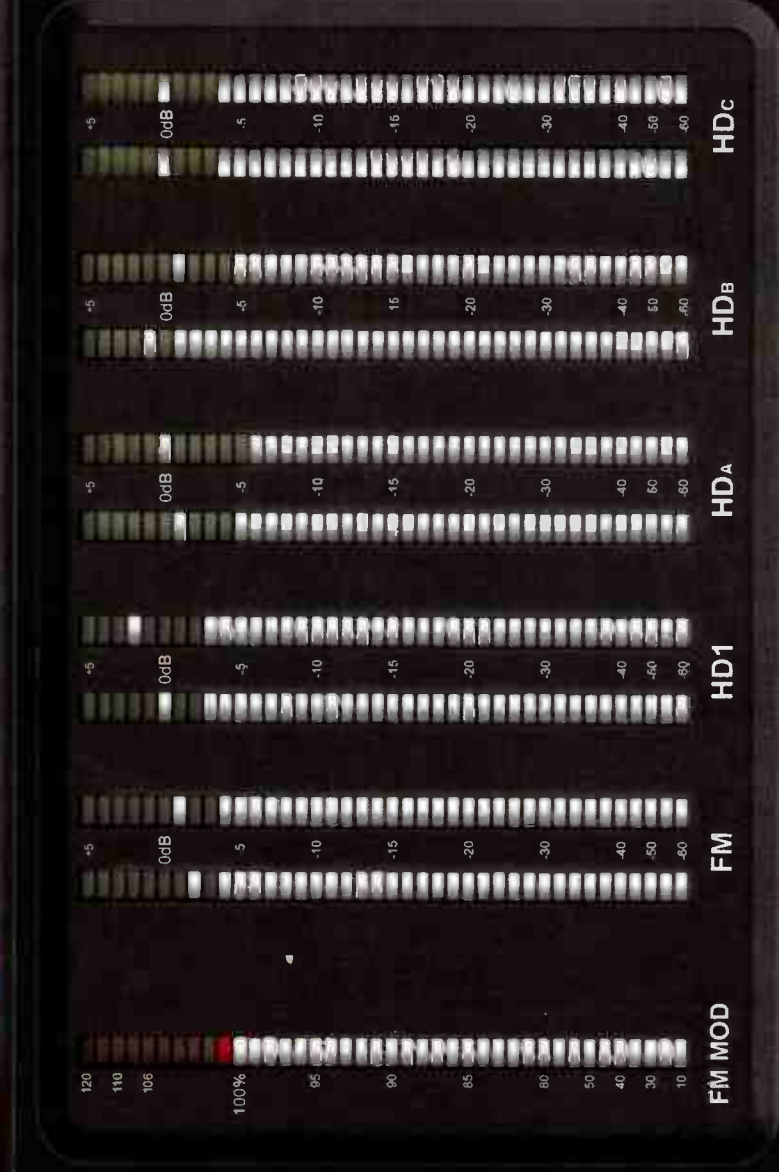
“The rubber band provides enough force to hold the bolt in place but not deform the bolt threads as vise grips might.”

however, both of these solutions are unwieldy. The wall-wart might fall or be knocked out of the adaptor socket.

Bill suggests the Jameco #2081801 as another alternative (www.jameco.com). This is a 1-foot extension cord that won't take up two AC receptacles on a power strip, and they cost less than \$3 each. Bill keeps several in his van, "just in case." 

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Volker Pape/EyeEm/Getty Images

Considerations for selecting a server

Daunted? Let the application requirements guide you

This is Part 5 in a series.

The engineer is surrounded by servers at the studio and at transmitter sites. Everywhere we turn there is yet another server requirement to fulfill essential workflow functions.

By classical definition, a server is a computer system that provides shared information technology resources to other computers, commonly known as clients. The name comes from the client-server model, in which computers receiving shared IT resources are considered clients, and the server provides the resources to them. Examples of IT resources include broadcast content data storage; control of content by automation servers; and shared general use applications such as email or web services.

Servers often are named for their function: file and print servers, email and web servers, database servers, proxy servers, remote control or monitoring servers and specialized application servers.

Or they might be identified by the hardware platform on which they are built. A server might consist of a standard desktop computer; but in most cases it is built on a platform that offers higher performance, more reliability and scale. Reliability is enhanced through redundant power supplies, efficient cooling and fault-tolerant storage to support 24x7 operation.

The application(s) to be executed on the server will determine the necessary

processing power, memory and storage capacity, input/output interfaces and operating system.

Or a server might be described by the form factor of its physical hardware. You may hear references to tower or desktop, rack-mount or blade servers. The tower or desktop server is often the least expensive. The cabinets typically are larger than those of modern compact desktop office computers, offering better cooling, memory, storage and power options.

Rack and blade servers are compact. The rack server may contain a single "bare-metal" server or multiple server "blades" in a single chassis. Each blade is a single server and results in a high-density modular package. Each blade executes an instance of the operating system.

Mixing blades, each with a different operating system, is common, whether Linux or Windows. The modularity of the platform offers configuration options, shared storage and often hot-swappable components.

Their compact, dense design requires ample cooling, which translates to high ambient noise; thus the server should be located in the station rack room or other equipment space.

Rack-mount and blade versions are common platforms for the broadcast station, as their form factor fits in a 19-inch EIA rack environment. I/O options allow the use of a shared KVM keyboard and monitor to minimize space for peripherals in a rack room.

Virtualization

The blade server is a common platform for implementing virtualization, which is gaining in popularity. The virtual





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Right
Can the
Raspberry Pi
be a server?

server is an abstraction that emulates a physical server. Each virtual server utilizes its own allocation of memory, CPU resource, storage, I/O capability and operating system instance.

A single high-performance platform is often less expensive than multiple physical servers. The initial purchase price is often more expensive; however, the cost of subsequent expansion can be considerably less once the tipping point is reached.

With virtualization, performance is enhanced thanks to more efficient use of CPU cycles, resulting in reduced overall power consumption. And you have one uniform interface to learn rather than multiple server management interfaces.

Different virtualization approaches exist, ranging from the hypervisor to containerization — topics to be discussed elsewhere.


Choosing

Selecting a server can be daunting due to the number of options and possible configurations. Keep the application requirements in mind with regard to CPU performance, memory capacity, storage capacity and configuration and I/O needs.

The choices begin with the physical platform. CPU performance is selected based upon processor clock speed and the number of CPU cores. Memory is chosen



based upon both capacity and speed, with options for error-correcting capability. Storage options range from Solid State Drive (SSD) to conventional spinning disks often configured in various Redundant Array of Independent Disk (RAID) levels to achieve performance and reliability. I/O options may include high-bandwidth copper or optical Ethernet interface(s).

And yes, a Raspberry Pi might even be used as a server. Of course its capability will be limited, but it may be adequate for the application. The Pi platform can be useful for the broadcast engineer, especially for creating customized monitoring applications in the broadcast station. 

Circling Back to the Ethernet Cable

The first article in this series regarding Ethernet cabling generated reader feedback worth mentioning.

Selecting the proper Ethernet cable for the application is important, as the article outlined. What I did not mention was the quality of the cable purchased. Cost is an important factor in any of our product selections, but quality must also be considered, as “you get what you pay for.”

The cable industry comprises numerous product suppliers. Competition is good for competitive pricing, but be sure you are making accurate comparisons, especially when low-cost “import” cabling is involved.


The industry also uses some terminology inconsistently. Enhanced cabling is designated by a lower-case “e” such as category 5e cable, whereas augmented cabling is designated by an upper-case A such as found in category 6A cable. In the marketplace you might find cabling labeled as “5E” or “6a.” This labeling difference may just be an oversight by the cable supplier or it might be an opportunity to

market a different cable, especially if the cable price is significantly less.

Only Category 5e and 6A are officially recognized TIA cable type nomenclature.

Another cable quality aspect to be aware of is the conductor material conductor. The name “twisted-pair copper” implies that the conductor is copper, but you might instead find copper-clad aluminum twisted-pair conductors. While the cable may work OK at time of installation, reliability problems are likely to follow as the copper-clad cable conductors often do not punch down properly or accept the crimp RJ-45 connector.

Ethernet cable won't be your most exciting purchase. But before buying next time, dig a little deeper into the specifications, especially if you see a significant variance in cost among suppliers. This is not the place to skimp cost. Ask: Why is this cable so much cheaper?

Special thanks to Ernie S. and Brett G. for calling attention to these important Ethernet cable quality factors. 



About This Series

This article is based on an excerpt from the Society of Broadcast Engineers CBNT/CBNE Study Topics webinar series, designed to assist those seeking SBE certification and to provide others a broad overview of IT as used in broadcast engineering. This webinar and many others are available to anyone for a modest fee, with members receiving a discounted rate and free to those with the SBE MemberPlus upgrade. Consider joining if you are not a member at sbe.org.

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BUYER'S GUIDE

Signal Monitoring, Remote Control, Test and EAS

About Buyer's Guide

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

Digital Alert Systems introduces a new DASDEC

We checked in with Bill Robertson on trends in EAS

Digital Alert Systems makes Common Alerting Protocol and Emergency Alert Systems for radio and television broadcasters.

It provides R&D, manufacturing, sales and customer service for Digital Alert Systems and Monroe Electronics One-Net brands.

The company recently introduced the third generation of its DASDEC emergency messaging platform with Version 5 software. Bill Robertson is vice president of business development.

RW What do you consider the most important trend or change in the world of EAS right now?

Bill Robertson: With the recent NPRM from the FCC, there are more policy changes afoot. This also ties in with product changes to meet the new requirements. For us, we've always focused on continued product improvements. The introduction of our DASDEC-III model is the third complete generational change to our product line and represents the current state of the art.

RW The FCC has been pushing to improve EAS and WEA public alerting through various initiatives and rule changes. How have those changes affected you as a manufacturer?

Robertson: EAS is approaching 25 years of use, having started in 1998, and in that time, we've seen a lot of changes that modify parameters of operations along with adding and subtracting various event codes. However, the basic operation — and limitations — remain the same.

The challenges have been complicated. The CAP monitoring mandate added in 2012 created the biggest set of changes and challenges as it required equipment to be connected to the internet, and with that, the world of cybersecurity became fundamental operations.

Some have been able to manage the proper controls and processes, while others remain blind or irresponsible in managing their networks and equipment. The FCC has tried to stress this with limited success, and we continue to work diligently on security related matters.

However, the real responsibility exists with the end users. The downside for us is twofold: First, loss of confidence in the overall system when end users fail to do even the simplest of tasks, such as placing the equipment behind a firewall. And second, the development time focused on security rather than product improvements.

RW Beyond changing passwords and staying current with software versions, is there anything broadcasters need to do or know?

Robertson: Broadcasters should absolutely stay current with software



Bill Robertson

versions on all essential systems, and that includes EAS equipment. Software updates may contain security patches, as well as regulatory-driven updates. We continue to invest in security improvements and have folded a range of security updates into our latest software versions.

But, even more broadly, broadcasters should create a plan to secure their IT networks, including protecting data as it travels across the network and to each endpoint. While both we and the government have been reminding broadcasters of the need to use strong firewall protection, it might be appropriate to suggest that broadcasters use next-gen firewalls, which extend the capabilities of traditional firewalls and are capable of advanced network security functions such as intrusion detection and prevention, content filtering to quarantine malware, URL and filtering, and restricting which ports may be accessed across the network.

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Buyer's Guide

At some level, cybersecurity is a community task. We are all only as strong as our weakest link. That is true of networks. And that is true of the overall system. If any broadcaster is aware of an operation that is not doing its part, such as exposing key systems to the open internet, it would be a service to the overall broadcast community to remind that operation of the risks of operating in such a manner.

RW Are there recently added features in your line that readers should know about?

Robertson: We launched our third-generation DASDEC-III. This EAS/CAP encoder/decoder incorporates many new features and improvements. Most notable is the adoption of the StudioHub wiring standard using RJ-45 connections for analog program audio. This wiring standard is carried over to the new optional AES switching module and for the fourth monitoring input on some versions.



This makes the DASDEC-III even more customizable for any user, from the smallest low-power operator to the largest full-power stations. When combined with our EAS-Net and MultiStation options, it's able to interface directly with top automation systems and centralcasting operations.

We've also been busy introducing a range of capabilities that should be useful to radio broadcasters, whether single stations or large groups.

For example, we introduced our HALO system to answer the need for a highly specialized management

system capable of overseeing all EAS encoder/decoders across an operation, providing an enterprise-wide command of all the EAS devices in a connected organization. We are tackling the virtualization challenge with systems such as our Collector, which can be hosted on a local server or in the cloud and creates a virtual hub receiving and decoding off-air signals from DASDECs in the field, eliminating complex radio streaming configurations. And, speaking of streaming, we have expanded our support for streaming and OTT applications for audio and video. **3**

Above
A promotional image for the DASDEC-III line and Version 5 software.

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Tech Update

BDI Has Solutions for RF Site Management

The Broadcast Devices DPS-100D Series RF Power Monitor is a compact solution for power measurement, VSWR protection, temperature and pressure monitoring for RF sites including transmitter monitoring and combined system monitor/protection.

Its meters are compatible with all digital broadcast formats, analog FM broadcast and now AM analog and digital formats. It can be ordered in N, DIN and EIA flange sizes from 7/8-inch to 9-inch.

The DPS-100D interfaces to modern SNMP-capable remote controls or any SNMP-compatible remote control. BDI cites accuracy of +/- 5% maximum error at all power levels within a 40 dB dynamic range.

Available accessories include a rack-mounted 1 RU display, temperature sensor and transmission line sensor.

DPS-100D meters interface to BDI's SWP-200 RF switch controllers and SWP-300

remote control products. The company says that integrating power measurement, RF switch control and other control features can save thousands of dollars in a site upgrade.

For basic switch control, the SWP-200 series is available. For RF switch control and remote control, the SWP-300 series have an integrated one- or two-switch RF controller and remote control including 16 control outputs, eight status inputs and four analog inputs. For more control/status and metering, the IOX-24 expansion panel provides direct connection to SWP series controllers.

SWP series controllers are SNMP agents. They can be used as standalone RF switch controllers/remote controls or as part of a larger network of remote control supplied by third parties.

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



AES Switching Made Easy



AES Switcher Sentinel® 4 XLR

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

well as SNMP. The unit monitors its AES output signal for AES errors, audio silence and stereo out-of-phase conditions. When AES errors, silence or out-of-phase audio is detected the unit can be configured to automatically switch to a different input, sends alarm messages and SNMP traps.

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Tech Update

Broadcast Tools WVRC-4 Plus

The Broadcast Tools WVRC-4 Plus has a POTS telephone interface as well as a web interface.

"As more and more broadcast systems migrate to network or cloud-based solutions it's important to remember that internet outages happen," the company states. "Having an alternate means of control is important, especially at the transmitter site."

The telephone interface allows the user to get readings and control relays using simple DTMF touch-tone commands.

The WVRC includes an "Internet Down" alarm that can be configured to ping an IP or DNS address, and if connectivity is lost the WVRC can automatically call up to eight phone numbers with a pre-recorded alarm message.

Its HTML-based web browser interface provides real-time status of the inputs and outputs as well as alarm logging, email, email-to-SMS text message alarm notification, and SNMP.

Other features include a 100-event scheduler that allows contact closures to be scheduled by day/month/time. Automatic actions can be configured using the event action sequencer or programmable macros.

The WVRC-4 Plus has eight relay outputs (four raise, four lower), four analog metering inputs (0 to +10 VDC), four optically isolated status (logic) inputs, a silence sensor, a power fail input and an external temperature probe. A surge-protected universal switching desktop power supply with an IEC AC inlet is included. Up to two units may be mounted on the optional Broadcast Tools RA-1, a rack shelf that occupies one rack space.

For more than four channels, the company offers the eight-channel WVRC-8 Plus remote control.



Info: www.broadcasttools.com

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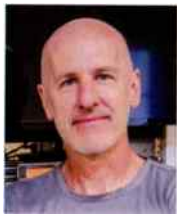


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Writer



Herb Ayer
Assistant
Chief Engineer,
WABI(TV)

Bangor broadcaster relies on Burk

Gray Television station has two ARC Plus Touch systems

We are WABI(TV) in Bangor, Maine, part of Gray Television Group. We run three television transmitters, one full-power and two low-power, all with the same programming.

We have two Burk ARC Plus Touch systems. One includes three Plus-X 600s, one Plus-X EM64 and one Plus-X AC-8. The other has a Plus-X 600, a Plus-X EM32 and a Plus-X AC-8.

We also use phone modems in four-wire mode on our STL/TSL analog audio subcarrier trays as a backup for communication if our network link goes down.

We use them to monitor our transmitters located at two different sites. We also use the systems to monitor ambient temperatures and electrical power (including generators), and for security.

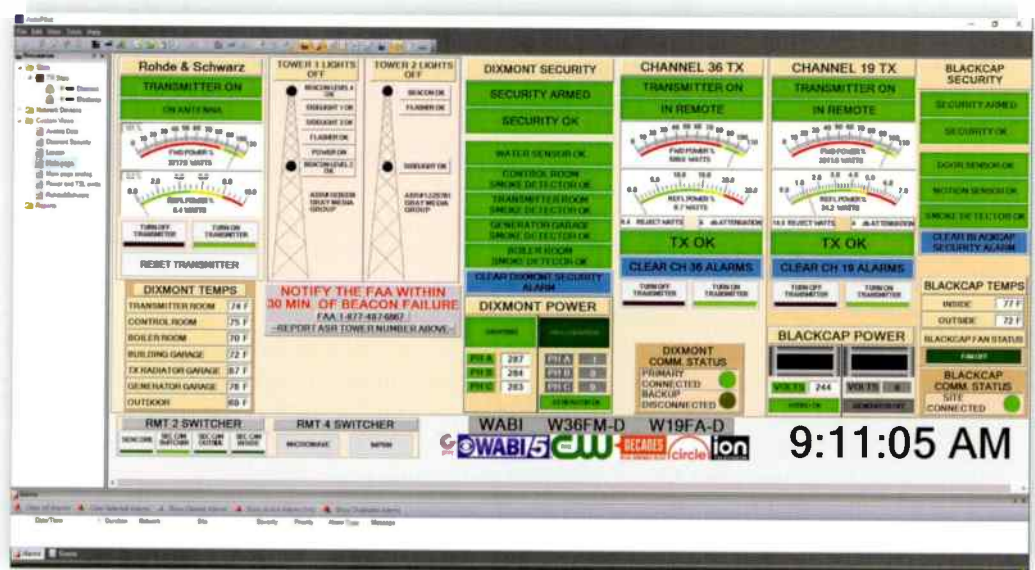
I have found the programmability of the system to be flexible, allowing

the raw data from the sensors to be used in many ways.

The use of virtual channels and macros gives me the ability to look at multiple sensors to automate complex decisions. The ability to use SNMP as part of the return data and control is very good. The integration of multiple sites within the same program is useful as well.

monitoring computer is offline and not running AutoPilot, is a good data protection benefit.

I automatically print daily logs for forward power and tower light status, but I can go in and ask the system to print data for any inputs/commands/alarms on any day since the system has been online. This is helpful when we have an intermittent problem and



Right
WABI's
customized
main page.



More Info
www.burk.com

Another nice feature is the email/text of any alarm, whether critical or warning level, triggerable for every channel, virtual channel, or through the use of a macro. The logging of all inputs/commands/alarms within the system, even when the local

want to see if there is a pattern, or if someone changed a value.

AutoPilot is user-friendly and straightforward to program. I can design multiple pages that cleanly and clearly display the information I want to convey to our master control operators. The ability to have it on multiple computers without having to buy additional licenses is a big plus. If I have a problem on one computer, I can just fire it up on another computer in order to maintain monitoring of our sites.

As far as customer service, it is very good. They are either immediately available over the phone or will get back to me promptly. 🍷



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World Radio History

Tech Update

DAC Monitoring With RFHawkeye

RFHawkeye from Swiss company DAC System provides real-time monitoring of antenna feeder systems.

It is based on a real-time TDR-like engine and can detect and locate local changes in VSWR or return loss with a sensitivity that DAC says surpasses overall system VSWR detectors. It can also identify when and where a potentially catastrophic arc has occurred.



"RFH can monitor the detailed behavior of the system, identifying each single connector or elbow in the line, and identifying changes as low as 1.004:1, much earlier than would be visible in the overall VSWR," it states.

The company says catastrophic arcing often occurs as a result of deterioration of other components, which will show up as a degradation in VSWR/RL, providing useful warning. Thresholds can be set to generate alarms if those parameters vary beyond acceptable limits; the operator can then determine the best course of action.

Info: www.dacsystem.ch

Tech Update

Davicom Helps You Weather the Weather



Davicom lightning awareness products improve a site's robustness during active weather events.

When used with Davicom's Cortex products, the DVLD-1 Lightning Detector storm warning alarm, left, can be used to automatically prepare a site against potentially destructive lightning strikes by, for example, starting the generator, waiting for it to stabilize and then disconnecting from utility power while the storm passes.

"Smoother site operation is therefore ensured by avoiding chaotic switchovers during a lightning-induced power failure," the company states. "Important communications links can also be protected by temporarily disconnecting them during passage of the storm."

Meanwhile, the DVLC-1 Lightning Strike Counter, right, will safely signal a Cortex unit whenever the tower is hit by lightning.

"This functionality gives you better situational awareness of the reasons why your site may have stopped transmitting, or even better, that the site is still on the air despite receiving a hit."

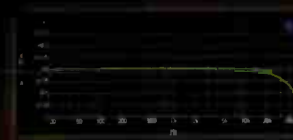
Cortex units also can count and log the strikes.

Info: <http://davicom.com>

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World Radio History

GS Broadcast embraces the new Inovonics 551/552

Applications include a synchronous repeater system in Toronto

Based in Ontario, Canada, G.S. Broadcast Technical Services has constructed many studio and transmitter facilities for FM, AM and television broadcasters over the years. It also offers a variety of maintenance services.

Richard Sondermeyer, president and project manager of the company, has already installed a number of the new Inovonics 551 and 552 HD Modulation monitors at radio stations in Toronto and Vancouver. In fact he got Serial No. 2 of the 551.

One of his newest projects is a synchronous FM and HD Radio project in Toronto, where the client is installing a number of synchronous repeaters to improve reception within their coverage area.

He reported that during the setup process, having the 552 monitors at each site was key to helping the team identify synchronization and network issues that were occurring at a particular site and also provided the information required to let them know when the issues were resolved.

"When speaking about the new boxes," Inovonics reports, "Richard commented that previous technologies did not have this detailed level of metering and access to historical information. He identified the audio history



plots as being particularly helpful when monitoring and diagnosing issues."

Sondermeyer described the quality of the remote interface as a significant improvement from older boxes and said the tool was a real boon for producing a seamless synchronous experience.

(Inovonics added a postscript: "One of our other customers recently commented, 'The 551 is the most fun piece of hardware I've ever used.'")

Right
Richard
Sondermeyer



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

Tech Update

WorldCast's Audemat FM Probe

WorldCast Systems has enhanced its QoS monitoring portfolio with the release of the Audemat FM Probe, a solution that enables accurate monitoring, measurement and analysis of the FM signal.

"Users can perform remote monitoring of a set list of channels as well as verify the conformity of their FM network with both

legislation and their broadcasting needs," the company stated.

"Its 1U frame can monitor up to eight programs continuously and 50 programs sequentially. For the first time in an Audemat monitoring product for FM, the Audemat FM Probe embeds Kantar watermarking technology to decode and monitor the INK code of any station."

Other functions include deep signal analysis, including spectrums (RF, MPX, audio), full RDS decoding, alarm notification by email, SNMP traps and Syslog, telemetry board, as well as recording and scan monitoring.

The audio recording and streaming feature allows broadcasters to hear a sound rendering of their program in real time.

The product is compatible with SNMP Network Management Systems like Kybio and enhanced with ScriptEasy technology. The company says this two-in-one solution enables advanced telemetry, facility management and web page customization for simple aggregation and display of relevant data.

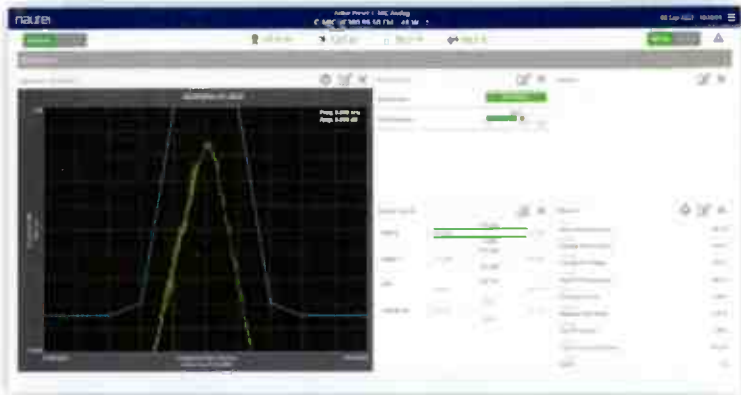


Info: www.worldcastsystems.com/en

Tech Update

Nautel to Bring Monitoring/Control to Any Device's Browser With New Version of AUI

The new HTML5 Advanced User Interface from Nautel retains the rich graphics of its monitoring and control system but extends it in ways that Nautel says were not possible with the original design 13 years ago.



"Accessed via a LAN connection or remotely over the internet via any device's modern browser, the AUI enables fast diagnosis of transmission issues to provide critical information and tools for immediate response," the company states.

Nautel highlights the security and convenience of HTML5 as the platform. The AUI design has been redone from scratch, "replacing everything from the operating system to the user interface."

The new version will be a free retrofit for existing AUI-enabled transmitters. Nautel said the rollout will be done in phases after beta testing; deployments are expected to begin before the end of the year for the legacy VS Series and new VX Series. There are approximately 11,000 AUI-enabled transmitters in the field that range up to 2 MW in power.

Features that carry over from the original AUI include commercial-grade instrumentation such as RF and audio spectrum analyzers, Lissajous and more; user-defined presets with automatic scheduler; and RDS, SNMP and Presets normally seen only in high-power transmitters.

Also included are control of optional Orban Inside audio processing; and Nautel PhoneHome, which allows transmitters to report problems to Nautel automatically for fast resolution.

Info: <https://nautel.com>

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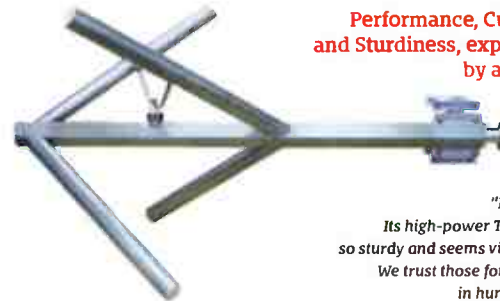
AES DA 2x6 XLR AES Distribution Amplifier

The AES DA 2x6, six XLR output, two-input AES/EBU distribution amplifier is ideal for distributing AES/EBU signals or word clock at sample rates of up to 96kHz.

The system's two selectable transformer isolated inputs use a standard XLR audio jack for balanced AES/EBU signals and a RCA jack for S/PDIF signals. The selected input is distributed to six transformer isolated AES/EBU XLR output jacks. Internal AES activity detector provides a LED indicator and SPDT alarm relay.



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GIORGIO V. W. / AFP via Getty Images

Writer

Ron Schacht

The author has been in radio engineering since 1963.

Over-technologied and under-prepared

FEMA believes in radio. Is your station doing its part?

I was reading one of these fear-mongering articles about the entire U.S. power grid failing and how all electricity will go off forever. Whether it will be caused by overloads, forest fires, weather events or a solar flare, the soothsayers say it will happen.

Not being knowledgeable about how the entire grid works, I guess they might actually be correct.

Reading articles on this subject, my big takeaway is: Are you prepared?

The Federal Emergency Management Agency recommends that people stockpile supplies: food, water, medicines, flashlights, candles, batteries and a battery- or crank-driven radio. Hmmm, you know, that's a great idea. While television may stay on the air, very few people have battery-operated sets. There are fewer who don't rely on cable or satellite, both of which will fail in a large power outage.

We also know about the reliability of the internet and cell phones. Whether it's fiber, copper or wireless, there

are way too many repeaters, amplifiers or nodes that can fail without power. A cell site might have a generator, but the interconnections probably don't; again, it's out for the duration. Plus, how do you charge a phone when there is no power? Most land-line phones now are fiber or VoIP; without the termination in the home being powered, they too are down.

This leaves us with good old radio, AM or FM. That's why FEMA continues to suggest that Americans keep radios in their emergency kits.

But how many stations are prepared to be the only link between emergency services and the population in a crisis? From what I see, not too many.

Let's assume a massive power failure, a tornado, a flood or other natural disaster. (I wrote this before Hurricanes Fiona and Ian, by the way.) How many stations have replaced their reliable, owned STL equipment with IP equipment? Here you are, the one form of communications that can serve the public

Above
Workers and residents clear debris from a destroyed bar on San Carlos Island in Fort Myers after Hurricane Ian hit Florida. It was one of the most powerful storms ever to hit the United States.



How to submit

Radio World welcomes comment on all relevant topics. Email radioworld@futurenet.com with "Letter to the Editor" in the subject field.

— and your lifeline to the transmitter is owned by something or someone over which you have no control.

Don't tell me your internet stream will be up. It won't; and no one will have a working computer or cell phone to listen. Your transmitter is the most important item.

Do you have AC generators at your studio AND transmitter sites? Are they in working order? I wager that no more than half of the stations I've visited in the past year have generators that would start and run reliably. Dead batteries, old fuel, no fuel, mice-chewed wiring, broken fan belts, no coolant — you name it, I've seen it.

If you don't have a generator at the studio or a backup link to the transmitter, is there a studio at the transmitter site where people can go to maintain service? If you use IP links to the transmitter, maybe you should dust off your old Marti gear and set it up as a backup. Of course you also need some kind of automatic switch at the transmitter site because if the IP is down, the remote control is probably down, and audio into the transmitter is going to have to be switched by automatic means or a trip out to the site.

There are other points in your chain that can be "hardened" but the big failure points are loss of power and loss of connection to the transmitter.

Even though technology is nice, simple is better. An analog radio link with one transmitter and one receiver might produce noise of -60 instead of -120; the distortion might be a half a percent higher; but you'll be on the air and maybe the only connection the population has with anyone else.

Don't wait

Years ago I worked in an urban market that was hit by a major hurricane. The entire metro flooded when the river overflowed. Every station but one was down. The AM sites along the river were submerged. Most stations used telco lines to the transmitter, but telephone exchanges were underwater.

The station that remained on the air was an FM standalone. Its studio was at a higher elevation and had a generator. The transmitter was on a mountaintop and also had a generator; and they used a composite radio STL.

Emergency Kit

In 2020 the FEMA published a list of supplies that would help a person survive for several days. FEMA recommends assembling these in airtight plastic bags and putting them in portable containers such as plastic bins or a duffel bag.

The list includes a gallon of water per person per day; three days' worth of non-perishable food; a battery- or crank-powered radio and a NOAA Weather Radio with tone alert; flashlight; extra batteries; first aid kit; whistle (to signal for help); dust mask; plastic sheeting and duct tape; moist towelettes; garbage bags with plastic ties (for personal sanitation); manual can opener; local maps; and cell phone with chargers and backup battery.

Additional items might include cloth face coverings; soap, hand sanitizer and disinfecting wipes; prescription medications, pain relievers, anti-diarrhea medication, antacids and laxatives; prescription eyeglasses and contact lens solution; infant formula and supplies including diapers; pet food including extra water; and cash or traveler's checks.

Also: Important family documents; a sleeping bag or warm blanket for each person; change of clothing; fire extinguisher; matches in a waterproof container; feminine supplies and personal hygiene items; and mess kits, paper cups, plates, paper towels and plastic utensils.

Find more at www.fema.gov.

In this instance, emergency management had to evacuate their own office because it was underwater (as was the EAS primary). They moved to a school building at a higher location. The Army Corps of Engineers then ran a single twisted pair from the school through the streets to the studio of the FM station that was on the air. They put a set of magneto telephones on the line, and I tied the studio end into the station's hybrid. The quality was lousy. But it was the only way of disseminating information for almost a month until other stations and the phone company got running.

In a book published later, there was a chapter titled "Radio, the Hero of the Hour." It made me feel really good to know I had something to do with it.

IP links are an excellent means of STL. But if you want to make sure you are on the air during a disaster, don't put your reliance on a third party like a cellular provider, cable TV provider or ISP. You are simply another customer; and when your link goes down, it will be repaired "sometime."

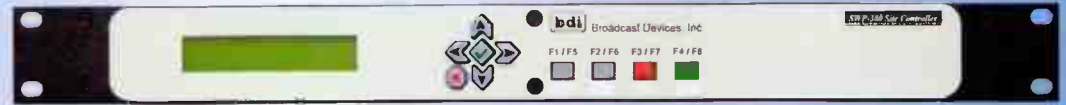
Now is the time to ask what you need to do to make your station deserving of the credit FEMA gives you when it urges Americans to keep a working radio in their emergency kits. 📻

“Dead batteries, old fuel, no fuel, mice-chewed wiring, broken fan belts, no coolant — you name it, I have seen it.”

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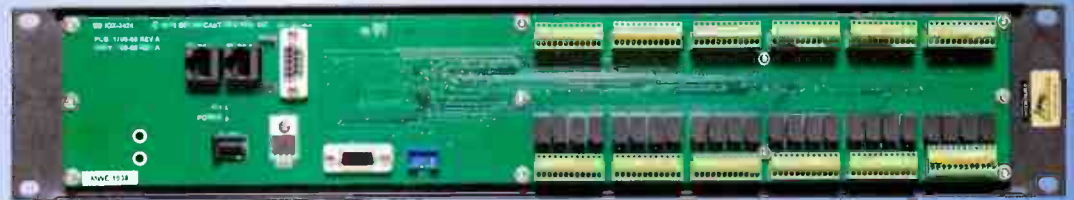
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