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Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by Future US, Inc., 11 West 42nd Street, 15th Floor, New York, NY 10036-8002. Phone: (703) 852-4600, Fax: (703) 852-4583. Periodicals postage rates are paid at New York, NY and additional mailing offices. POSTMASTER: Send address changes to Radio World, PO Box 1051, Lowell, MA 01853.

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Future plc is a public company quoted on the London Stock Exchange (symbol: FUTR)
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High stakes for radio

Will the history of RDS repeat itself?

Paul McLane
Editor in chief

"Just as the introduction of digital radio improved usage of RDS, the introduction of hybrid radio will lead to better usage by broadcasters of digital radio in general, and metadata in particular."

That's the opinion of David Layer, the vice president of advanced engineering at the National Association of Broadcasters.

Writing in Radio World's ebook "Trends in Digital Radio 2021," Layer says the technologies of hybrid radio and its cousin, audio streaming to computers, smartphones and tablets, are poised to bring new features and functionality to radio, just as digital radio did back in the 2000s.

"Interactivity, non-linear (on-demand) content and rich metadata are going to be what consumers will learn to expect."

He thinks newer products and services developed to support hybrid radio will support digital radio as well, and that broadcasters will take advantage of this dual capability.

"As has happened before, consumer expectations will once again be raised (this time by hybrid radio) and as broadcasters respond they will again, or maybe for the first time, recognize the value digital radio can bring to their services."

Layer believes the stakes are higher than ever for radio broadcasters, as the proliferation of mobile broadband has increased consumer choice in audio services.

"It's important for all broadcasters to embrace the use of metadata so that as consumers scan the terrestrial radio dial, what they see is as useful and compelling as when they scan their favorite streaming audio service or satellite radio," he concluded.

"Today that is not the case; but if history repeats itself, the introduction of hybrid radio will result not just in support by broadcasters for hybrid services, but better support for digital radio, too."

Our ebook provides other opinions about the state of global digital radio from thought leaders at organizations like WorldDAB, Digital Radio Mondiale, RadioDNS, Commercial Radio Australia, the European Broadcasting Union, the Asia-Pacific Broadcasting Union, Audi, Xperi, 2wcom, Digital Radio UK and Nautel.

Read it for free at *radioworld.com/ebooks*.

On the Cover: Hubbard Radio has new studios in Cincinnati (read more in the Buyer's Guide section). Shown at WUBE(FM) B105 are, from left, Drew Kirkman of Hubbard, Adam Van Conant of RadioDNA, and Brett Patram, John Spaulding, Olivia Dennis and Jesse Tack of Hubbard. RadioDNA was the integrator and provided the photograph.

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NAB and Others Sue FCC Over Foreign ID

Several U.S. media organizations brought suit against the FCC for requiring disclosures of programming sponsored by foreign governments.

The National Association of Broadcasters, the Multicultural Media, Telecom and Internet Council and the National Association of Black Owned Broadcasters challenged the order at the U.S. Court of Appeals for the District of Columbia Circuit.

The FCC unanimously enacted the rule in April. When a broadcaster leases time, it now needs to ask the "lessee" if they or their programming are from a foreign governmental entity.

"If the answer is yes, a sponsorship identification will need to be placed on air and documented in the station's public file," Acting Chairwoman Jessica Rosenworcel explained in April. "If the answer is no, a broadcaster will need to independently verify the lessee using the Foreign Agent Registration Act website from the Department of Justice and the FCC's semi-annual foreign media outlet reports."

The FCC believes that foreign governmental entities are increasingly purchasing time on domestic broadcast stations. But the media organizations call the rule a "misguided attempt" and said the FCC action "exceeds its statutory authority, is arbitrary and capricious and violates the First Amendment."

They said broadcasters strongly oppose foreign interference in U.S. elections "but the commission's order fails to even address this core objective."

Remembering Mike Palmer

Michael Palmer, founder of Arrakis Systems Inc., died in August. He was 69.

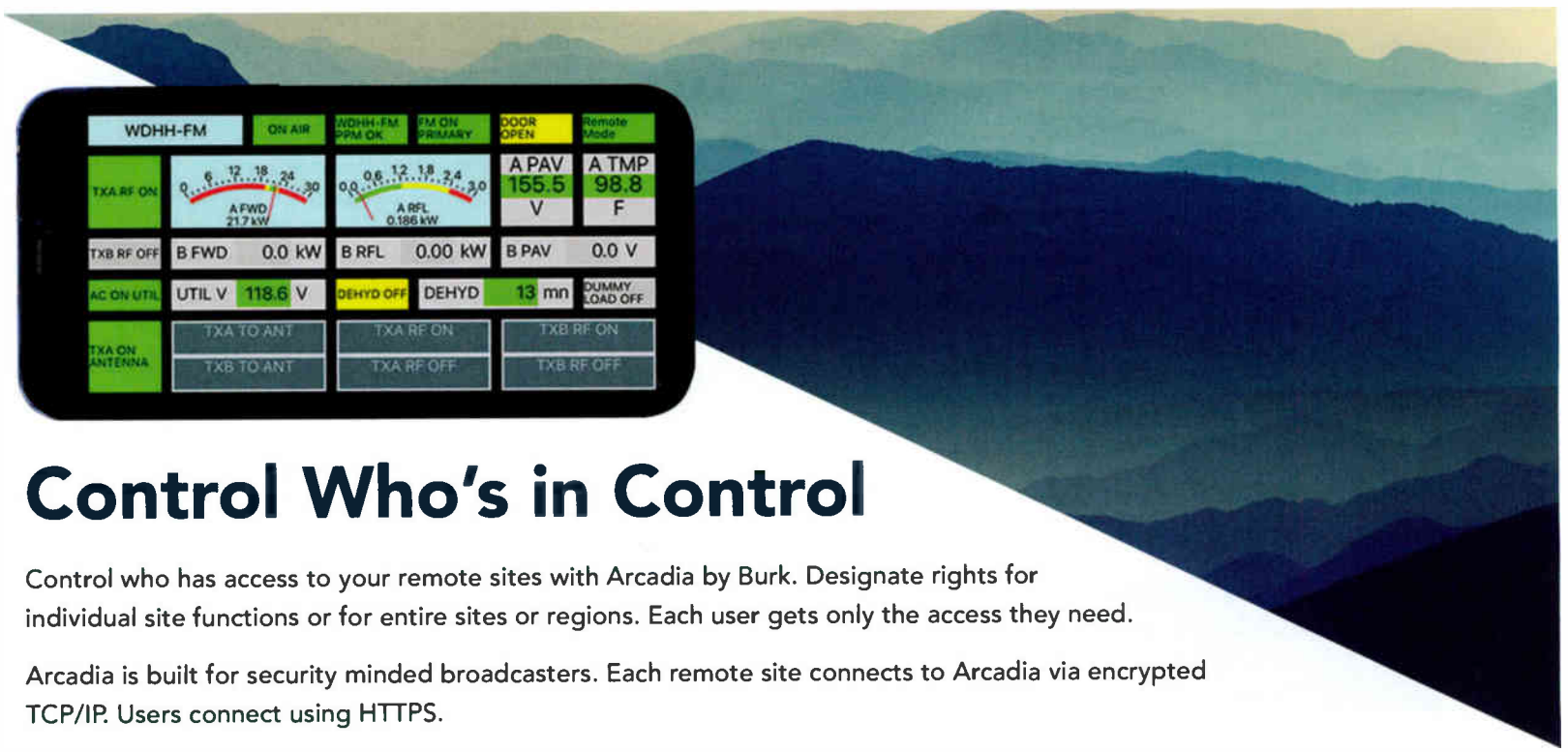
He suffered congestive heart failure while preparing for scuba diving with his wife Gloria in Hawaii.

Palmer met his future wife while teaching electronics classes in San Francisco. The idea to manufacture products came in the mid-1970s when Gloria, by then a radio chief engineer, told Palmer he could design a better console than what was on the market. The first Arrakis product was the 1,000 series radio console.

The couple had three children, all of whom now work at the company, as well as five grandchildren.

A longtime colleague and dealer was Tim Schwieger, president/CEO of BSW. "Mike and Gloria began their company with the aspiration of building products that represented a good value for all radio markets, especially the smaller stations on a tight budget," Schwieger said. "To this day they continue to live up to their core values."

He described Palmer as a "standup guy."



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Writer

James Careless

The author wrote about "Saving on Power in Little Current" in the June 23 issue. See it at *radioworld.com/digital-editions*.

Above
Shortwave portables in the collection of Gilles Letourneau include, from left, Tecsun PL-990x, Eton Grundig Edition Traveller III (front), Radiowow R-108, Tecsun PL-680 and PL-330, XHDATA D808, C. Crane CC Skywave SSB, Eton Grundig Executive SSB and Tecsun PL-380.

Shortwave radios keep up with technological change

There's still lots to listen to, and new ways to do it

Surprise! Shortwave radio as a broadcast medium is holding its own, despite the intrusion of the internet, transmission cutbacks by major broadcasters such as the BBC World Service and Voice of America and abandonment of the SW bands by other state-owned broadcasters.

Meanwhile, the ways in which people listen to SW radio transmissions are evolving, because SW receiver manufacturers are keeping up with the technological times.

Stayin' alive

There is no doubt that the variety of stations on the shortwave bands has declined, due to the end of the Cold War — the propaganda war of which drove the medium in the 1950s and 1960s — and the emergence of the internet.

Nevertheless, "Even with many stations that are long gone, there is still quite a lot to listen to on the SW radio bands," said Gilles Letourneau, host of the OfficialSWLchannel on YouTube (25,600 subscribers) and editor of the CIDX Messenger magazine column "World of Utilities."

"You have stations like Radio Romania, Voice of Turkey, Radio Prague, Radio Slovakia and Radio Tirana in Albania, while WRMI has popular listener-created programs like 'Voice of the Report of the Week,'" he said.

"The big broadcasters are there as well but they don't target North America anymore. Still, I get my share of BBC World Service, Radio France International, Voice of America and Vatican Radio, mostly targeting Africa, Middle East and Asia but still listenable here at certain times of day."

"There's still a lot to listen to," said Jeff White, WRMI's general manager and chairman of the High Frequency Coordination Conference.

Most of the stations that have left shortwave, he said, are government-owned or -operated services like Radio Canada International, Channel Africa, Radio Portugal, the Voice of Russia and Radio Australia. But others remain on the air with reduced services, languages or target areas including the VOA, Radio Deutsche Welle (Voice of Germany), Radio France International, Radio Exterior de España and All India Radio.

"Others are operating at near-normal levels, such as Radio Japan, Radio Korea, Radio Romania International, Radio Havana Cuba, the Voice of Turkey, Radio Taiwan

World Radio History

International and many more," White continued.

"Some stations don't use shortwave transmitters in their own country, but they use overseas relays, including Radio Prague International, Radio Slovakia International, RAE Argentina to the World and Radio Tirana."

Further, many former government-owned shortwave transmitter sites — such as Radio Netherlands in Madagascar and sites formerly operated by the BBC, Radio France International and Deutsche Welle — have been privatized and are selling airtime to private religious, commercial and cultural broadcasters.

The SW bands are still alive with content.

Software-defined radios

Technologically speaking, the big trend in SW radio receivers is the ongoing move to software-defined radios.

SDRs harness the processing power of personal computers to perform the majority of their tuning, visual display and audio reproduction features. All that is added is a piece of plug-in hardware that contains the specific radio receiver hardware, and a connection to an outboard antenna of the user's choice.

Because SDRs leverage the power of users' computers, they can do much more than conventional standalone SW radio receivers, and at a much lower price.

"Software-defined receivers have had a really big impact on the shortwave listening hobby," said Letourneau.

"A $200 SDR can rival a much more expensive tabletop receiver in performance. Add the flexibility of viewing a large bandwidth of frequencies in real time on your computer screen, and it all adds to the experience of listening. You can see where a signal has popped up and just click to listen in."

White agrees. "I think SW SDRs are a major trend that seems to be growing every year. Since most people have personal computers nowadays, it's a more practical option, and at a quite reasonable cost. As well, SDRs have made dozens of remote-control online SDRs possible worldwide, enabling listeners to tune shortwave receivers halfway around the world on their PCs or telephones and hear shortwave stations that they can't normally hear in their own area."

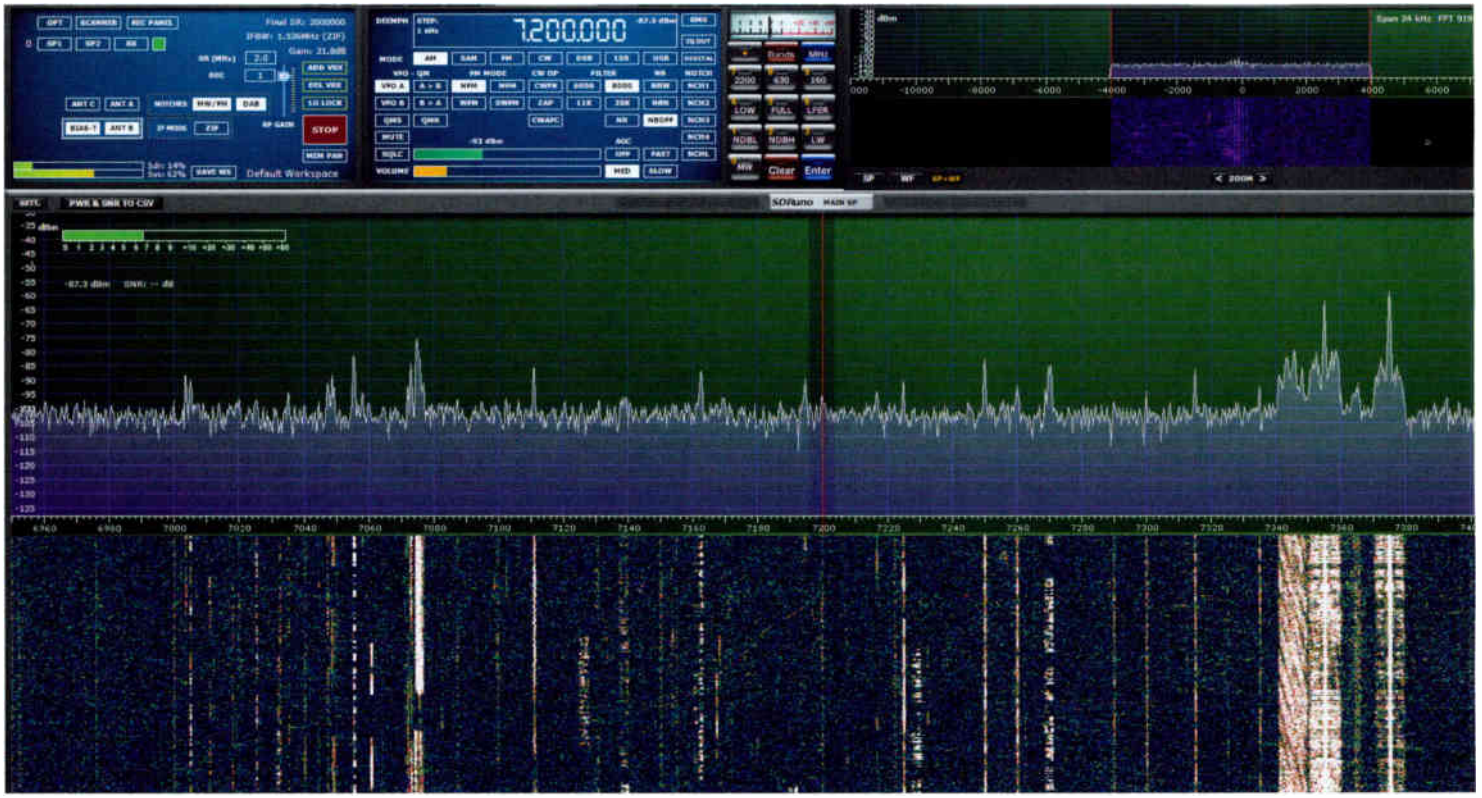
Like standalone shortwave receivers, the shortwave SDR market offers a range of models to choose from at various price points.

"These can be something as compact as a USB-based 'radio on a dongle' to a more self-sufficient 'Kiwi WebSDR' that is not only a wideband receiver, but also has a Linux-based backbone processor called the 'Beagle Bone,' which is very similar to the Raspberry Pi," said Colin Newell, editor/creator of the DXer.ca website.

"Not only is the Kiwi a 10 kHz to 30 MHz radio, but it is also remotely accessible and controllable on the internet. There can be as many as eight listeners tuning it remotely, so it is virtually eight radios in one."

Meanwhile, the Perseus line of SDRs can actually capture and record large swathes of the SW radio spectrum at a time.

Below
Screenshot of an SDR receiver on shortwave with the signals of broadcasts and amateur radio.



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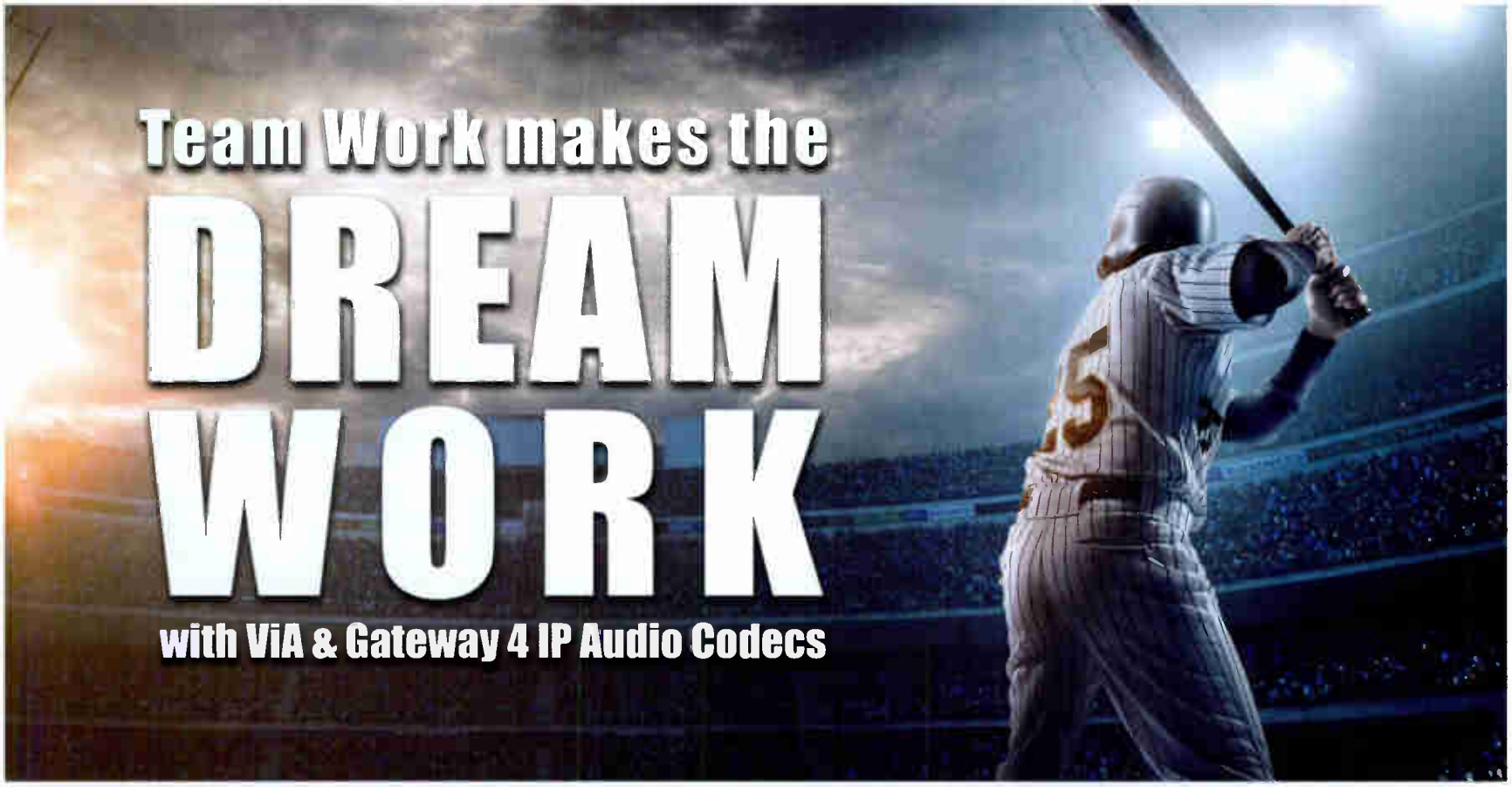

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* The Gateway 4 codec supports 4 channels only and is not upgradable to support more channels.

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Above Sangean's ATS-909X2 portable shortwave receiver retails for $449.99 and is heavily featured.

"Much like the VCRs of old, 'spectrum capture' now affords the 'recording' of the entire radio spectrum over time for later listening and uncovering of exotic targets," Newell said.

SDRs can also provide active noise cancelling to eliminate problems with local noise sources from electronics, and support co-channel cancelling to receive a weaker station completely overlapped and buried under another stronger station.

The price of entry-level SDRs can be ridiculously low. For instance, the RTL-SDR Blog 3 "radio on a dongle" is a credible SDR SW receiver and costs $25.

Carl Laufer, owner of the company, says, "The RTL-SDR Blog V3 is one of the cheapest, yet most versatile SDRs on the market. At its core it's an RTL-SDR that has been heavily modified for better performance and to have additional features. One feature is the ability to easily activate in software the 'direct sampling mode,' which allows users to receive SW radio frequencies without the need for an upconverter that would be required by other RTL-SDRs. Granted, the receive performance of direct sampling mode is nowhere near comparable to the high-end, higher-priced SDRs, but it can be a very cheap way to receive SW."

Conventional radios remain popular

The SDR trend is definitely changing the way that many people listen to SW radio. Still, the complexity of these units for non-technical people, and the fact that they need to be connected to computers, have kept many SW fans tuned to standalone radios.

In this area, portable SW radios are enjoying the most popularity, because the computer technology that has made SDRs possible also supports the manufacture of sensitive, precise portable radios at very affordable prices.

"It has never been so inexpensive to get a decent radio that will get most of what you want on the bands," said Letourneau.

"The trend is towards DSP-based receivers because they are cheap to build and perform quite well. Hundred-dollar radios today perform better than expensive radios of the past."

The power of DSP and other digital technologies underpins Sangean's new ATS-909X2 portable SW receiver. At $449.99, the ATS-909X2 is priced below a top-flight tabletop receiver. Yet it does everything a tabletop receiver can do, and more.

"The ATS-909X2 is the next generation from its predecessor, the ATS-909X, which has been Sangean's flagship model for the past 10 years," said Vince Marsiglia, Sangean America's sales and marketing manager. "Quite a few upgrades were implemented into this new model."

They includes a bigger LCD screen, better reception, air band for certain regions and 1674 station presets with three individual memory banks.

For long-distance listeners, many excellent DXing digital receivers can be purchased below this price, putting the reception of distant SW stations within the reach of most listeners.

"Meanwhile, many of the cheaper Chinese radios, often with analog dials, are available at popular markets in Africa and other parts of the world for as little as three dollars," said White. "Built-in telescopic whip antennas on portable shortwave receivers are often very good now, making external antennas less essential."

> **"A $200 SDR can rival a much more expensive tabletop receiver in performance."**

Some top-performing tabletop SW receivers are still being made, "but only for the radio geek that can afford them," said Letourneau. "They do offer a slight edge in their options and flexibility, but for most people, shortwave works just fine on an inexpensive portable that is very surprisingly good in sensitivity."

And for those who yearn for the elegant SW tabletops of old?

Thanks to the durability of this technology, many older models are still available for purchase.

"The retro market in radio is very big, from used tabletop models like Yaesu, Kenwood, Icom, Drake and used portables from Sony, Panasonic and Grundig," Letourneau told RW. "Old tube receivers are also very in right now, like old Hallicrafters, for example."

"Radio sales in general, including SW radios, have seen an uptick in sales since COVID-19," said Marsiglia. "Individuals working and staying at home crave some form of connection more than ever. Turning on a radio is the easiest way to connect with your favorite music, sports, news and so much more."

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Wedel launches Adthos Ad-Server

Ad sales application helps integrate the sales of digital audio and radio campaigns

Adthos recently introduced what it described as the only free ad-serving technology built specifically for radio. Athos Ad-Server is an ad application that replaces playout of ads by an existing automation system, allowing digital audio and radio "to be sold seamlessly within a single integrated campaign."

We sought to learn more about it from Raoul Wedel, CEO of parent company Wedel Software.

More Info
Learn more at *adthos.com*

What prompted Wedel to launch this Adthos initiative?

Raoul Wedel: Our traffic and billing system can do live reconciliation. But when implementing it, we found out that it would require integration and development with each and every automation system provider. Instead of building dozens of integrations, we felt this was a better solution. And made it available for free.

Why would a broadcaster wish to replace the ads in an existing automation system?

Wedel: For traditional ad playout, the Adthos Ad-Server comes with maybe two dozen features that most small automation systems don't have. Like live reconciliation, sending new logs live without intervention or integration with cloud storage systems for material management.

The future of audio advertising is dynamic, in scheduling or creative replacement. If terrestrial radio wants to keep up with digital they will need to move forward on those subjects. The Adthos Ad-Server is a simple, non-intrusive app that can be easily installed and managed. It allows for frame-accurate ad replacement. So an advertiser can play a McDonald's spot on the radio but may replace the ad with a local franchise's address.

What are the main features and benefits of Ad-Server?

Wedel: It reconciles your schedules live. Logs can be sent without any intervention; material can be stored cloud-based. Also it includes a streaming encoder compatible with Triton, AdsWizz, Icecast and Shoutcast. It enables dynamic scheduling and dynamic creative replacements. And it gives advertisers and agencies a portal to view their schedules and listen to an aircheck of what has been played.

Ad-Server is free, so how does Wedel Software benefit, i.e. how do you make your money from the service?

Wedel: We feel that the current state of technology of radio stations is preventing terrestrial radio advertising from moving into the digital space. This is our vision of a solution for the problem. And we're putting our money where our mouth is. By laying this foundation it opens the door for other technologies and advances to truly gain broad acceptance in the market. It is a platform that we can build on.

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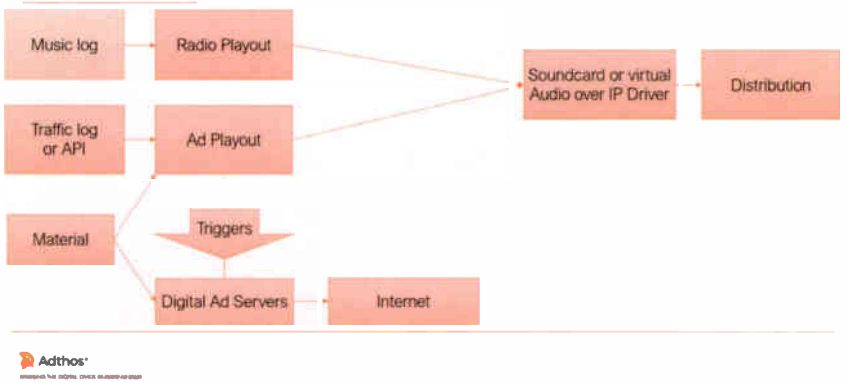

You said there are future integrations planned, what kind of additional features should we expect?

Wedel: There are three main releases of the platform, we call chapters. The second and third chapters are due after the summer and since the ad server enables dynamic scheduling and dynamic ad replacement, you'd have to think along those lines.

What else should we know?

Wedel: That we have made it as easy as possible to convert to our platform. In a testing phase, the ad server can run in parallel with your current automation system. Even though it is free, we have staff dedicated to onboarding our first customers. Our platform comes with a preloaded list of U.S. FCC licensed stations and station owners, so it's easy to start.

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Lawo Home Aids IP Management

Lawo Home is a cloud-based management platform for IP-based infrastructures. Users can perform automatic plug-and-play discovery of IP audio and video devices, which are registered with their name, location, status and type.

This applies not only to Lawo products but to third-party devices as well, using NMOS. Devices are managed in a central inventory list, ready for access and configuration.

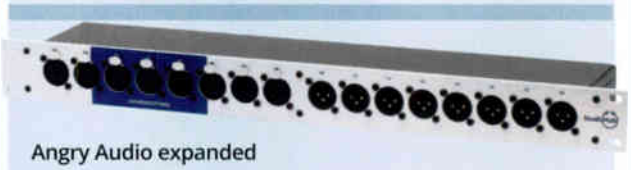
The platform provides centralized "mission control" for saving and recalling multiple configurations, providing fast and unified access to device parameters for tweaking.

Quarantining unknown devices provides a first level of security; only after being approved via an IEEE802.1X-based routine can they begin exchanging signals with the network.

A second approach is an authentication strategy based on a centralized user management system, with dedicated user roles and groups. The LDAP-based service allows users to authenticate locally or via their own corporate IT infrastructure such as Microsoft Active Directory.

Info: https://lawo.com

Angry Audio Adds to StudioHub Line



Angry Audio expanded its StudioHub line of studio interconnects with four rackmounted XLR breakout boxes.

Each features XLR connectors in front, and RJ-45 connectors and DB-25 D-subs on the rear.

Angry Audio explains the configuration choice: "RJ-45 connectors in the StudioHub+ format accommodate mono and stereo analog and digital audio signals. DB-25 connectors are in the popular AES59 standard (Tascam format). Plus, we even give you R-J45 connectors in the new AES72 standard."

The four versions offer front-panel complements of 16 female XLR connectors (XLR_16F); 16 male XLR connectors (XLR_16M); eight female and eight male XLR connectors (XLR_8FM); and two groups of four female and four male XLR connectors (XLR_4FM).

Contacts are gold-plated. Price: $295

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John Bisset
CPBE
has spent over 50 years in broadcasting and is in his 31st year of Workbench. He handles western U.S. radio sales for the Telos Alliance. He is a past recipient of the SBE's Educator of the Year Award.

Stay plugged in
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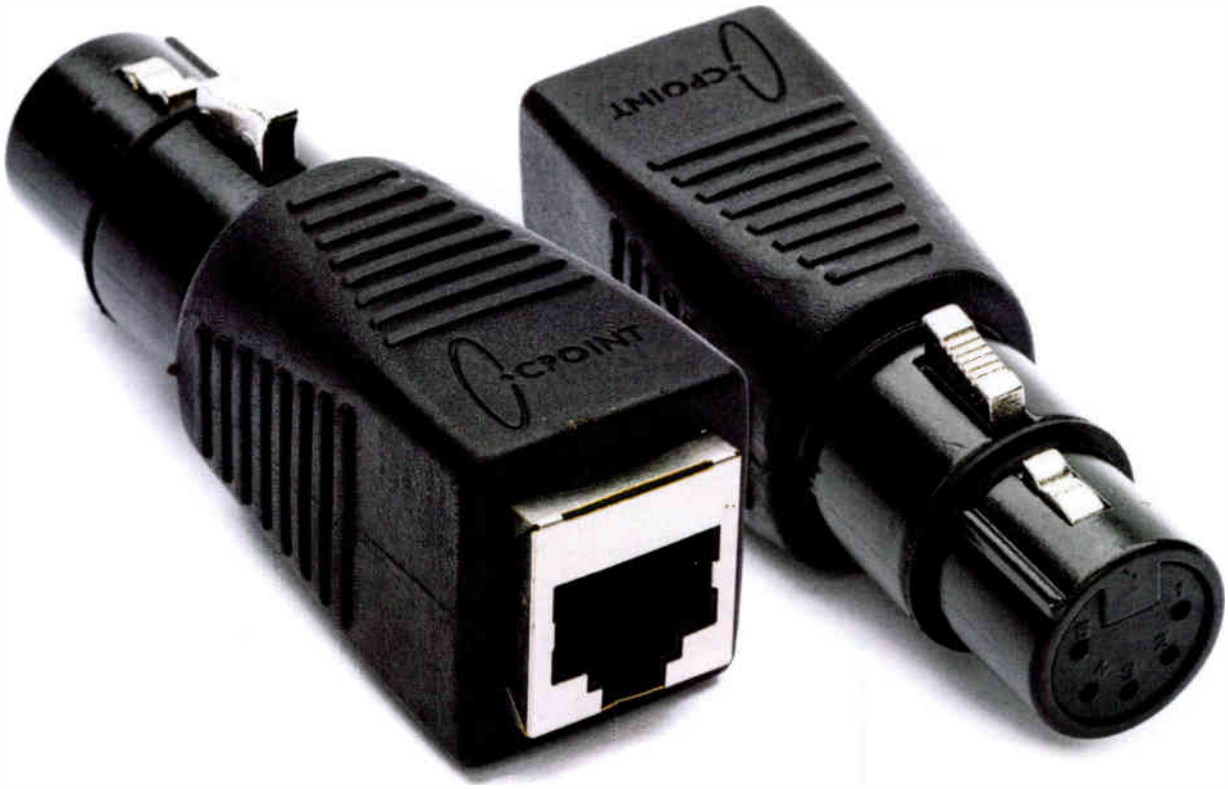

Above
A lighting connector can be used to make a connection between StudioHub and AES3 digital audio.

This adapter simplifies AES connections

Also, check the composition and specs of the wire you buy

Mike Johnson is the principal engineer for Mike Johnson Broadcast Technology in Portland, Ore. He read our column about the CATV F-to-RJ45 adapter and realized he had something to contribute to the discussion.

While Mike was helping build out the new facility for All Classical Portland in 2014, a coworker showed him an adapter he had discovered to make the connection between StudioHub and AES3 digital audio simple.

The solution is to use the three-pin XLR DMX lighting standard, which was later adapted to work over RJ45 cables. Like the CATV adapter we described, it uses the first pair in the Category cable. The adapters are available as short, three-pin XLR male or female plugs on one end to RJ45 jacks. The photo shown here is typical; you can find that connector at *markertek.com*, type DMX-5XF-CAT5 into the Search field.

The DMX standard started out with a five-pin XLR, but it didn't need all five pins. Sweetwater has a discussion on understanding DMX that you can find at *https://tinyurl.com/rw-dmx*.

These DMX adapters eliminate the need to use a dual XLR-to-RJ45 adapter dongle for AES3 digital, which results in an unnecessary, awkward right-channel XLR connector (since the AES3 signal only travels on the left analog connector). The DMX adapters are short and can be plugged directly into the equipment, making for a neat, uncluttered conversion.

A little strip tease

San Diego's Marc Mann says Frank Hertel's choice of silicone-jacketed wire reminded him of an interesting experience.

First, Marc notes that to his knowledge, silicone-covered wire was reserved for premium test leads, as the flexibility of the jacket allows the probe clips to remain in position. The silicone formulation is also heat-resistant.

Raise your hand if you don't have at least one pair of test leads with a soldering iron burn on the jacket! Marc chose the silicone-covered wire when he needed to make some six-foot leads for his power supply. He purchased

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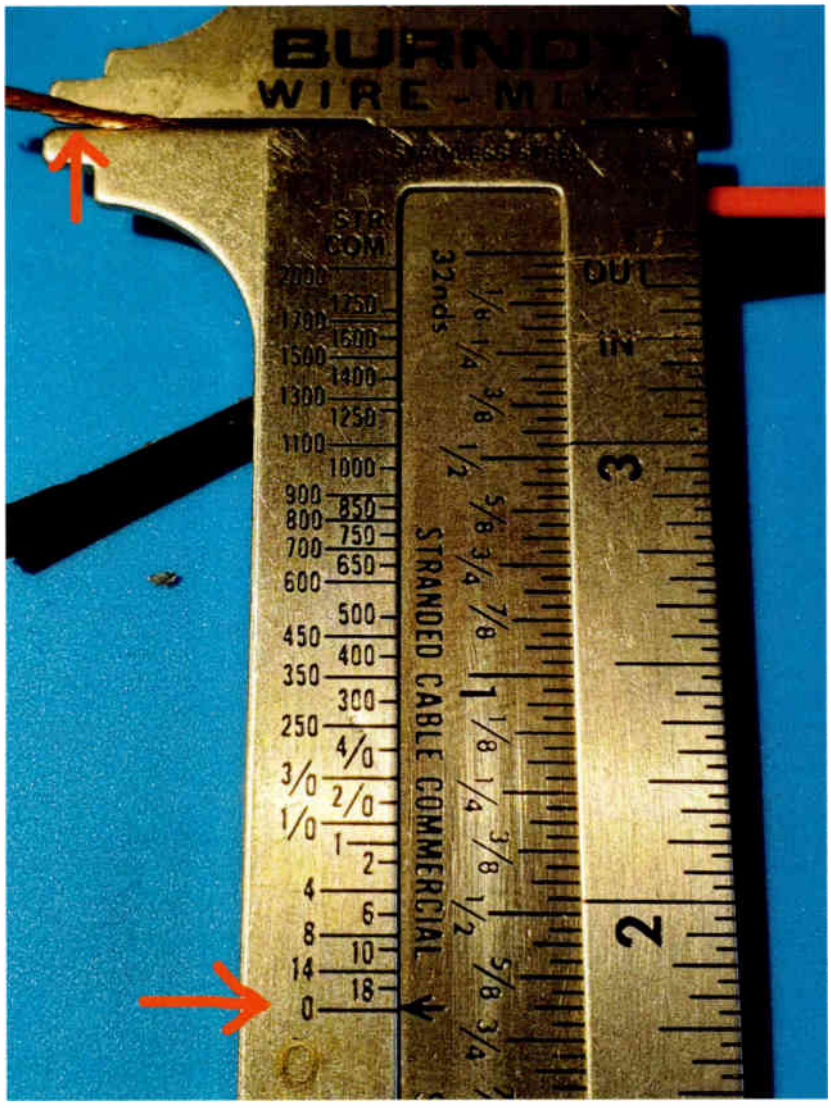


Above
This 18-gauge wire actually measured 20-gauge; note the red arrow.

some 16 and 18 AWG (American Wire Gauge) wire from Ali Express and eBay. Each length of cable was manufactured off-shore.

When he stripped the lead off the 18-gauge wire, the wire pulled straight out of the jacket. Not just one strand, but all of the strands. No matter how cautious Marc was to strip just the jacket, the wire still pulled through — the silicone jacket was not bonded to the wire!

The wire was also mismarked. Although the jacket said 18-gauge, it was actually closer to 20 AWG. Marc then discovered that he did not have 100 percent copper wire, rather CCA or copper-clad aluminum.

From another website, Marc learned that the advantage to CCA wire is that it is lighter and more flexible. The cost of CCA versus oxygen-free copper wire is also much lower.

So Marc warns buyers to confirm the composition and specifications of the wire you are buying, especially from online sources. If your application is critical, such as in a high-power transmitter, the variations could make a difference.

Little light, big impact

Glynn Walden, too, dropped us a note about Frank Hertel's LED dimmer circuit, and commented how far LEDs have come since his first experience.

Glynn was in his fourth year of engineering studies at Florida International University, when someone brought in a new diode that emitted a visible red glow when it was placed on a curve tracer! Glynn says this was around the time that the 555 Integrated Circuit (IC) was replacing all of the old mechanical timers.

He writes that he could never have dreamed that this little light-emitting chip would one day replace the incandescent bulbs in a console, let alone the headlights in your car or the light bulbs in your home. Or, for that matter, the beacons on a tower.

Agreed. We are fortunate to be living in such a time where the innovations and improvements just keep on coming.

Glynn is retired from CBS Radio as a senior VP of engineering, but he is probably best known as the father of the in-band, on-channel digital broadcast system now known as HD Radio.

Filter reminder

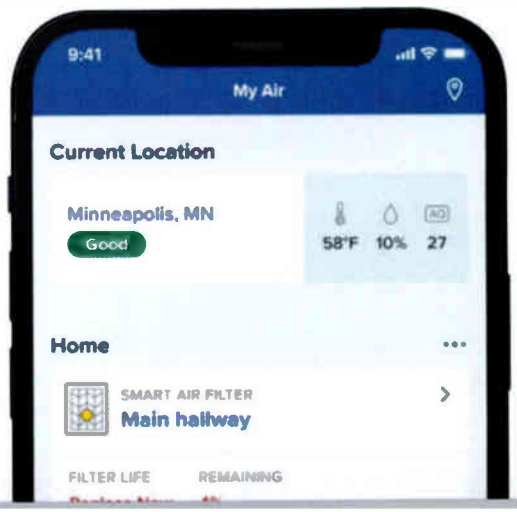
Speaking of improvements, 3M's Filtrete pleated air filters division offers an app that lets you set reminders for changing filters or ordering replacements. The app can also take into account air quality in your region so you're changing filters based not only on time but on air quality.

In online reviews, users say the app saves them money because they don't change filters too soon. Filtrete also has a filter model with a built-in sensor linked by Bluetooth to your phone, though according to some of the reviewers, the reliability of this new feature seems questionable.

In any case, if you're looking for a quick reminder for filter replacement, this app may be for you. It's available on at Apple Store or Google Play, or search "Filtrete Smart App."

On a related note, I had my home air conditioning system serviced recently and I noticed the technician jotting something on the palm of his hand, in pen. I asked what it was and he told me it was to remember the thermostat set point when he was resetting the thermostat after his testing.

He joked that he was using the "original palm pilot."



Right
The Filtrete Smart app will remind you about scheduled filter changes and provides other tips and alerts.

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World Radio History

Charlie Wooten

Wooten manages IHM's Florida Panhandle engineering

Veteran market engineer embraces challenges

Writer
Randy J. Stine

Radio World's lead news contributor wrote about the impact of the global chip shortage last issue.

Hurricane season across the Gulf Coast of the United States puts Charlie Wooten on high alert.

Wooten, director of engineering and IT for iHeartMedia in Panama City and Tallahassee, Fla., is also a member of the iHeartMedia Emergency Response Team. He has seen the damage a Category 5 hurricane can do. He stood on the front lines as Hurricane Michael hammered the Florida panhandle in 2018.

That hurricane destroyed the three-tower AM array of WDIZ(AM) and knocked down the STL tower at the iHeart studios in Panama City. Only backup underground fiber circuits kept WPAP(FM) and WFSY(FM) on the air, Wooten said. Two other FMs in the cluster returned to the air within days utilizing a satellite feed to replace the lost STL.

"The iHeart stations were the only commercial stations on the air for over two weeks," he said.

In 2019 the Society of Broadcast Engineers honored Wooten as the recipient of its Robert W. Flanders Engineer of the Year Award, citing his actions around the storm. "Because of Charlie's experience, planning and system redundancy, the citizens of Bay County tuned in their radios the morning after the storm and found iHeartMedia signals live. Locals had access to critical information regarding, food, water and emergency health care."

Wooten has had a wide-ranging and award-winning career. He has served as chief engineer for a radio station in Aruba, worked as general manager of a public radio station in Florida, and had a hand in building more than 120 broadcast facilities (RF and studio plants), including 30 in Eastern Europe while working as a broadcast engineering

World Radio History

consultant early in his career.

The battle-tested technologist is 72 and has no plans to retire. Our interview with him is part of our series of profiles of leading industry engineers.

Describe the scope of your job with iHeartMedia.
Charlie Wooten: I am responsible for all engineering, audio, RF and IT for the iHeart stations in Tallahassee and Panama City, Fla., which totals nine full-power FMs, four FM translators and one AM. We have HD on one station in each market.

What is the biggest day-to-day challenge?
Wooten: Balancing my work priorities between two clusters 100 miles apart.

What technology projects are you working on, and what's next on the docket?
Wooten: iHeart is currently installing a software-defined WAN system to interconnect all transmitter sites and studios. This system uses two different paths, conventional wired internet and wireless internet, so that if one path fails, the system will seamlessly switch over to the other connection.

iHeart selected Lumen as the SD WAN provider. The system uses two diverse sources for internet connectivity and allows for switching between the two sources in case one fails. I have actually unplugged the Comcast Business Modem from a working system that delivers IP audio to an analog/HD/HD2 site and the packet loss is almost unnoticeable, just a very short "blip" in the audio.

After this is installed, we will be moving to a proprietary, internally developed playout system called Sound+, which will have playout equipment installed locally to retain redundancy and reliability. It is an ambitious project and requires many different programming elements be incorporated into the Sound+ platform.

Are you moving more operations into the cloud, or planning to?
Wooten: Yes, we are leveraging cloud architecture, like most industries, but we are also leveraging local playout systems to improve redundancy and reliability.

What are the primary challenges facing local radio engineering?
Wooten: Radio has dramatically changed in the past few years, so it's important to continue to evolve and reach your audiences everywhere they are and how they want it.

What types of hurricane preparation and planning have your Florida radio stations put in place?
Wooten: We have always had a hurricane plan locally since I came to work with the cluster in Panama City in 1997. We have continued to fine-tune that plan over the years. The plan worked out very well for us for all of the storms, although Hurricane Michael was a completely different animal and we had some new challenges we had to work through. Even with these challenges, iHeartMedia stations were able to continue delivering emergency information shortly after the storm.

Above
Wooten with his ham radio gear, age 12.

What critical infrastructure was most fragile when Hurricane Michael hit?
Wooten: Of all things, we had a battery problem with the generator, which had been tested with no problems on the Sunday before the hurricane hit on Wednesday. We were able to jump off the generator and get power back to the studio building.

All of the transmitter sites stayed on the air during the storm. They just didn't have any audio! As soon as we were able to crank the generator and get power back on at the studio, WPAP and WFSY had audio, only because we have AT&T underground fiber that ran 100% underground from the studio to the local central office and from the central office, to the tower site 25 miles north of Panama City.

We lost part of the roof and building fascia to the offices, but the area where the studios and rack room were located did not suffer any damage. Luckily the STL tower fell away from our building. We were without commercial power at our studios for over a week and we are located 200 yards from a major substation. Our four FM transmitter sites stayed on generator power for over two weeks.

We had diesel fuel delivered to each site each morning and we actually took stations off for short periods at midnight to do oil and filter changes, which are required to insure reliable service.

Our Onan diesel generators operated flawlessly. One piece of flying debris put a small hole in the radiator of

> **"All of the transmitter sites stayed on the air during the storm. They just didn't have any audio!"**

World Radio History

Above
Wooten visits Slovak Radio in Bratislava, Slovakia, in 1993.

the WEBZ generator, but we were able to patch it until a replacement radiator could be located and installed.

What aspects of your job have changed the most through the years?

Wooten: I have been a broadcast engineer since 1970, and the biggest change is the addition of IT to the engineer's duties. This required me to learn about something I had not really kept up with in the '80s as it became more prevalent in the '90s and today.

IT is another aspect of broadcast engineering that is just as important as knowing how to change a tube in a transmitter or build a studio.

What is your perspective on trends relevant to technical radio management?

Wooten: I think the more important question is, how will broadcasters find good people who want to be on their engineering staffs — making sure to have competitive benefits and salaries.

How can the industry identify and develop new engineering talent?

Wooten: Frankly, I have been disappointed in some broadcasters who are not looking ahead and seem to think that engineering is becoming less and less important. While keeping the total station on the air, which today not only includes the transmitter, it also includes the internet stream and other digital means of delivery.

Finding and being able to retain the next generation of engineers should be one of the top priorities of broadcasters. Again, competitive benefits are a key part of attracting and retaining new engineers.

Can you describe the regional structure? Do you have local help?

Wooten: I am part of what is called Region 16, which includes stations in the Florida Panhandle; Mobile, Ala.; Biloxi, Jackson and Hattiesburg, Miss.; and New Orleans and Baton Rouge, La.

I report to Regional Senior VP of Engineering Dan Mettler. As far as the structure of the local engineering department, that would be only me, but I can also leverage other engineers in the region if needed.

What impact has the elimination of the main studio rule had on your technical approach?

Wooten: That has had no change in our local operation. We continue to operate as we had before the rule change.

Are you using HD Radio?

Wooten: In both Panama City and Tallahassee, we have one HD station with HD2 signals that feed translators.

How can radio manage to maintain and grow its presence in the evolving car dashboard?

Wooten: Radio continues to dominate consumer listening in the U.S. with nine out 10 Americans listening. Even though there's an increasing amount of apps available in the dash, including iHeartRadio, research shows that drivers overwhelmingly still want the ease of AM/FM radio and the simplicity that comes with just pushing a button on their dial.

iHeart is a key player in both AM/FM broadcast radio and in digital, and while we continue to work with all major OEMs and aftermarket head units to make sure the iHeartRadio app is available in the dash, that needs to be in addition to AM/FM radio in the dash, not instead of.

How much longer do you plan to work?

Wooten: Honestly I have not set a date for retirement. I am still physically able to work, although I am not as agile as I used to be. My wife will not retire for several more years, and I plan to continue to work at least until she retires.

What has been the highlight of your career so far? And what other interests do you have?

Wooten: My international work in Eastern Europe as a contractor for the State Department from 1991 to 1997 after the fall of the Iron Curtain. I built a bunch of small community stations in the former Czechoslovakia and a station in Zagreb, Croatia. A lot of my friends don't even know about this part of my career.

I have two hobbies, ham radio — call sign NF4A. I have been a ham since 1962 when I was 12. I also love to deer hunt. I am president of the Bear Creek Hunting Club, which has 15,000 acres leased in the Florida Panhandle.

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Studio Technology handles Hubbard in Cincinnati

Personal service and attention to detail please Queen City cluster

Writer
Brett Patram
Director of Engineering Hubbard Radio Cincinnati

Choosing Studio Technology

to produce the studio furniture for the new Hubbard Radio Cincinnati cluster was one of the easier decisions that we made in that project.

Vince Fiola, Studio Technology's owner, made a trip in person, sitting down with the local staff and development team in the earlier planning stages. He came up with several preliminary furniture designs based on the needs and features requested from our staff. After some revisions and tweaks, we had a solid furniture plan for the 12 studios that were to be built.

Studio Technology created 3D renderings of the studio spaces and furniture. Those renderings were helpful for the programming staff to better visualize the furniture design and how it would look spatially.

During the early stages of the building construction, Vince came back on-site and we did a walkthrough of the studios. He took detailed measurements and marked out where cable conduit wall boxes should ideally be located. He worked directly with our architects and their CAD drawings to ensure the furniture would fit perfectly into each space.

Studio Technology also worked with our interior designer and operations manager on the specific materials, finishes, colors, etc. After the furniture was installed, we had realized we needed to make a couple additions in the on-air studios. Studio Technology was extremely helpful and consulted through what the best options would be. They made it happen.

The furniture look was superb, and its design is very functional. Me and my team enjoyed working with it. Having the ample space inside to manage cabling and the overall easy cabinet access was great. The on-air and programming staff enjoy it daily because they now have a workspace that fits their needs.

We have been very pleased with the furniture from Studio Technology on this project.

Courtesy Rob Goldberg, Radio DNA

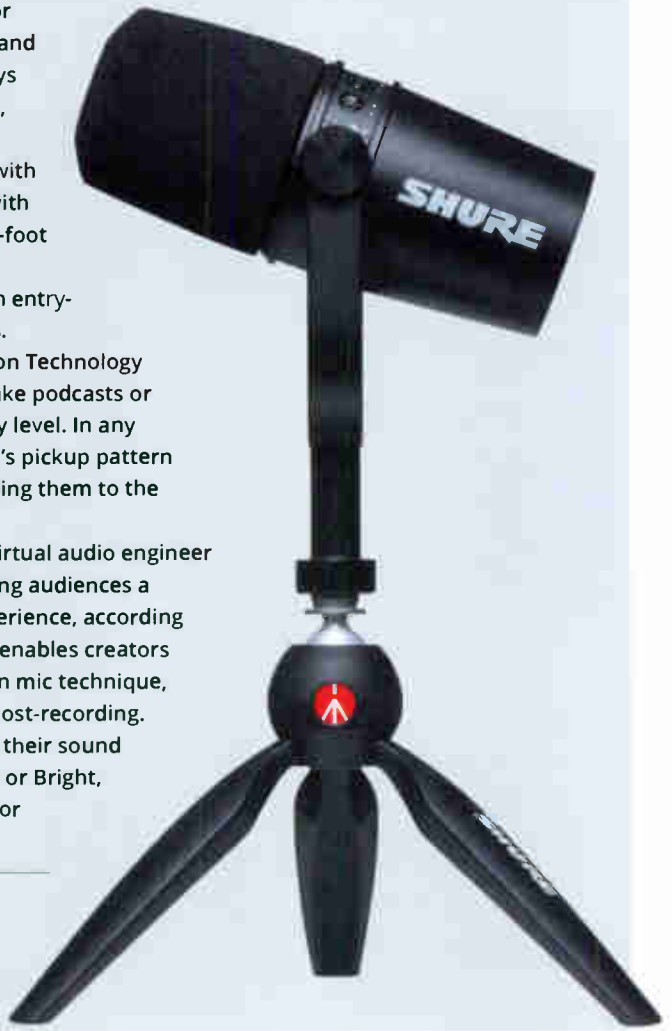
Right
Some of the new Studio Technology studio furniture and accessories at Hubbard Cincinnati's new studio digs.

Info
Contact Vince Fiola at Studio Technology at 1-610-925-2785 or *vince@studiotechnology.com*.

World Radio History

Tech Update

Shure Adds to MV7 Podcast Kit



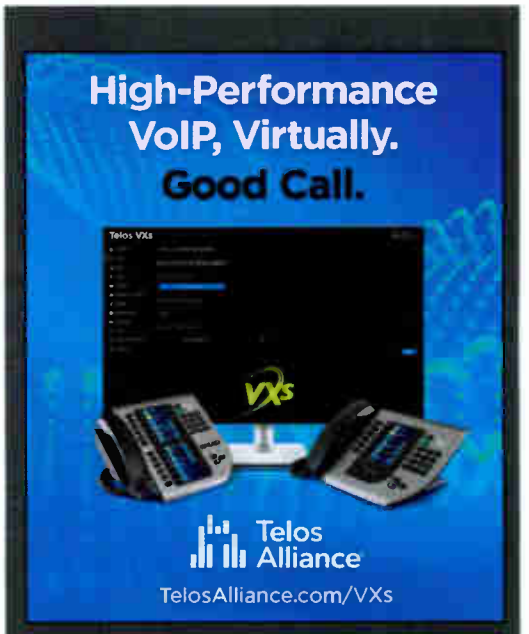
To answer growing demand for professional-level podcasting and streaming solutions, Shure says it created the MV7 Podcast Kit, with its first hybrid XLR/USB microphone. It is now paired with a Manfrotto PIXI Mini tripod with 5/8-inch thread, along with 10-foot USB-A and USB-C cables.

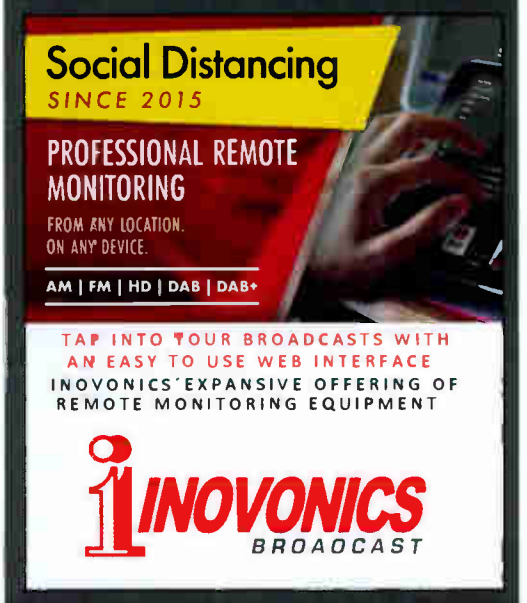
The MV7 is intended for both entry-level and experienced creators.

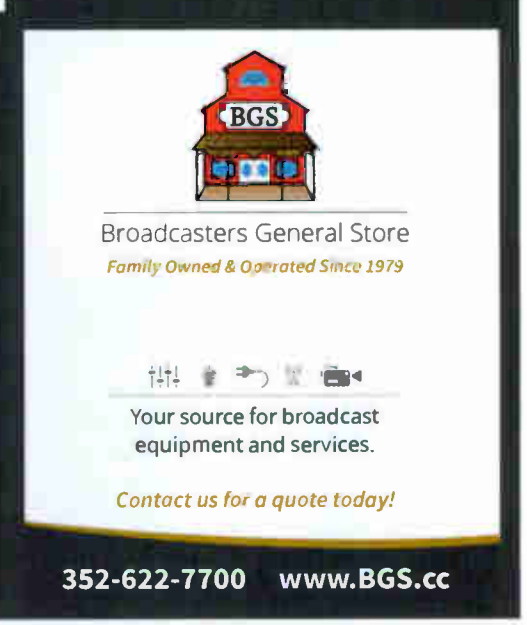
Shure says the Voice Isolation Technology manages the user's voice to take podcasts or live streams to another quality level. In any environment, the microphone's pickup pattern focuses on the vocals by bringing them to the forefront of the recording.

Auto Level Mode acts as a virtual audio engineer and sets gain in real time, giving audiences a more consistent listening experience, according to the company. That, it says, enables creators to focus on the content, not on mic technique, resulting in less time editing post-recording. Creators can further optimize their sound with presets for Dark, Natural or Bright, and options for mic distance for near or far.

For information, contact Shure at 1-800-516-2525 (United States) or visit www.shure.com.







World Radio History

Writer
Bernardo Saiz
Project Manager, AEQ

Luis Buñuel High School launches digital studio

Various AEQ accessories make easy integration and operation

Info
In the U.S., contact Peter Howarth at AEQ Broadcast International at 1-800-728-0536 or *www.aeqbroadcast.com*. Elsewhere, contact Gustavo Robles at AEQ in Spain at +34-91-686-1300 or *www.aeq.eu*.

Above
The AEQ Studiobox, center, is also seen in use on the interview table surface.

Luis Buñuel High School is in Móstoles, a city of just over 200,000, west of Madrid. It is a public training center that develops intermediate- and higher-level professional education, including specializations in media, TV and radio.

The school recently inaugurated a digital radio studio with AEQ technology including Capitol-IP digital audio mixer and attendant AEQ studio accessories.

The studio has five talent positions, professional radio automation software, a technical control position and the necessary equipment to produce radio programs in a professional way with professional material.

Several AEQ accessories were installed in the radio studio to make work easier.

These include the AEQ Studiobox, a signalling box that facilitates the interaction of the talent with the controller. Among other buttons, it has a mute or cough button.

There is also a button in the Buñuel radio Studioboxes, labeled "Tech," a talkback control. With it, even in the middle of an on-air announcement, the user interrupts the on-air microphone to give instruction to the controller who listens through his monitors or headphones.

In addition, the Studiobox's unique ring will be green when the studio is ready to open microphones and red when the microphones are live on-air.

Also in the studio are AEQ HB 02 microphone panels. These provide connection of the microphone and the headphones of each user, and allow an individual control of the listening level in their headphones.

For AoIP interfacing, AEQ's Netbox 4 MH allows connection to the audio network via IP, up to four input channels for microphone or analog lines and four output channels, for stereo headset and analog lines. Netbox 4 has GPIOs for signalling terminals such as Studiobox. It can be powered by PoE.

This device is responsible for connecting the studio microphones to the IP network, making it available not only in the control but also in any of the audio editing workstations for students to prepare their individual audio files to practice assembling news and interview summaries.

World Radio History

Tech Update

A New-Look **Electro-Voice** RE20

The RE20-Black from Electro-Voice brings a new available color to the classic RE20 broadcast microphone. It has a low-reflection dark charcoal finish.

The RE20 has been around for more than 50 years and retains a strong presence in studios serving broadcasters, musicians and sound engineers. The black version offers users an aesthetic alternative to the iconic original finish while being acoustically, electrically and mechanically identical.

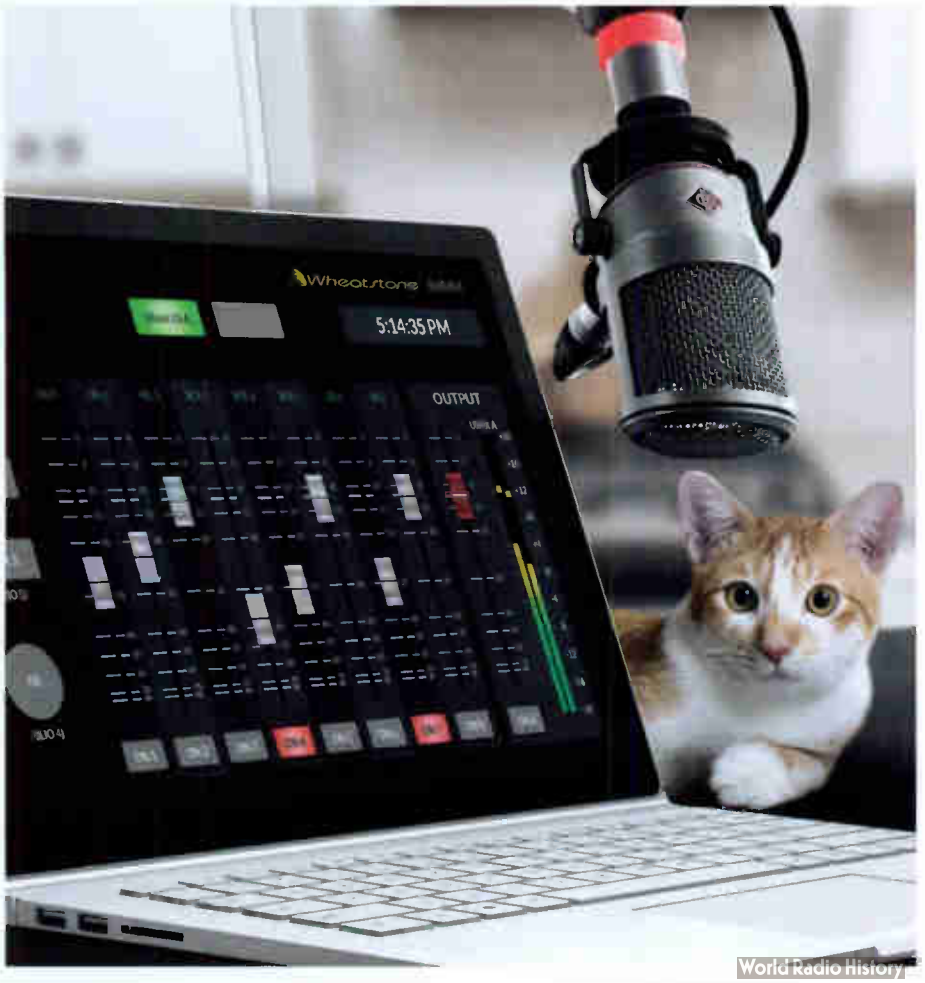
Beyond providing service in radio, particularly for voices on FM stations, E-V says the RE20's popularity has surged in recent years with the rapid growth of podcasting and home recording/production. It also remains a trusted tool in professional recording studios, and a mainstay mic on live-performance stages, the company says.

An important part of its success is the Variable-D design, which minimizes proximity effect, giving users confidence that their tone will remain full and accurate while they work around the mic at varying distances.

Additional features include a mid-bass tone-shaping switch, a substantial integrated pop filter and a humbucking coil to guard against line hum, combining to provide a smooth, natural and controlled sonic character.

The classic RE20 finish continues to be available.

For information, contact Electro-Voice at 1-800-289-0096 or visit https://electrovoice.com.



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World Radio History

Writer
Scott Michaels
Program Director
Worship 24/7

Wheatstone Furniture fills bill for Worship 24/7

New broadcaster likes single-sourcing console and furniture

Info
Contact Jay Tyler at Wheatstone at 1-252-638-7000 or visit *www.wheatstone.com.*

With a new studio comes a new console, and with a new console comes new furniture. Usually in that order.

After years of streaming Worship 24/7 and with a broadcast license finally in hand, we started construction in mid-2019 on our new broadcast studio in Wilsonville, Ore.

A generous donor had given us funding for one studio. We have a 24/7 Christian music station that we stream online and broadcast on KURT 93.7 MHz near Portland, KTDD 104.9 MHz near Seattle and more recently, KJOQ 100.9 MHz in Duluth, Minn.

We ordered a new Wheatstone Lightning analog/digital hybrid console and started mapping out where to put the automation PC, the monitors for automation and production software, and where we'd seat the occasional guests. We quickly realized that furniture from Staples wasn't going to cut it. We needed a workspace that could hide the PC and various auxiliary boxes below the console, one that would have enough space on the surface for monitors and a console, not to mention a seating area for our guests.

Luckily, we found what we were looking for from the same place we ordered our console.

QuickLine furniture made by Wheatstone has five modular components that I'm told can be made into 32 different configurations. That's important when you have one studio and there's a good chance you'll be moving things around over time.

The QuickLine desk was delivered to us as knock-down modules for shipping purposes. Modules are made of high-pressure laminate on all sides. It came with all the hardware and decent assembly instructions, which made it a simple matter to install the five modules the way we wanted them. We set it up so that the board op could easily see all our monitors to the side and center and with a large wing to the other side where we mounted a microphone for our guests.

Unlike furniture we might have picked up at an office store, we have standard equipment racks made specifically for broadcast and punch block holes where we needed them, which made it fairly easy to route the PC cabling for the monitors and the console cabling.

We are pleased with the rounded countertop corners and the flow of having a central workspace with the guest position off to the side. Concealed hinges were a bonus, and the fact that it was cost-effective was certainly a consideration.

We plan to add another studio at some future point but, for now, we are getting the most out of the studio we have and feel confident that as we grow into this studio, this desk will change with us.

Above
The author and the new Wheatstone QuickLine furniture for the Wheatstone console at Worship 24/7.

World Radio History

Tech Update

Audio-Technica Introduces AT2040 Podcast Mic

Taking cues from Audio-Technica's BP40 broadcast microphone, the AT2040 hypercardioid dynamic podcast microphone promises pro broadcast-quality sound and style for podcasters, streamers and other content creators. Retail price is $99.

A-T says the microphone's large diaphragm delivers smooth, natural sound with low noise. A multistage windscreen combines a nonwoven filter with foam mesh to provide internal pop filtering. Integrated shock mount prevents unwanted noise by attenuating vibration from a boom arm or mic stand. The directional pickup keeps the sound focused on the user's voice and helps to minimize unwanted room noise.

The AT2040 has an XLR output for easy connection to professional broadcast equipment or interfaces for Mac and PC. The microphone comes with a pivoting stand mount, 5/8-inch 27 to 3/8-inch-16 threaded adapter, and a soft protective pouch.

For information, contact **Audio-Technica** at 1-330-686-2600 or visit www.audio-technica.com.

Tech Update

Angry Audio Develops Headphone Disconnector

Angry Audio thinks you might frequently find yourself breaking your favorite headphones because you stepped on the cable or walked away from the board with the headphones still around your neck. We've all done it.

The company now has a fix for that called the Headphone Disconnector.

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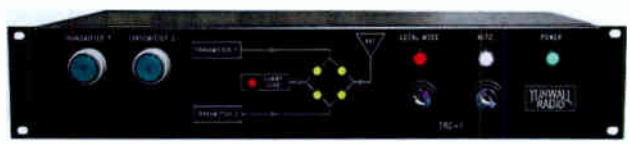

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Developing Radio Partners makes a difference in Africa

"We have found radio to be the best option to reach a lot of people all at once"

Writer

Raphael Obonyo

The author, a public policy analyst, has served as a consultant with the United Nations and the World Bank. He has authored and coauthored numerous books and is a TEDx fellow.

The U.S.-based NGO Developing Radio Partners is playing a crucial role in socioeconomic development in several African countries by using local radio to address their communities' greatest needs.

In Malawi, DRP is closing the knowledge and information gap on sexual reproductive health with a project that helps young people know their health rights. The project, supported by the U.S. Agency for International Development, has trained more than 400 young people ages 14 to 19 to produce weekly radio programs on diverse topics related to reproductive health.

The project is aimed at making sure boys and girls understand their health rights and are aware of the reproductive health services that are available to them. DRP's project includes partnerships with nine community-based radio stations that are focusing their weekly radio programs and public service announcements (PSAs) on topics aimed at ending child marriage and reducing rates of teen pregnancy, HIV infections and COVID-19.

The programs also encourage girls and boys to stay in school and complete their education.

In Burkina Faso, DRP trained community health workers and radio reporters to produce a weekly program that was broadcast by a community-based radio station. They believed that if local health workers delivered messages about COVID-19, the communities would pay attention and take preventive measures.

Right
Mary Jasitini and her father from Mgomba village listen to the "Let's Talk for Change" program on Nkhotakota Radio.

> **"Station partners have told us that they rely on these bulletins because they are accurate and timely — and we believe this is why their weekly radio programs are popular."**

"Best option"

Charles Rice, DRP president and chief executive officer, says radio is how most people in Malawi and Burkina Faso get their news and information.

Internet is often nonexistent or very limited in rural areas, and television can be expensive and require electricity. Radio, on the other hand, is relatively inexpensive, and a radio set can be powered by batteries or by solar.

"We have found radio to be the best option to reach a lot of people all at once. In Malawi, for instance, our potential listening audience among the nine radio stations we work with is about 6.5 million people," Rice said.

"We work with community radio stations because they are part of the community; they are operated by the community. They are often trusted, and the stations we work with often focus on stories that affect the community – whether it's related to farming, public health or the environment."

Chiko Moyo, DRP's coordinator and trainer in Malawi, works directly with the mentors, the youth reporters and the radio listening clubs at the nine partner radio stations.

"Just as an example, the youth are taught how to hold public officers accountable and they see the fruits that come out of such actions; public funds for SRH (sexual and reproductive health) are put to good use, youth arise to monitor how officers are conducting youth friendly health services, and many other things that help communities to be served better," Moyo explains.

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Above
Florence Deusi, right, was a child bride at age 16. She talks with a Mudzi Wathu Radio youth reporter.

Below
Chanco Radio RLC member Micah Mwalala reads the COVID 19 Bulletin.

DRP conducts trainings on a monthly basis and sends weekly tip sheets to help youth reporters focus on specific topics for their weekly programs and PSAs. The Weekly Bulletin is researched, written and fact-checked in Malawi; it provides background on specific issues as well as questions for the reporters to use in their programs and contact details for people to interview.

"Station partners have told us that they rely on these bulletins because they are accurate and timely — and we believe this is why their weekly radio programs are popular. Listeners know that the information they are hearing is accurate" said Mercy Malikwa, who writes the Weekly Bulletin.

DRP has been producing the Weekly Bulletin on sexual reproductive health since May 2017. It started a special weekly bulletin on COVID-19 in March 2020 and it is still being produced.

Changing behavior

The radio programs, both in Malawi and Burkina Faso, have proven to be popular with listeners as well as health officials.

"The project has tremendously improved youth reproductive health awareness and rights in the sense that we have better information dissemination through radio, and that has improved the lives of youth and changed their behavior," said Jossein Chazala, the Youth Friendly Health Services Coordinator in Malawi's Nkhotakota District.

In Burkina Faso, the radio program led to the creation of a health association covering 16 villages in the listening area; it comprises community leaders and local health workers who work closely with villagers to ensure everyone gets regular health checks and observes COVID-19 preventive measures.

The Malawi stations often use peer-to-peer storytelling to change behavior, and that was dramatically illustrative for Florence Deusi, who was a child bride at 16 but says the weekly youth program on her local station (Mudzi Wathu Community Radio in Mchinji in central Malawi) helped her escape her illegal marriage to a much older man.

"Whenever I was alone I could tune in to the youth program and that's where I gathered courage to get out of the mess that I was in."

Now 19, Florence has told her story on the program, "and I encourage girls who are in situations like me to get out of such marriages and go back to school."

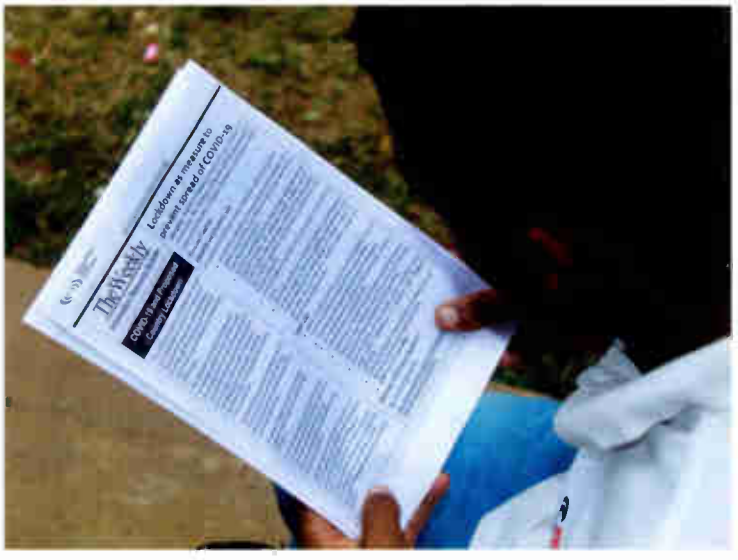
The Malawi stations have other notable successes, including a yearlong campaign by youth reporters at Chirundu Community Radio in Nkhata Bay to have an abandoned hospital converted into a vocational school teaching such skills as bricklaying, welding, and plumbing.

Also, data tracked by DRP and the stations suggests that programs and PSAs at the Mchinji station from January to March 2021 led to an eight-fold increase in the number of young people seeking HIV testing and counseling services. The station manager launched the programs after noticing a huge drop in visits related to HIV testing between October and December 2020.

After Gaka FM in Nsanje in southern Malawi began partnering with DRP in January 2021, visits to the local youth health clinic climbed 81% between January and March compared to figures from July-December 2020.

Data from the Ministry of Gender, Community Development and Social Welfare also suggest that there is correlation between the reduction in child marriages and the radio programs and PSAs produced by DRP-partner stations.

"Based on the data, we believe the radio programs are having a significant impact by reducing child marriages in the districts where we work and increasing the number of COVID-19 vaccinations in those districts where DRP is operating," Rice said.



Byline Correction

In the Aug. 18 issue, the byline of the article "Radio, stick to your knitting" misspelled the name of author Michael Saffran.

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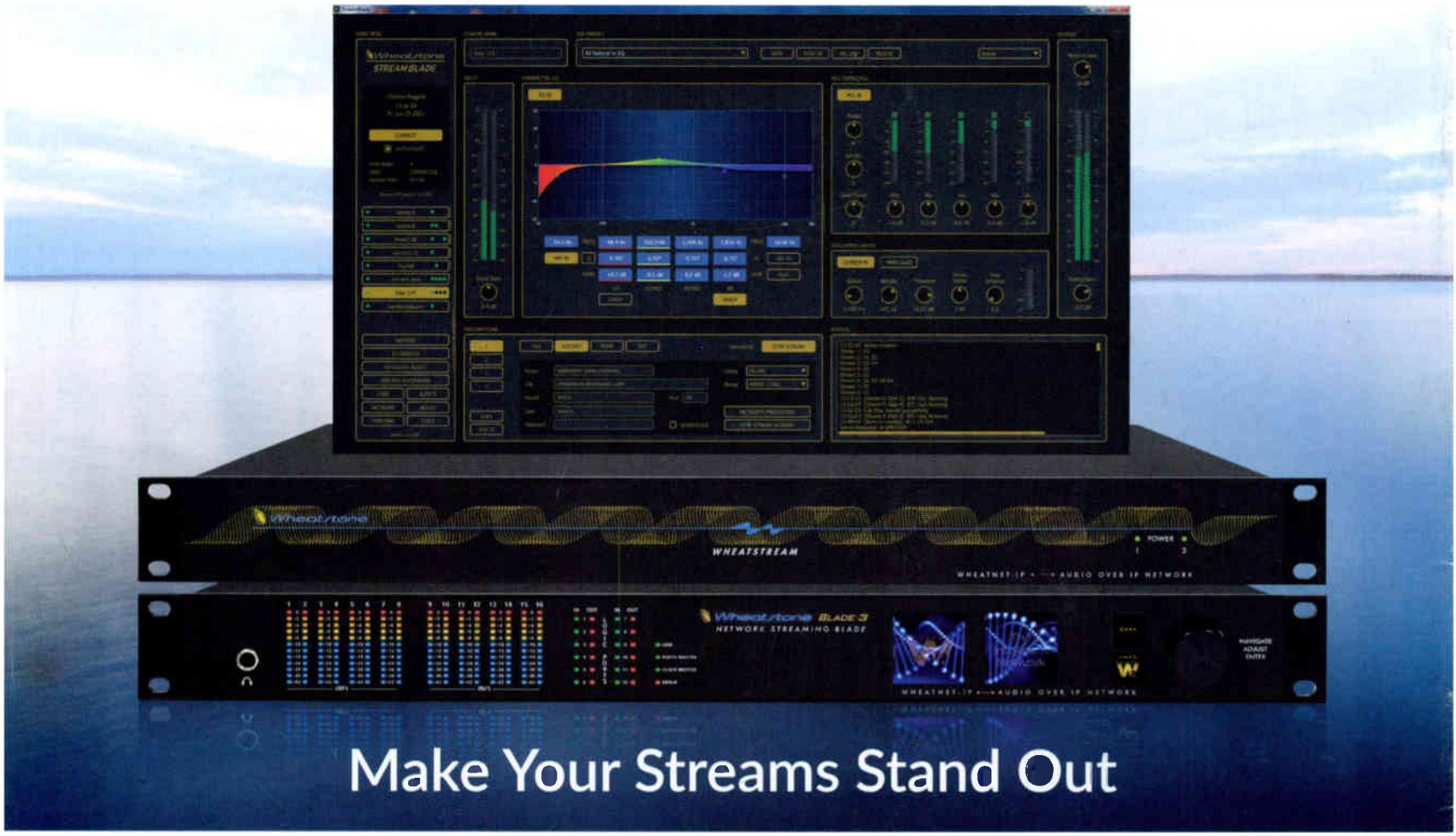

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