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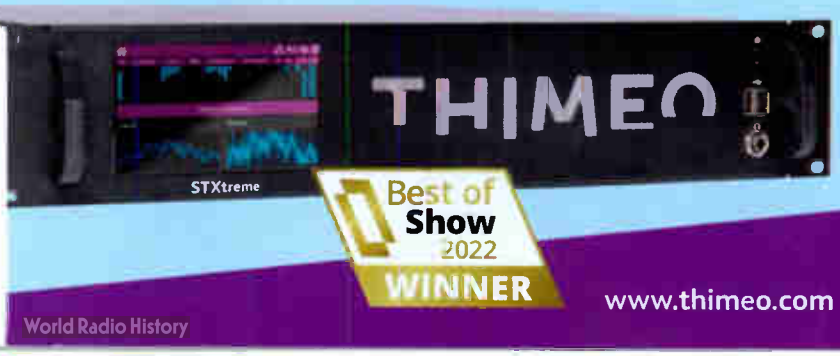

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A lifetime in broadcast tech

James O'Neal is a treasured part of the RW family

Paul McLane
Editor in chief

A word about James O'Neal, whose articles about technology and history are among our most popular features. His series about Franken FMs concludes in this issue.

James has been involved in broadcast technology for more than half a century, beginning in his early teens, when he was hired by a commercial radio station in his hometown of Hope, Ark.

He did part-time work in radio and TV during high school and college, then began his engineering career after college in 1969. He spend 30+ years in U.S. government television operations, including the U.S. Information Agency's Television and Film Service, WorldNet Television and VOA-TV. Among other things he helped launch Uncle Sam's first global satellite-delivered TV network.

On retirement he began a second, decade-long chapter as technology editor of TV Technology magazine, our sibling publication.

Sought after as a speaker — even by the Smithsonian — James also restores consumer radio and TV items and commercial broadcasting equipment; he even built a working replica of the 1947-vintage smalltown radio station where he began his career. He holds commercial and amateur radio licenses.

Oh, and he is a Life Member of the Society of Broadcast Engineers ... a Life Fellow of the Society of Motion Picture and Television Engineers ... Life Senior Member of the Institute of Electrical and Electronic Engineers ... member of the IEEE's Editorial Advisory Board ... editor-in-chief of the BTS's Broadcast Technology publication ... a manager of the Washington, D.C., SMPTE section ... member of the SMPTE Board of Editors ... an associate editor of the SMPTE Motion Imaging Journal ... member of the board of directors of the Early Television Foundation Museum ... an enthusiastic proponent of keeping broadcast history alive ... a friend to Radio World ... and a true gentleman.

We're grateful to have him in the RW family.

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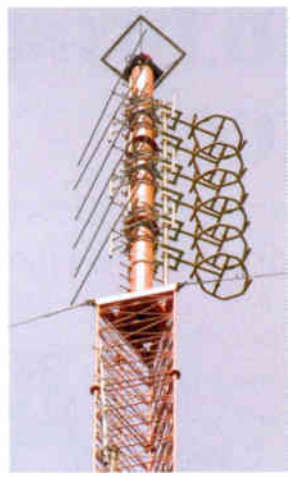
FCC Allows Directional FM Modeling



Courtesy Cris Alexander

The FCC will allow FM broadcasters the option to use computer modeling to verify directional antennas.

The most common reason to use a directional antenna by a commercial full-power FM is to allow it to "short-space" to another FM while maintaining contour protection to that station.

The computer modeling must be done by the antenna's manufacturer. The FCC declined to extend authority to perform modeling to others, at least for now.

Once a particular antenna model or series of elements has been verified by one applicant using a given type of software, the FCC will permit subsequent applicants using the same combination to submit the computer model for their installations.

"May 19, 2022 is a monumental day for FM broadcasters," wrote manufacturer Dielectric, which pressed for the change along with Shively, RFS and Jampro, as well as broadcast group Educational Media Foundation.

Electronics Research Inc. had opposed the change, which it said would increase interference due to patterns that do not accurately reflect actual directional signals.

James Boyd Dies at 75

Engineer James Boyd died in May.

Boyd was well known in the radio technical industry but especially in the northwestern U.S. He owned Boyd Broadcast Technical Services in Oregon.

Earlier in his career he was a chief engineer, operations manager and group chief for Capps Broadcast Group from the late 1960s to the early 1990s; he also had worked for WTD Industries.

An amateur radio enthusiast, he also was a lead inspector for the Alternate Broadcast Inspection Program for the Oregon Association of Broadcasters and the Idaho Broadcasters Association.

He told author Scott Fybush in a 2008 article for Radio Guide magazine that his first job was at KBND(AM), before he served in Vietnam as a broadcast specialist in the U.S. Army. He founded his company in October 1991, and clients included Entercom, CBS Rwadio, smaller stations, Harris Corp. and consulting firms Hatfield and Dawson and DuTreil, Lundin & Rackley.

According to a Radio World article in 2016, Boyd was involved in the effort to create a "first informer" credential for Oregon broadcast engineers.

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Writer

James E. O'Neal
Longtime Radio World contributor and former technology editor of TV Tech.

Above
Triveni Digital StreamScope screenshot displaying video and data about the ATSC 3.0 TV signal being transmitted by KBKF(LD), the first implementer of "second-gen" FM6 "Franken" broadcasting. (The station was transmitting two independent video streams at the time of the screen capture in late March 2021.)

Do "Frankens" really fit into the radio ecosystem?

We conclude our three-part series

FCC Chairwoman Jessica Rosenworcel released the agenda for the commission's June meeting, and FM6 is on it.

Perhaps indicating which way she is leaning on the issue, she said the commission will be "asking about preserving established local programming for radio audiences."

The FCC will consider a proposal to allow these broadcasters to continue their existing "Franken FM" radio service, "provided that they meet certain conditions, including interference protection and the provision of a synchronous TV service to consumers."

James O'Neal wrote about the new wave of FM6 stations in our March 30 and May 11 issues. He concludes the series here.

Although many thought "Franken FMs" would quickly fade from the scene when the FCC pulled the plug on the last of the analog Ch. 6 LPTV operations last summer, this has not been the case.

By now several of the new wave of ATSC 3.0 digital TV/87.75 MHz FM audio broadcasters are going strong, enabled via some 21st century RF filtering technology and FCC-issued STAs, of which 13 have been issued.

The original (analog Ch. 6 video/FM audio carrier) Frankens certainly drew their share of comments from the radio broadcast community, and now this new wave of hybrid DTV/analog FM operations is coming under scrutiny, with some sharply divided opinions.

We begin with comments from the implementer of the first of these "second-gen" Frankens.

An owner's perspective

Possibly the biggest proponent of the hybrid DTV/FM technology is Paul Koplin, CEO of Venture Technologies, which owns KBKF(LD), a San Jose, Calif. low-power Ch. 6 TV station that switched on its ATSC 3.0 DTV/analog FM operation in March of 2021.

"When we converted to digital [TV broadcasting], we thought about the best way to achieve a hybrid model and to the FCC, this works well," said Koplin. There's no interference between the two services per FCC rules."

Koplin observed that VHF TV spectrum — especially the low-band Channels 2 through 6 — has become "low-rent" real estate due to the ever-increasing amount of manmade noise in that region, and says these new Frankens are able to wring some utility out of this region.

World Radio History

"This spectrum was a lemon and [with the hybrid broadcasting] we made it into lemonade," said Koplin. "It's a win-win solution."

He noted that the initial STA on which KBKF was operating had been renewed, and looked forward to the day when the FCC officially recognized Ch. 6 hybrid broadcasting by codifying rules and regulations for it. In doing so, this would become an additional revenue stream for the commission.

"The FCC is getting additional revenue from what we're doing as we're paying supplemental fees," he said, adding that "there's no technical reason for anyone to oppose this. We've had no technical issues, and there've been no interference complaints. No major radio groups are opposing this sort of operation, only NPR. They don't want anyone to the left of their dial position."

Koplin expects other Ch. 6 licensee to follow his lead, and perhaps even build on it by providing services that go beyond radio and television.

"It's one step at a time right now," he said. "We're the first in the country to provide this service. The Channel 6 supplemental use case we've established is a pathway for other stations to use their spectrum for even more innovative services."

Aaron Read

Other broadcasters weigh in

"I just wish I'd thought of it!" remarked Chuck Conrad, the owner and general manager of Tyler-Longview, Texas radio stations KZQX(FM), KDOK(AM) and KYZS(AM), when asked for his take on the Franken resurgence.

"If nothing else, I admire the ingenuity of whoever first implemented it. I'm sure a lot of other broadcasters will disagree with me because the industry doesn't like additional competition. Why would they? If people are listening to the Franken FMs, it means they are not listening to their station. It's a simple as that."

A lot of objections past and present stem from potential interference to existing broadcast operations, and this concern is registered in the STAs under which the new Frankens are operating. Conrad was asked about this possible downside.

> **"It's merely an end-run around all the existing rules for creating FM radio stations."**

"When these Franken FM stations were riding along with an analog Channel 6 TV signal, the reports of interference to the lower end of the FM band were few and far between," he said. "As far as I know, all were resolved. Some of those stations became quite successful. I see no reason to not give them the blessing of the commission."

Aaron Read, the IT and engineering director at Rhode Island Public Radio, has a different opinion. Read, speaking only for himself and not for his employer, says the technology that's enabling these new hybrid broadcasters might be valid, but the application of it is not.

"Technology is a tool, and tools are value-neutral," said Read. "It's how you use the tool that matters. And that's why I have a problem with this use of the tech. It has nothing whatsoever to do with providing any television service, much less an improved television service. It's merely an end-run around all the existing rules for creating FM radio stations. And worse, it bypasses most of the technical rules that protect FM radio stations from interfering with each other, and it also bypasses the FCC fee structure that the agency depends on for its operating revenue."

Dave Kolesar, a senior broadcast engineer at Washington's WTOP and Federal News Network, shares the belief that the first- and and second-gen Frankens are

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a somewhat misdirected application of technology for creating an FM radio service.

Kolesar, also speaking for himself and not on behalf of his employer, stated: "I think the evidence for this is based upon the fact that in the analog days such operations were generally not marketed to the public as television stations, and so 6 MHz of RF spectrum was effectively allocated for just one analog FM signal.

"In an ideal world," he said, "I'd like to see 87.7 and 87.9 opened to commercial FM service if there are no TV stations on Channel 6 in the area. In that ideal world, a Ch. 6 TV station could surrender its TV license and apply for an FM license on that channel."

He added that he did not favor a downwards expansion of the current FM band to occupy all of the TV Ch. 6 region, as there are no readily available receivers that cover this. He also feels that any new radio broadcasting spectrum allocations should be for digital services.

Rules needed

Given the apparently popularity of these new DTV/analog FM stations, the FCC seems obliged to make a binding decision about them, rather than continue to renew STAs.

Comment
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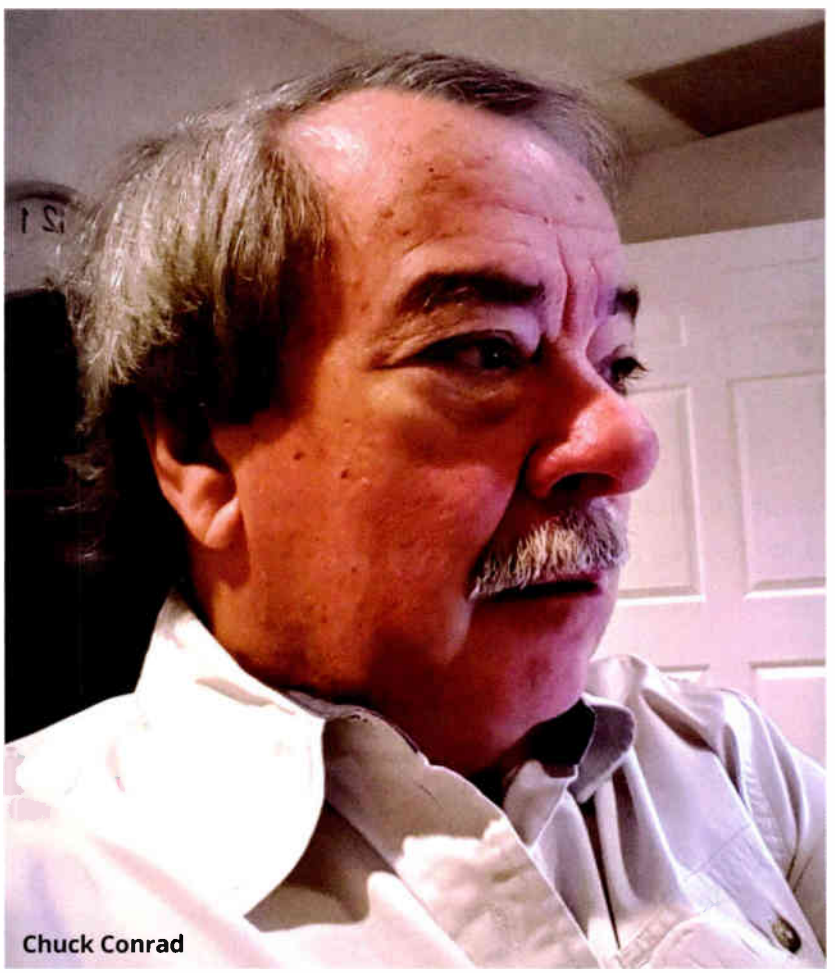
"I think if this concept is allowed to stand in any form," Aaron Read said, "it'll be inevitable that the FCC will be 'forced' to legitimize them, and also that you'll see greater proliferation of LPTV-6s operating as 'Franken FMs,'" said Read. "I put 'forced' in quotes since they are, of course, 'forcing' themselves by not blocking this service from existing in the first place.

"There has always been a strong 'pro-TV at the expense of FM' bias written into the Part 73 rules in the Code of Federal Regulations," he continued. "But more than that, there literally is no regulatory structure in place to manage interference from these 'Franken FMs.'"

He said regulation 47 CFR 73.525 has many rules and engineering specs, but they're all in reference to the NTSC television standard, which no longer exists.

"There [are] no rules for dealing with ATSC. How is anyone supposed to know when prohibited interference is legally occurring? And to say that these TV stations 'aren't allowed to interfere' with FM is wildly disingenuous. How are FM stations supposed to prove that interference exists? By listener complaints? Does the FCC seriously expect your average listener to even realize when they're hearing interference, much less recognize what the interference is, and know enough to contact the FM radio station about it?


Chuck Conrad

> **If nothing else, I admire the ingenuity of whoever first implemented it.**

"At a bare minimum, if the FCC is going to allow this terrible idea to proceed, a complete rewrite of 47 CFR 73.525 is an absolute necessity so that FM stations have something to fall back on."

NPR's position

National Public Radio long been critical of Frankens due to the proximity of their 87.75 MHz operating frequency to that of non-commercial broadcast allocations, and it has filed objections about their operation.

Asked about its stance on this second wave of Frankens, Marta McLellan Ross, the organization's vice president of government and external affairs responded: "NPR continues to monitor the use of STAs and whether interference occurs as a result of their use. We remain

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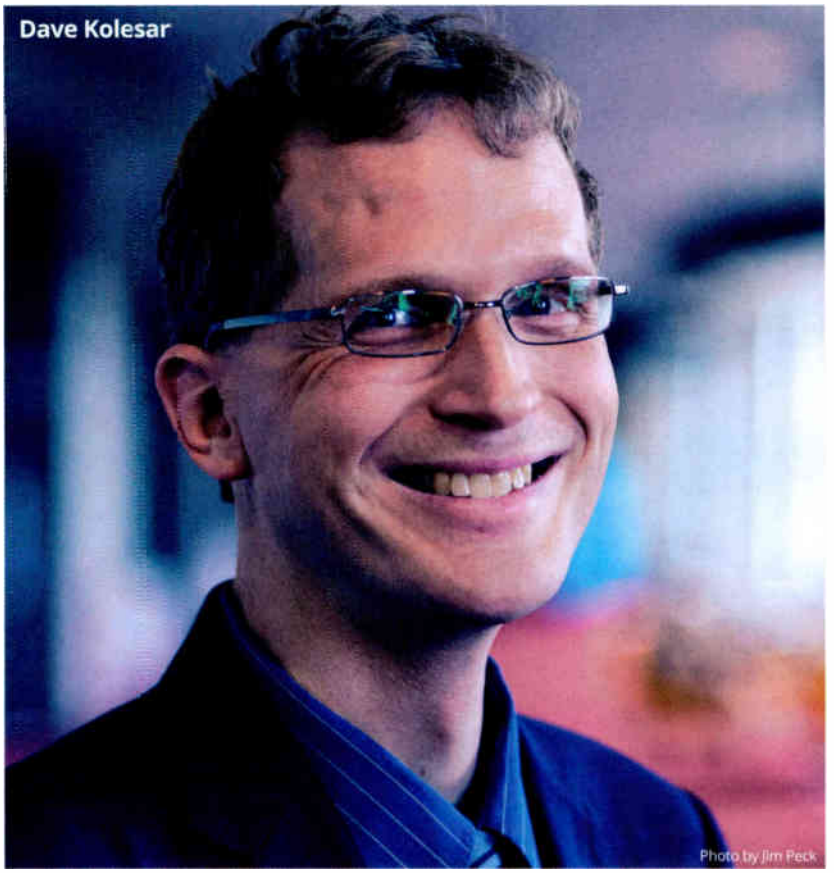

vigilant for any actions that would result in interference with our member stations' ability to reach their audiences."

The FCC waits and watches

As for the FCC's position, a commission spokesperson provided this statement:

"The provision of so-called 'FM6 services' has been going on for over a decade. Today, there are actually fewer stations that are operating in this manner. We have permitted these stations to continue operating pursuant to STAs, as we evaluate the technical, legal and policy issues surrounding these services.

"In mid-2021, with the LPTV digital transition deadline fast approaching, the Media Bureau began granting six-month digital engineering STAs to some of the previous analog FM6 stations," the spokesperson continued.

"This was an effort to minimize consumer disruption by allowing these previous analog FM6 stations to continue their FM6 operations after they converted to digital. To date, only 13 of the original analog FM6 stations have been granted these digital engineering STAs. The previous analog FM6 stations were required to convert to ATSC 3.0 digital operations and could continue FM6 operations separately through the six-month digital engineering STA. These STAs were granted with several conditions to ensure that there would be no harmful interference to other users and to also ensure that the station fulfilled its obligation to provide TV programming to its TV audience."

The spokesperson said stations are required to report every three months on any interference complaints they had received, and that none of the stations has reported interference to date. Several of the STAs have been renewed for an additional six months since their initial grants.

The question of a permanent path for FM6 stations has been before the commission in a rulemaking proceeding in MB Docket No. 03-185 that was released in late 2019. In May of this year, Chairwoman Rosenworcel announced that the issue will be put to a vote in June.

> **"In an ideal world ... a Ch. 6 TV station would surrender its TV license and apply for an FM license on that channel."**

Where will it end? (Or will it end?)

Just as with about everything else these days, there seems to be no middle ground concerning these hybrid digital TV/analog FM operations.

It would seem that the appeal to operators is biased on the radio side due to the potential ad revenue, a decline in off-air TV viewers, the relative scarcity of ATSC 3.0 receivers and the limited availability of LPTV stations on cable systems.

However, this could change, making television broadcasting activities more viable. Also, given the continuing shift away from analog broadcasting, perhaps it's just a matter of time before Major Armstrong's wonderful, 90-year-old, interference-free broadcasting modality will be relegated to the history books; if so, even these "second-gen" Frankens will have no relevance and there will no longer be an issue. Only time will tell.

Meanwhile, these hybrid DTV/FM stations continue to attract niche audiences and generate operating revenues for their owners or operators.

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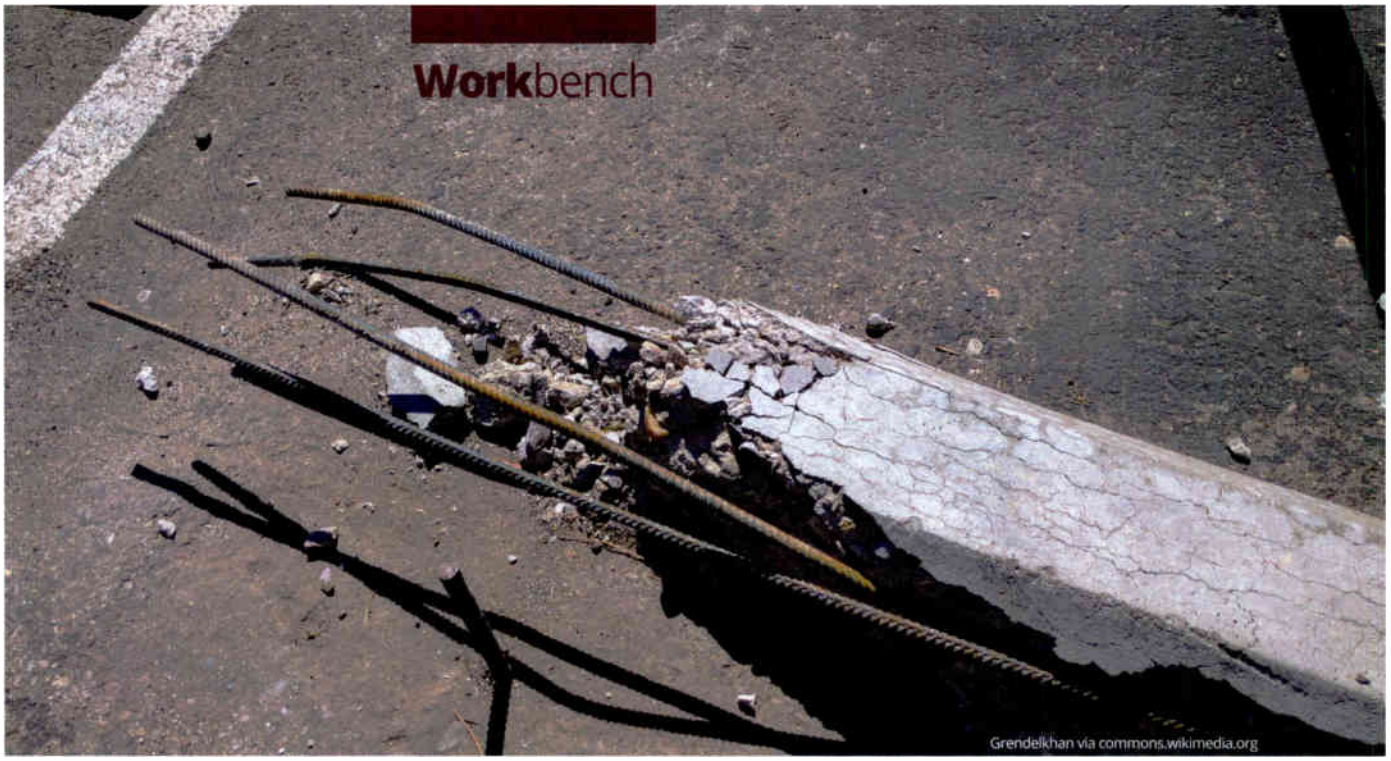

John Bisset
CPBE

The author has spent over 50 years in the broadcasting industry 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.

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Given that engineers are responsible for pretty much everything around the broadcast facility, I share this idea from Pastor Carl Wiggins, general manager of WKCL(FM) in Charleston, S.C.

We've all seen concrete parking bumpers that have cracked and fallen apart over time or because a heavy vehicle crushed them.

After having the station's parking lot resurfaced and painted, Pastor Carl searched for rubber parking bumpers on Google. These run between $30 and $50. Thanks for their rubber construction, they won't fall apart or disintegrate if a wheel hits it.

As shown in the photos, you can drive a spike through the pre-drilled holes to secure the bumper.

These are available from specialized suppliers like Uline, Traffic Safety Store and My Parking Sign, as well as from Walmart and Amazon.

Top
Concrete parking bumpers can break up over time.

Middle
A rubber parking bumper is more durable.

Bottom
With pre-drilled holes, the bumpers can be secured with spikes.

Mr. Gadget says ...

Steve Kruschen is known as "The One and Only Mr. Gadget." His website *www.mrgadeget.com* offers a lot of interesting subject matter.

Responding to Rolf Taylor's earlier comments about lubricants, Steve tells us he was a fan of the most well-known lubricant until he came across a can of Boeshield T-9, sold by PMS Products of Holland, Mich.

Reading the label, Steve discovered the product had been developed by Boeing, the respected and trusted aircraft manufacturer, so he thought it might be pretty good. When he asked his colleague about it, the technician enthusiastically went on and on about how the product is the best stuff to come along, a long-lasting and waterproof lubricant.

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Steve uses T-9 in all sorts of contexts: on door locks and hinges around the house, on bicycle chains and shifters, on garage door hinges and the chain of the electric opener, on the wheels of suitcases and wheeled carts, on ladder hinges, on electric switches, and on tools including saws and drill bits.

He has even applied it to the rubber along which power windows travel; this saves wear and tear on the motor.

T-9 also protects against rust; spray it on and the item is protected for months. He says other popular sprays and lubes, including the big one that we all know by name, leave an oily film that attracts dirt and debris.

Steve recommends that every engineer keep a can of the aerosol spray of T-9 on hand (and if there is a bicycle around, also a 4-oz. drip bottle). Used sparingly, a can or bottle may last for a couple of years.

The product sells for under $15. Look for it at retailers like REI, Bass Pro Shops, General RV Center, West Marine, Woodcraft and Performance Bicycle, or on Amazon.

You can also learn more about T-9 at *https://boeshield.com* or call PMS Products in the U.S. at (800) 962-1732. Let them know Mr. Gadget sent you. Steve receives no compensation for this recommendation. We appreciate his sharing this unique lubricant with Workbench readers.

Above
Mr. Gadget recommends Boeshield T-9.

Below
Yes, it's a microphone!

Wireless IP

Special projects engineer Dan Slentz dropped a line to encourage readers to consider wireless IP as a cost-effective solution for studio/transmitter links.

Dan started using Trango for wireless streaming for live news using Slingbox more than 15 year ago. He also likes Ubiquiti Networks gear, which he finds to be well-built and cost-effective.

My Telos colleague Kirk Harnack posted a video in 2016 describing this type of installation; search YouTube for "Livewire+ and Ubiquiti airFiber5 Studio-Transmitter Link (STL) for Delta Radio."

As you'll see in the video, this gear could work well for IP-based STLs, or even RPUs where cell service is spotty.

Given that cell systems are first to fail when swamped in big emergencies, Dan says a heavy radio news operation may find IP-based RPUs a cheap, effective contingency.

Find relevant information at the Ubiquiti Web Store: *https://store.ui.com/collections/operator-airmax-and-ltu*.

For remote transmitter sites, a wireless IP system might be a great backhaul for network camera security or a web backbone (and not prone to line-cutting by vandals). If the link runs on a UPS, a power loss won't take the backhaul down immediately.

Note that many of these solutions are unlicensed, so while they are convenient, your frequencies may be shared. In the 60 GHz range, the links also are more susceptible to rain/snow interference if you push their limits.

Can you ID this mic?

We'll wrap up with a "blast from the past," also provided by Dan. The accompanying photo show one of the oldest pieces of broadcast equipment he has come across. This was one of the first microphones used by WHIZ(AM) in Zanesville, Ohio.

Dan found it in a garage nearly 20 years ago but it is of course much older; his guess is it dates to the late 1920s or early 1930s. The station itself was founded in 1924 as WEBE and changed call letters in 1939.

This was labeled "Western Electric, Iowa, USA." Its "candelabra" base was attached to the box on top. There were four brass screws on the back of that box; of course, Dan had to open it up to figure out why it had so many pins on that Bakelite connector. It turns out that the box also housed two or three tubes and electronics for the mic, which looked like a carbon model such as used on old telephones.

Dan sent the picture to some friends to try to get more information about the mic, and immediately started getting offers to buy it (for thousands of dollars)! Instead he took it to WHIZ so they could display it.

What do you know about this mic? Email *johnpbisset@gmail.com*. Also share your own fun stories and vintage equipment finds with us.

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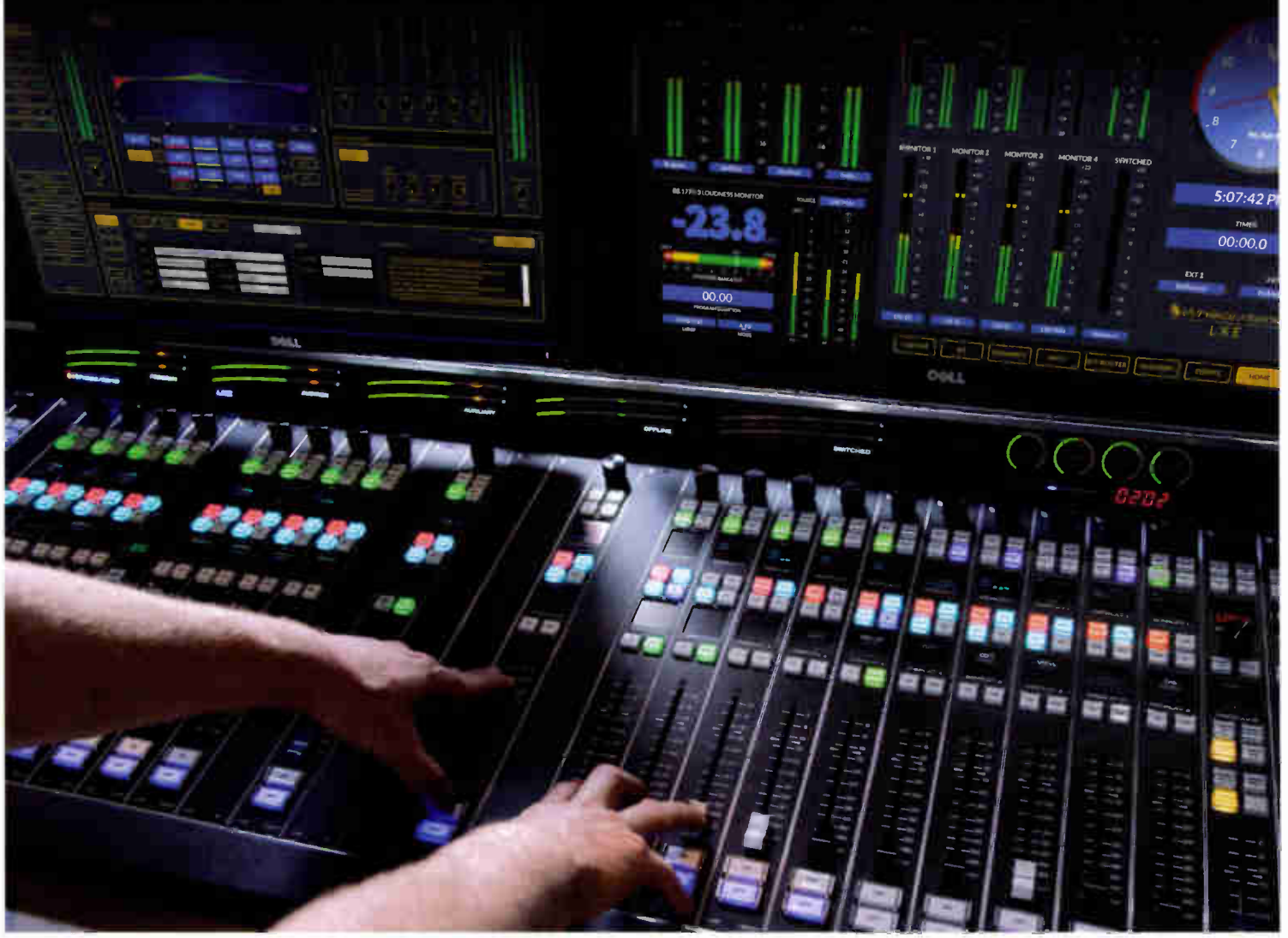
IT S ALL IN WHEATNET-IP THE INTELLIGENT NETWORK

LXE: Software Configured



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BLADE-4 COMPATIBLE

Wheatstone

World Radio History

Outstanding products in all three halls

Best of Show 2022 WINNERS

These products stood out at the NAB Show

Here are the products that won the Radio World Best of Show Award at the convention in April. Winners were chosen by a panel of radio engineers and RW editorial staff for their innovation, feature set, cost efficiency and performance in serving the industry.

Best in Market Awards are presented by Future brands Radio World, TV Tech, TVBEurope, Next, Mix, Broadcasting & Cable and Sound & Video Contractor. They are intended to honor and help promote outstanding products recently launched or coming in 2022. Companies pay a fee to nominate; not all are winners. All entries will be featured in an upcoming Program Guide.

Bionic Table From Broadcast Bionics

Turn any area in your facility into a content creation studio with the "Bionic Table."

You supply a physical surface, as well as an edge device such as a Telos Microphone xNode, and up to four mics and headphones. Then connect your laptop, tablet or phone, and choose which utensils you want from the Table menu: mics, audio sources, audio beds/stings, phones, webcams. Contributors can connect to the Bionic Table session remotely via web mic.

The console, playout, phone and remote source capabilities come from Bionics' software, running on a machine or virtual machine in your building or in the cloud.

The Table uses automix to control levels. Record a session and download your recording as a stereo mix or as full multi-track file. The output is a broadcast-quality live audio stream that is available over the network and can be made available to streaming services or as a recorded file.

"It's designed to be used in the breakout zone, meeting room, coffee area or even in a corner of your own home."

Shown, from left: Dan McQuillen and Duncan Smith come to the table with Radio World's John Casey and Paul McLane.

Info: *www.bionics.co.uk/BionicTable*

Dielectric FMP FM Pylon Antenna Family

Broadband pylon antennas are known in TV land. Dielectric is bringing their high efficiency and low windload to FM broadcasters. The benefits of the slot cavity microstrip FM antenna design include multicasting, pattern flexibility, increased reliability and a small tower footprint. John Schadler received the Best Paper Award in the NAB Broadcast Engineering and IT Conference for his presentation on the use of slotted coaxial pylon antenna technology in FM.

Shown with Paul are Dielectric's Kim Savage, John Schadler and Keith Pelletier.

Info: *www.dielectric.com/antenna/new-fm/*

World Radio History

orban

OPTIMOD XPN-Enterprise

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DJB Radio Studio

This solution for internet radio, remote broadcast and podcasting is based on DJB's Button Box "infinite cart-wall" software.

DJB Radio Studio allows you to connect up to 10 audio sources to a PC, laptop or Windows tablet to create professional audio podcasting or long-form recording. The on-screen virtual mixer features per-channel VU and lets you mix the local cart-wall or play-stack audio with any external USB mic, audio interface or analog device and record your podcast with the push of a button. Pause and resume recording as needed, then edit the product in the waveform editor.

Features include a scheduler to rotate music, IDs and other elements; a database editor to catalogue and categorize your audio; and drag-and-drop functionality to move tracks onto the cart-wall and clean them up with the waveform editor.

DJB's Adam Robinson, Virginia Crowe and Tyzen Paley celebrate with Paul.

Info: www.djbradio.com

Inovonics 552 HD Radio Modulation Monitor

For advanced FM and HD Radio signal monitoring, check out this new offering from Inovonics, with which you can simultaneously monitor your off-air FM modulation along with up to four HD Radio channels in real time.

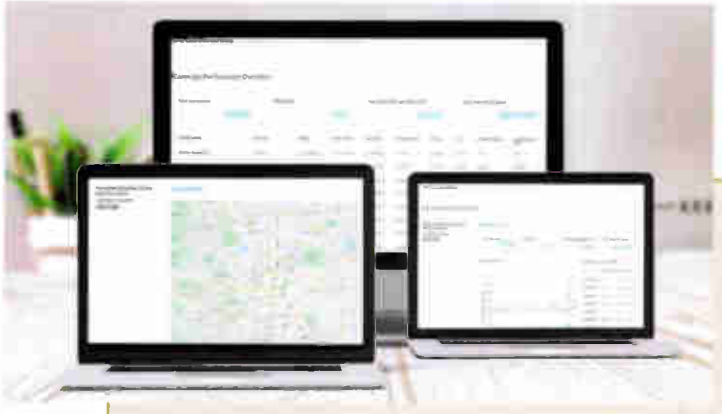
The 552 collects a history of signal parameters and displays HD Radio album artwork, station logos and similar visuals on the remote web interface, a snippet of which is shown in the inset photo. The 552 includes a BandScanner, real-time clock and full SNMP functionality.

Rear-panel alarms constantly check for audio loss, RF loss, multipath and overmodulation, while advanced notifications alert personnel with e-mail or SMS messaging when any or all of the alarms occur.

Spectrum graphs include RF baseband, MPX and Left/Right Audio. O-Scope views for MPX, Pilot, RDS and all audio channels. StationRotation enables you to monitor up to 30 station presets.

Shown, Josh McAtee, Ben Barber, Sharon Barber, Gary Luhrman, Jim Wood, Paul McLane.

Info: www.inovonicsbroadcast.com/product/552



Marketron NXT

"Siloed media buying causes inefficiencies for advertisers and lost revenue potential for broadcasters," Marketron says. "Radio stations need to provide advertisers a marketing solution comprising both traditional radio and digital advertising tactics."

So it offers Marketron NXT, a digital ad platform built for radio stations to increase revenue by offering a simple, professional way to create cross-channel proposals for advertisers.

Features include a digital + radio proposal tool, order entry and execution, transparent reporting and consolidated invoicing. Marketon says NXT can boost digital sales by 15% and streamline the process "from quote to cash."

It includes ongoing training for your staff.

Info: www.marketron.com/marketronnxt/

World Radio History

Nautel VX Series Transmitters

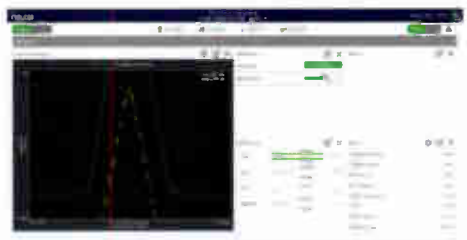
Ten FM analog models make up the new VX Series line, in power outputs ranging from 150 W to 5 kW. Compact rack footprint is part of the appeal, with depths of only 20 to 25 inches.

The architecture of the series incorporates state-of-the-art DSP, power supply and FET technology. The RF power chain is based on a new high-voltage FET and is mated with dual-core DSP, which Nautel says provides lots of headroom for future enhancements. Titanium-grade industrial power supplies are hot-swappable with front-panel fingertip removal. Control is via the new HTML5 Advanced User Interface.

Deliveries of 150 W to 2 kW models is anticipated later this year, with 3 kW to 5 kW coming in early 2023.

Info: *www.nautel.com/fm-transmitters/vx-series*

Nautel New Advanced User Interface



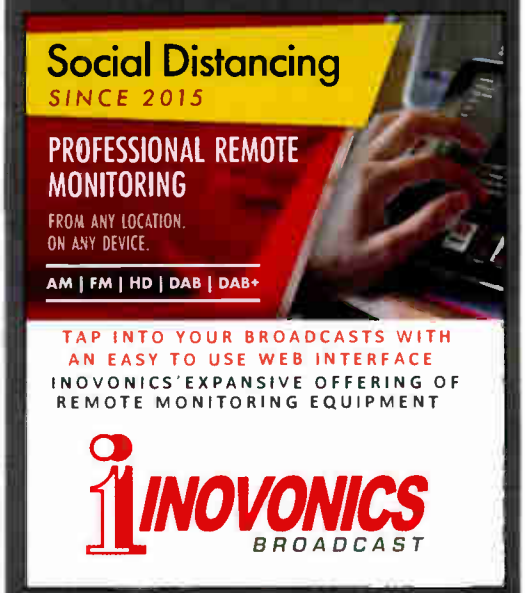
The original Nautel AUI launched in 2009 and was remarkable for elevating the state of transmitter remote monitoring and control.

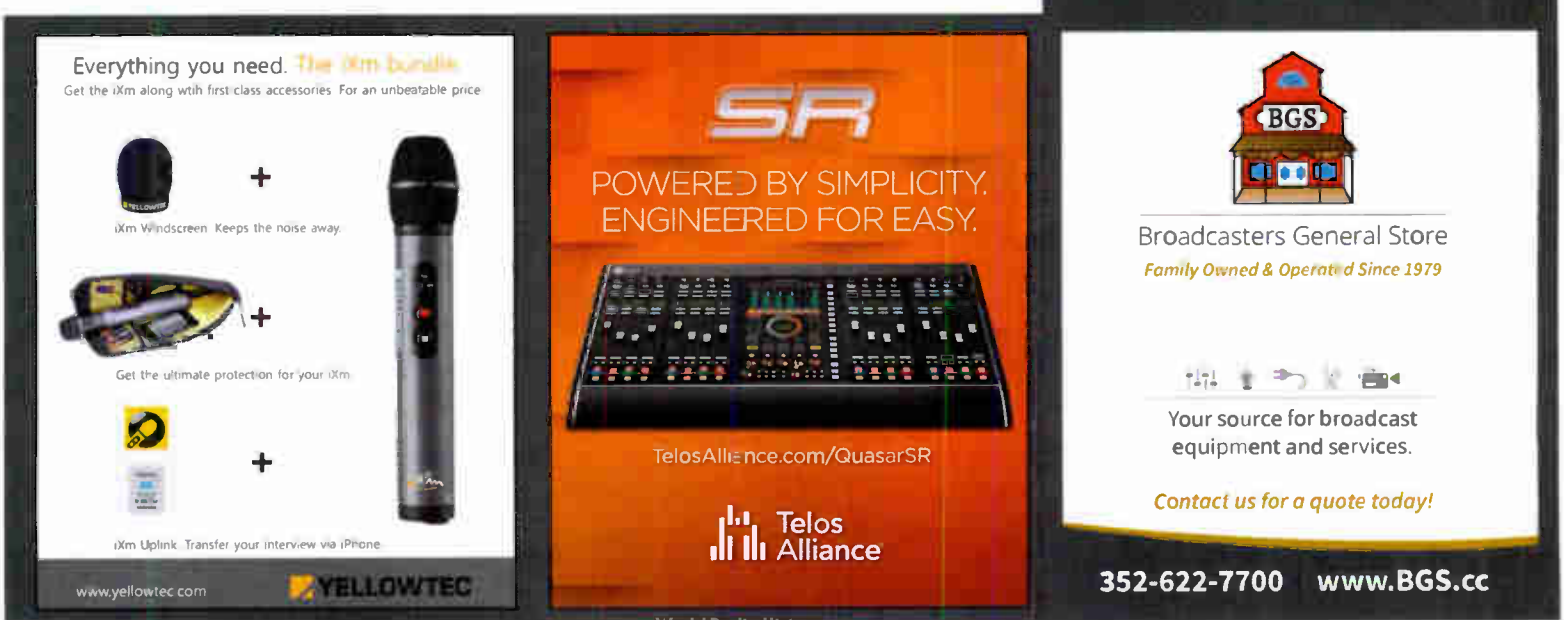
The company has rewritten the AUI with a new operating system and architecture. It comes standard on new Nautel transmitters and is a free upgrade for existing AUI-enabled transmitters.

The AUI is accessed locally via a LAN connection or remotely over the internet using a browser. Features include secure HTML5 AUI; instrumentation including spectrum analyzer and Lissajous; RDS, SNMP and high-end presets; user-defined Presets with automated Scheduler; customizable automated notifications; Nautel PhoneHome; HD Radio support; and optional Orban Inside audio processing.

The AUI is in beta and will be rolled out shortly.

Info: *www.nautel.com/products/innovations/remote-access/aui/*





World Radio History

Photo by Jim Peck

Orban Labs Optimod XPN-Enterprise

Here's a Linux-based, customizable processing platform for control of multiple signals from a single point. It provides OptiCloud processing for up to eight FM and eight HD/DAB+ radio channels, plus eight internet stream channels, for a total of 24 output channels in a 1 RU package and using appropriate XPN-Enterprise Nodes for connection to the server processing platform.

Content to be processed is brought to one location using AES3, AES-67, SMPTE 2110-30, Dante or Livewire+, and the necessary outputs — analog, AES3, FM Composite, DMPX and Orban uMPX — use the appropriate XPN-Enterprise Nodes for distribution to each transmitter site or stream.

AoIP audio processing allows individual processing for each input; factory presets give users a quick start for each format in the group or cluster. "Less-More" controls make it easy for users to fine-tune processing. Nielsen or Kantar watermarking is provided using the appropriate node.

Orban also offers a line of "last-mile" solutions including low bandwidth (<500 kbps for FM and HD-1, HD-2 and HD-3) solutions for virtually any requirement. This service will be useful to stations whose transmitter sites are in areas with challenging internet access.

Whooping it up with Paul were Peter Lee and Mike Pappas.

Info: *https://orban.com*

RCS Disaster Recovery

Photo by Jim Peck

Software company RCS has been helping advance radio's familiarity with and working knowledge of the cloud. The RCS Disaster Recovery solution is a natural application of those concepts. It is intended to help stations get back on the air quickly and efficiently when natural disaster or viruses take down their IT infrastructure.

"Unlike other automation systems that require multiple external pieces of software, RCS Cloud is a true disaster recovery cloud solution, written for and on Amazon Web Services, following best practices and securities," the company explains.

It backs up your audio, logs, metadata and SQL backups securely with Zetta's Site Replication service.

"We've also incorporated business-friendly workflows. For example, if you have a remote talent without VPN access, utilize RCS Cloud's empty voice track positions, already built into your everyday clock, to voice track using RCS Cloud's two-factor authentication to forward their voice tracks to your local Zetta system."

Radio World's Paul McLane visits Philippe Generali and Neal Perchuk.

Info: *www.rcsworks.com/disaster-recovery/*

Thimeo StereoTool STXtreme

Here's an advanced audio processor for FM, AM, HD and/or streaming that incorporates features of Thimeo's StereoTool software offering. A sampler of its features:

Delossifier repairs and removes audible MPEG artifacts and restores missing high-frequency audio spectrum.

Declipper repairs and restores clipped audio, and the FM section optimizes the signal for maximum loudness, dynamics and clarity, helping improve reception in fringe and multipath areas.

Advanced Composite Clipper by Hans Van Zutphen optimizes the signal for maximum loudness, dynamics and clarity.

AutoEQ pre-equalizes the incoming audio before the AGC stage, which creates a consistent sound.

Natural Dynamics enhances percussion elements to create a more audibly appealing sound.

Customizable Processing Bands allow the user to choose the number of bands (up to nine) and their frequencies.

Integrated MicroMPX Encoder lets the user send composite audio via IP at bitrates as low as 176 kbps to multiple remote decoders.

There's also a remote-controllable RDS encoder and a touch-friendly HTML5 user interface that can be used from a PC, tablet or phone.

MaxxKonnect Group is the exclusive distributor in North America.

Shown from left are Hans Van Zutphen and Josh Bohn with Paul.

Photo by Jim Peck

Info: *https://stxtreme.maxxkonnect.com*

World Radio History

Wheatstone Layers Server and Glass Software Suite

Photo by Jim Peck

"Full virtualization from mic to transmitter is now possible for broadcasters not yet ready to entrust their broadcast chain to a public cloud provider," Wheatstone says.

Its Layers product line introduces an entirely virtual broadcast operation, from "glass" consoles to backend mixing, audio processing and streaming into the transmitter or CDN provider.

The Layers Server Software Suite runs on enterprise IP servers and replaces specialized hardware. One server can host multiple mix, FM processing or stream instances for several studios and locations connected by WheatNet-IP audio networking.

New Layers Glass Software for the laptop, tablet or other glass surface includes radio and TV virtual consoles with familiar buttons, knobs and multi-touch navigation and menuing. Interfaces are also available for controlling, provisioning and setting audio processing and streaming parameters.

With Paul are Jeff Keith, Dominic Giambo, Darrin Paley and Dave Breithaupt.

Info: *https://wheatstone.com*

Telos Alliance Axia iQs

Radio World also named the Telos Alliance Axia iQS Virtual Broadcast Studio as a recipient of its Best in Market Award, for products not shown on the exhibit floor.

Looking to the virtual future, the Axia iQs Virtual Broadcast Console is the software version of the iQx system that does not require a physical surface.

"iQs is the first soft console controlled by a full HTML-5 interface, allowing you to not only control the mix from anywhere, but on any device," the company says.

It can be deployed in two ways, on Telos Alliance's AE-1000 server or a Docker container.

"iQs in a Docker container lets you realize your all-virtual future now because it's available as a subscription-based model in addition to singular instances," Telos says. "A subscription allows you to be even more nimble, growing or shrinking the size of your system dynamically as your needs change."

Info: *www.telosalliance.com/consoles-audio-mixing/broadcast-consoles/axia-iq-family/axia-iqs*

Best in Market 2022 WINNER

World Radio History

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

WebDAD 3.0 is more than a remote desktop

Browser-native control of DAD automation is more reliable and responsive

New from ENCO is WebDAD 3.0. Bill Bennett is media solutions and accounts manager at ENCO.

What are you highlighting for stations to allow them to operate part of their workflow remotely?
Bill Bennett: ENCO is releasing its new WebDAD 3.0 browser-native control for its flagship DAD automation system. It's more reliable and responsive than simple "remote desktop" alternatives. WebDAD allows direct control of a station's DAD system from a web browser on the station's local-area network or around the world via the internet.

What are its key capabilities?
Bennett: WebDAD 3.0's completely modernized user interface redesign is more intuitive and streamlined, with contextually aware elements and a visually appealing dark- or lite-mode interface. Further, it's been optimized for speed, using forms which are reactive, reducing the need to re-enter information.

WebDAD 3.0's user security now has greater levels of granularity over permissions, allowing users to only access and modify DAD features they're allowed to touch, while users with certain impairments or disabilities can now enjoy native support for third-party accessibility assistance tools available via their browser or computer.

WebDAD 3.0 is based on the same groundbreaking disaster recovery capabilities that the core WebDAD product enables, including the ability to edit libraries and playlists, add new content, perform voice tracking and more, as well as allowing users and programmers to access a DAD backup instance in the cloud, or at an alternate data center, just as if they're accessing the main studio DAD systems.

Can you give examples of who is using it?
Bennett: Many customers have adopted WebDAD, including WIHS of the Connecticut Radio Fellowship and NPR member station KDNK based in Colorado. Stations already using our DAD system have seen tremendous value in being able to control the station remotely.

Are there misconceptions you'd like to dispel about the product or remote workflows in general?
Bennett: For people who haven't had the pleasure of using modern web browser-based applications lately, they're in for a big surprise. Modern designs like WebDAD are more reliable, more reactive to how the user is interacting with it, and more appealing by employing better color schemes and responsive design methods that scale to properly fit the browser size. Moreover, browser-based applications mean users of different operating systems can now access their DAD system, whether from a Mac, Linux or any modern version of Windows.

What else should we know?
Bennett: With ENCO's new DAD-DR offering, those cloud instances can even be continuously synchronized between studio and cloud, to keep all libraries, playlists and logs in sync, as well as host an IP feed to the transmitter and streaming CDNs.

Below
Bill Bennett

More Info
www.enco.com or *email sales@enco.com*

World Radio History

Tech Update

RCS Expands Remote Support

RCS says it has expanded remote features throughout its product line, focusing on the user experience and automating everyday tasks.

Zetta automation has a revamped Zetta2GO Voice Tracker with Zetta tools like volume points, trim in and trim out. The platform now has multiple Zetta themes, performance improvements for scalability, Virtual Events (identifying multiple assets within a single long-form file) and redesigned Hot Keys.

New Zetta2GO features include expanded drag and drop, keyboard navigation with Windows shortcut functionality, and F1 dynamic help.

RCS Cloud is another focus; the company calls it a true disaster recovery cloud solution, written for and on Amazon Web Services, following best practices and securities.

"RCS Cloud disaster recovery can not only back up your audio, logs, metadata and SQL backups, securely with Zetta's built in Site Replication service, but we've also incorporated business-friendly workflows."

New GSelector 5.0 got a subtle thematic facelift with the addition of new themes, scalable icons and a user-customized Song/Link Window, allowing users to organize and hide or display metadata based on multiple layouts.

"Programmers can already view and schedule their time granularity by hours and minutes, but now, with GSelector's Flex Clocks, users can build their clocks and grids down to the minute or a single clock up to 24 hours a day, allowing for endless programming opportunities to save time and efficiently."

Selector2GO allows users to add or edit elements, adjust clocks, schedule and massage logs, and analyze their spins.

Info: rcsworks.com

Zetta2GO Selector2GO Aquira2GO

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World Radio History

Arcadia is relevant for Catholic network

Relevant Radio puts Burk to work at its Network Operations Center

More Info
www.burk.com
or email *sales@burk.com*

Relevant Radio recently started using Arcadia to bring all of its station's remote control into one place.

"Arcadia gives our remote engineers direct access to all their sites via their mobile devices and will be very beneficial as we continue to grow and staff our Network Operations Center," said Andy Disterhaft, senior director of station engineering/operations.

Relevant Radio is a Catholic network of 195 owned-and-operated and affiliate stations in the United States, plus a worldwide streaming presence and mobile app.

Disterhaft said Arcadia has features that are appealing in today's world of security and staffing.

"Each user gets their own username and password to access the system. This allows each user or group to be given different privileges," he said.

"You may want one user to only have access as an Observer, or you may want to give that user the ability to run some commands, but not others. All of this is within the capabilities of Arcadia. If a staffing change occurs, it's as simple as changing one user on the Arcadia server, rather than potentially having to change every site's username and password."

The Arcadia mobile interface lets Relevant Radio create critical views for groups of sites or individual stations. These views present the most important monitoring and control channels for each site in a graphical format for use on the staff's mobile phones and tablets.

"Another great benefit is using the Arcadia NOC software to connect our Network Operations Center to all sites though a single server. Even with a powerful computer, connecting each NOC workstation to 70+ sites would use significant communications and computing resources and take some time to connect to them all. With the Arcadia NOC software, all those connections are sent on a single data stream from the Arcadia server, putting the load on the server to do most of the work."

Tech Update

Report-IT Enterprise App Includes New Features

The Report-IT Enterprise from Tieline is an iOS and Android codec app for high-fidelity live audio streaming, with record, playback and FTP capability.

Tieline says the app outperforms SIP-based apps thanks to features like redundant streaming capability, automatic jitter buffer management and app remote control using Cloud Codec Controller.

The v3.6.x release of the app supports GPIO relay options when connecting to Gateway and Gateway 4 codecs using firmware v3.02.08 or higher.

"This provides broadcasters with flexible options for triggering a range of latched or unlatched codec relay options," the company said.

Two relay GPIOs can be displayed on the app's Report Live screen that support 1) displaying when GPIs are activated/deactivated, and 2) activation and deactivation of GPOs using the smartphone touchscreen.

User account GPIO configuration is supported in the TieServer Console app for iOS and Android, as well as the PC/Mac web-browser version of the TieServer Console accessed via *www.tieserver.com*.

Report-IT also now supports input mute, as well as muting return channel audio. This allows users to control their input on/off status independently.

Info: www.tieline.com/report-it. Information on configuring Report-IT Enterprise GPIOs is available in a GPIO tech note at https://tieline.com/report-it-support-page/.

World Radio History

Tech Update

Telos Infinity Virtual Intercom Platform

The Telos Alliance describes the Infinity IP intercom as a solution that eliminates the "antiquated" matrix of traditional intercom. It highlights the system for its scalability, ease of integration, efficiency and cost.

"More than just a talkback system, Telos Infinity IP Intercom converges voice communication and contribution audio on a single IT backbone employing standards-based VoIP and AoIP transport to provide dedicated features and functionality without compromise."

Because it is matrix-free, the user can add plug-and-play networked hardware and software to the system as part of a planned or ad-hoc change, without worrying about exceeding the number of available ports on a matrix.

"In addition to the hardware-based Infinity IP Intercom System, you can now harness Infinity anywhere," Telos says, "at home, on-prem, site-to-site or in the cloud, thanks to Telos Infinity Virtual Intercom Platform."

VIP delivers sophisticated comms virtually, making cloud-based media production workflows available on any device such as smartphone, laptop, desktop or tablet. Third-party control devices like Elgato's Stream Deck can be used to control Telos Infinity VIP.

Telos offers several deployment options for VIP that scale to suit users' varying requirements. Also, Grass Valley and Telos Alliance partnered to offer Telos Infinity VIP on GV AMPP (Agile Media Processing Platform.

Info: telosalliance.com/infinity

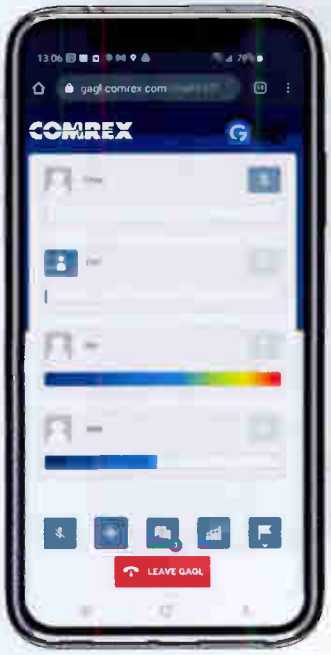
Tech Update

Gagl Is a Cloud-Based Remote Platform

A new cloud service for remote contribution offered by Comrex, Gagl allows between one and five users to send and receive audio from computers and smartphones. That audio is conferenced, if more than one user, and delivered to a Comrex hardware codec such as Access or BRIC-Link, usually in a studio. All participants can hear other participants and the codec "send" audio back to them.

Gagl can connect up five contributors simultaneously, making it suitable for a round-robin news program or a morning zoo. "Or it can simply be a portal for a single contributor to connect to the studio," the company says.

Participants can connect and send audio by clicking a link using a web browser. There's no need to install an app. Guests use equipment they're familiar with, such as their computer or smartphone, eliminating the need for specialized technical gear or IT assistance on the remote contributor side.



"Because it makes use of the Opus audio encoder and connects with Comrex IP codecs, Gagl provides high-quality audio," Comrex wrote.

With Gagl, any Comrex IP audio codec equipped with firmware 4.5p11 or higher can be turned into a hub from which an entire radio show can operate. The company notes that there are tens of thousands of Access and BRIC-Link codecs in circulation around the world.

Gagl is a subscription service available directly from Comrex for $35/month or $350/year.

Info: comrex.com or email info@comrex.com

Tech Update

WinMAM Offers Versatility

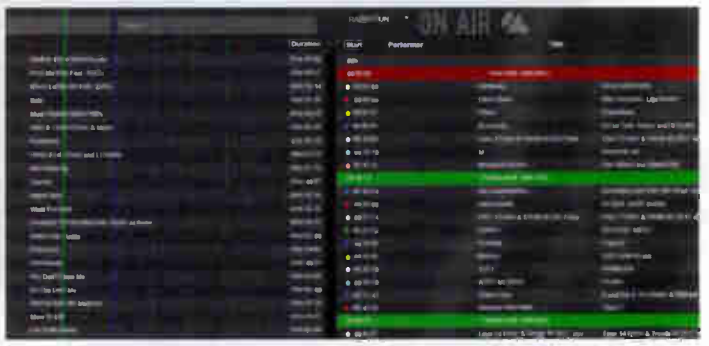
WinMAM is the web-based media asset management platform from WinMedia. It manages media and metadata across a broadcast organization, including administrative and security tools.

Tasks that can be performed remotely include library content management, playlist management, rundown management and news script creation and management, including RSS feeds and automatic Twitter and Facebook trimming and publishing.

WinMAM also provides a prompter function, remote instant play cartridge control and remote log consult.

President/CEO Stephane Tesoriere said WinMedia clients have been using WinMAM intensively, "especially during the COVID-19 lockdown, when the necessity of remote work was surging, starting with playlist or program managers, to production studios and even DJ talent doing collaborative shows in live remote control of their own jingle and sound cartridges."

Info: https://winmedia.org/winmam/



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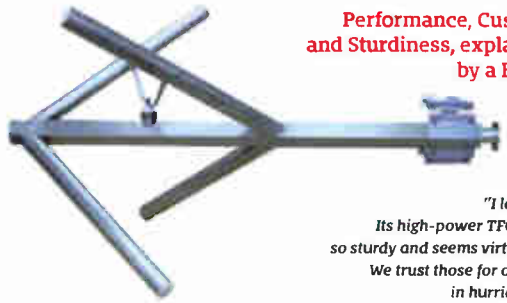

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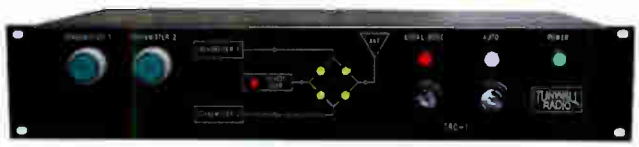

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Wasted effort

So the "FCC Plans to Hire to Fight Pirate Radio" (*radioworld.com*)? The commission may as well tell those 15 new employees to go out and look for evidence of BigFoot.

How about tracking down and enforcing the real interference complaints that spray RFI from sea to shining sea but go uninvestigated?

Joe Zagar
Muskegon, Mich.

How to submit

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

Define "mission"

I appreciated the January interview with FCC Commissioner Nathan Simington to see where he stands on radio priorities and how much he wants to help commercial broadcasters fulfill their mission.

"Mission" is a highly subjective term because in this case he did not really define the term.

Is it to serve in the public interest with pertinent information and thought-provoking programs? Or is the "mission" to satisfy an owner or investors by throwing anything onto the airwaves that guarantees big bucks will come rolling in, no matter what the content might be?

I am also curious to know how the commissioner thinks further relaxation of radio station ownership rules could possibly improve programming diversity and political expression on the public's airwaves.

Portland, Ore., and San Francisco are the only major radio markets in the country with a liberal talk radio program on the air in prime time. Does he really think giving iHeart or any other radio empires one or two more stations will improve the odds of having a liberal talk show on the air in Denver? Philadelphia? Houston? I doubt it.

Ask iHeart. They will either laugh at you or give you the song and dance about numbers, when numbers mean very little in a saturated talk radio environment. We need fewer than eight stations owned by one corporate entity, not more.

Dare I say it, but the only type of public radio the new commissioner may care about is the public radio approach that places a heavy emphasis on extensive focus group research and other commercially oriented approaches to audience-building, coupled with an aggressive strategy placed on obtaining as much corporate underwriting as possible.

In other words, not much at all about that good old-fashioned public service component for public (or commercial) broadcasters. But you will have to ask him about that.

Pete Simon
Arvada, Colo.

"I am also curious to know how the commissioner thinks further relaxation of radio station ownership rules could possibly improve programming diversity and political expression on the public's airwaves."

More facility stories please

Paul I saw your column asking "What could be better" about Radio World, and I want to let you know that I enjoy reading it.

I usually start paging through the issue as I am walking across the building from the mailroom to my office. And I go through your daily SmartBrief e-newsletter a few times a week.

I have been out of RF radio for 17 years, but about five years ago we added a streaming radio station to our radio and TV program at Crown Point High School. Being just outside Chicago, there's no place for us to go that would give us enough power to broadcast to our entire district.

I also really enjoyed your "Spectacular Radio Studios" ebook. We are an Axia facility, and it was nice to see how other studios are set up. One thing I really miss from the old Radio magazine is the Facility Showcase.

Brent Barber
Crown Point High School
Crown Point, Ind.

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