RADIOWORLD

Technology & news for radio decision makers

radioworld.com | May 7 2025 | $5.00

ENCO.com

NAB '26

Next year's spring show will feature a new TV & Radio Headquarters on the exhibit floor.

LPFM helping hands

Common Frequency advocates for "truly local" radio in every market.

There's a spot on this belt

Criss Onan remembers the Gates ST-101.

Birds of a feather

Centura Churchill of Commercial Radio Company continues her father Dan's legacy as a supplier of specialized mica capacitors and other electronic components. (Yes, she's holding a chicken.)

FUTURE

#BXNNTQJ CAR-RT LOT**C-022 MIX COMAIL
#0009751 9#
1 019 RDW001 P42 1 9109 182330
DAVID GLEASON CONSULTANT
TELEVISAUNIVISION RADIO
80960 BELLERIVE
LA QUINTA CA 92253-5647

AZALEA AML

THIS LITTLE NUMBER HAS IT ALL

Only

$1,995

USB. PROVEN POWER SUPPLY. QUALITY YOU CAN TRUST. ALL FOR JUST $1,995 USD.

- USB on dedicated player or automation with no soundcard needed
- Caller input on dedicated fader with mix-minus backfeed
- RJ45 connectivity for simple, low-cost wiring
- Long throw faders with separate ON/OFF buttons
- Proven Wheatstone built external power supply
- SuperQuiet™ mic preamps to bring out the best in ALL your mics
- Guest output to Audioarts talent station
- Much, much more

Engineered, manufactured, and supported by Wheatstone—serving broadcasters for over 50 years

Now at the low price of $1,995 for a limited time!

Call +1 (252) 638-7000 or email sales@wheatstone.com

AUDIOARTS ENGINEERING

Wheatstone

www.wheatstone.com | Engineered, manufactured, and supported 24/7 from North Carolina, USA

RADIOWORLD
Vol. 49 No. 10 | May 7 2025
www.radioworld.com

FOLLOW US
www.twitter.com/radioworld_news
www.facebook.com/RadioWorldMagazine
www.linkedin.com/company/radio-world-futureplc

CONTENT
Managing Director, Content & Editor in Chief Paul J. McLane, paul.mclane@futurenet.com, 845-414-6105
Assistant Editor & SmartBrief Editor Elle Kehres, elle.kehres@futurenet.com
Content Producer Nick Langan, nicholas.langan@futurenet.com
Technical Advisors W.C. "Cris" Alexander, Thomas R. McGinley, Doug Irwin

Contributors: David Bialik, John Bisset, Edwin Bukont, James Careless, Ken Deutsch, Mark Durenberger, Charles Fitch, Donna Halper, Alan Jurison, Paul Kaminski, John Kean, Larry Langford, Mark Lapidus, Michael LeClair, Frank McCoy, Jim Peck, Mark Persons, Stephen M. Poole, James O'Neal, T. Carter Ross, John Schneider, Gregg Skall, Dan Slentz, Dennis Sloatman, Randy Stine, Tom Vernon, Jennifer Waits, Steve Walker, Chris Wygal

Production Manager Nicole Schilling
Senior Design Director Lisa McIntosh
Senior Art Editor Will Shum

ADVERTISING SALES
Senior Business Director & Publisher, Radio World John Casey, john.casey@futurenet.com, 845-678-3839
Advertising EMEA Raffaella Calabrese, raffaella.calabrese@futurenet.com, +39-320-891-1938

SUBSCRIBER CUSTOMER SERVICE
To subscribe, change your address, or check on your current account status, go to www.radioworld.com and click on Subscribe, email futureplc@computerfulfillment.com, call 888-266-5828, or write P.O. Box 1051, Lowell, MA 01853.

LICENSING/REPRINTS/PERMISSIONS
Radio World is available for licensing. Contact the Licensing team to discuss partnership opportunities. Head of Print Licensing Rachel Shaw licensing@futurenet.com

MANAGEMENT
SVP, MD, B2B Amanda Darman-Allen
VP, Global Head of Content, B2B Carmel King
MD, Content, Broadcast Tech Paul J. McLane
Global Head of Sales, Future B2B Tom Sikes
Managing VP of Sales, B2B Tech Adam Goldstein
VP, Global Head of Strategy & Ops, B2B Allison Markert
VP, Product & Marketing, B2B Andrew Buchholz
Head of Production US & UK Mark Constance
Head of Design, B2B Nicole Cobban

Connectiv

FUTURE US, INC.
Future US LLC, 130 West 42nd Street, 7th Floor, New York, NY 10036

Radio World (ISSN: 0274-8541) is published bi-weekly by Future US, Inc., 130 West 42nd Street, 7th Floor, New York, NY 10036.
Phone: (978) 667-0352. 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.

A peek ahead to NAB '26

An important change is in the works for broadcast attendees

Paul McLane
Editor in Chief

With the spring NAB Show in the books, organizers are already looking ahead to next year's event. An important change is in the works.

Approximately 100 radio and TV technology exhibitors will be brought together in a dedicated area of the show floor of the Las Vegas Convention Center, called the TV & Radio Headquarters, just inside a new front entrance to the freshly renovated Central Hall.

You may recall that years ago, radio-related exhibitors tended to be clustered in a "radio hall," whether or not it officially bore that name. But radio's sense of community dissipated somewhat when organizers decided to lay out the exhibit floor by function, using terms like Create, Connect and Capitalize.

Their idea was that attendees could move "through" a workflow, from creation to monetization. This worked to an extent. But many exhibitors didn't fit neatly into the categories. Where would you place a transmitter, an audio processor or an automation system in that scheme?

The disruption brought by expansion and renovation of the LVCC brought further change. Many radio suppliers ended up scattered in the West Hall, while a few others stayed in Central or North.

With renovations due to be completed soon, the NAB saw a chance to adjust.

Structurally, the front of Central will have a soaring architectural feature matching the West Hall, and the exhibit spaces will be brighter and more welcoming. Notably, Central's front wall is being brought forward, creating a new indoor hallway where the outdoor patio and bus canopy once stood.

TV & Radio Headquarters will be in part of the newly reopened Central Hall. Many attendees may arrive via a bright new entrance on the left, where a bus canopy once stood.

THIS ISSUE

People arriving from the monorail — or from the newly opened underground Loop station from the Wynn Encore — will be able to walk straight into the prominently located TV & Radio Headquarters through doors in this area.

Eric Trabb, NAB senior vice president and chief customer success officer, emphasized that the broadcast technology community is integral to the convention but acknowledged that radio exhibitors in particular have sometimes not felt that way when it came to booth locations.

"Once we saw the layout of the new building, we saw an opportunity to give the radio community and the TV community a home that they can build from," he said. This change creates a more logical organization and provides a natural home for exhibitors who may sell into both radio and TV markets.

> **"The feedback from our exhibitors about this has been positive. I'd like to thank them for trusting us in developing this area with them."**

"We also heard from our TV and radio members. They like their community, they're close-knit and like to be together." Thus a radio/TV networking area, sometimes referred to in the past as the Broadcast District, will move to the exhibit floor. "Sip and Speak" presentations also will be held there. And educational sessions of the Broadcast Engineering and IT Conference will be near at hand, via an escalator to the upper bridge to the South Hall.

These changes put broadcast tech exhibits, broadcast networking and broadcast educational sessions within easy reach of one another.

"We're excited to get past the construction phase," Trabb said. "We know it can be disruptive. The feedback from our exhibitors about this has been positive. I'd like to thank them for trusting us in developing this area with them. We're going to work really hard to make it successful. We think the changes will create a better experience for the attendee, for our members and for exhibitors. It provides a home for what is a really important NAB community."

Next year's convention will occupy Central, North and West Halls. The Main Stage will remain in West Hall.

Common Frequency is a fierce radio activist

Group is helping a new batch of LPFM stations onboard

Writer

Randy J. Stine

The author wrote recently about the BEACON emergency communications platform in Florida.

Above
Common Frequency CEO Todd Urick, right, is shown with CFO Darrick Servis.

Community radio advocates have been busy helping launch more low-power FM radio stations since the completion of the FCC's 2023 filing window for new applicants. There were 1,335 applications filed in the window, and some of those who received CPs have begun operations or are preparing to sign on. The FCC says it has granted more than 600 new applications for LPFM service, 43 of which were on the air as of late 2024.

The agency has been working to resolve competing applications in situations where more than one entity applied in a community, known as mutually exclusive or MX groups.

Common Frequency, or CF, is an activist group that assists non-commercial FM and low-power FM broadcasters, community groups, educational institutions and other nonprofits with U.S. radio opportunities.

A non-profit group, CF says it is dedicated to supporting innovative new community and college radio. It provides free or low-cost aid and has been supporting grassroots startup stations since 2006.

CF was founded in Northern California, taking inspiration from Prometheus Radio Project and from freeform and college radio stations at the time like WFMU, KDVS, KFJC and KUSF, according to its website.

LPFM service has become a main focus. The low-power service was launched in 2000. According to the FCCs latest quarterly report, there are 1,976 LPFM licensees, down from nearly 2,200 about eight years ago but poised to grow again thanks to the recent filing window.

We asked Todd Urick, chief executive officer at CF, about the origins of the organization, current interest in community broadcasting and the launch of new LPFMs.

What was Common Frequency's objectives when it started, and have these changed?

Todd Urick: The group's intent was to approach various communities with no local NCE radio, and work with

Above
Daniel Roberts is station coordinator of KMRT(LP) in Santa Cruz, Calif., which signed on recently after securing a CP in the 2023 LPFM filing window.

local nonprofits to build a community station for locals to participate in to develop diverse and interesting programming. After the Telecommunications Act of 1996, commercial radio was on a race to peak wasteland. It has given up on exposing new music movements or local artists. It's even worse now.

New non-commercial radio is basically dominated by religious broadcast networks accumulating channels everywhere. CF believes there should be at least one truly local station in every community, but it's been an uphill battle. The FCC has abandoned localism and the public interest licensing regime.

What's the status of the rollout of new LPFM stations?

Urick: Common Frequency helped file more than 140 applications in the 2023 FCC LPFM window. It was absolute chaos because the opportunity was not promoted well. There was a lack of technical support for applicants, and it used an application process that is not conducive to nonprofits.

The LPFM rollout, for at least community stations, has been a challenge post-COVID. The singleton applications have been granted, and now there is a slow trickle from a long-awaited October 2024 Public Notice that detailed decisions on 96 MX groups.

Many groups are attempting to negotiate settlements and/or execute major modifications within the limited window to precipitate as many singleton grants as possible.

We have been happy with outcomes so far, and the flexible and systematic protocol the commission has offered to promote permit granting. There are more MX decisions to come.

When will the majority of new LPFMs roll out? The CPs are good for three years.

Urick: The truth is that many wait to the third year to build their CP. Post-pandemic, non-profits are still struggling, and grant opportunities are anemic. Public and community radio is struggling for funding as they have always been institutionally tenuous. In good times, enough charity was left over in people's coffers to fund it.

The majority will probably roll out a couple days before their CPs expire.

What's happening with radio activists right now?

Urick: We recently filed some applications for review, contesting typos on LPFM applications, e.g., someone types a 2 instead of a 3 in the tech box for a new LPFM application; the FCC then dismisses the application, saying to wait 10 years to apply again. That's a new policy, by the way, and it is the antithesis of what was prescribed in the LPFM docket, which says LPFM is to be a simple process.

Moreover, the FCC now suggests all LPFM applicants use consultant engineers to apply. The FCC LPFM channel search utility says it's not for LPFM applications, while at the same time a new LP-250 service was denied because the FCC said it was too complex for an applicant to do by themselves.

Until recently the number of licensed LPFMs was shrinking slowly from its high of nearly 2,200. Why?

Urick: LPFM doesn't work right anymore. Since 2000, thousands of translators and HD Radio have joined the band. LPFM has difficulties penetrating walls, and it contends with interference from fill-in FM translators, HD and rimshot and grandfathered stations.

There are difficulties finding broadcast towers in immediate suburban neighborhoods. Open channels exist in areas of no towers, but zoning won't allow a broadcast tower. LPFMs are being boxed in by FM translators, affected by tropospheric ducting, etc.

Back in BLACK

Bridge-IT II
Bridge-IT XTRA II

High-end features at a low-end price

AES67 Livewire+

AES67

RAVENNA

SMPTE ST 2110-30 ST 2022-7

NMOS AMWA

Your favorite affordable codecs are back with a new look and powerful new features to deliver flexible IP connection solutions. Bridge-IT II and Bridge-IT XTRA II are ideal for home studios, simple remotes, STLs, and inter-studio links, with inclusions like:

- Support for full-duplex stereo or 2 mono connections, multicasting and multi-unicasting, plus cellular connections
- Multiple Ethernet and AoIP ports and simple front panel or web-GUI configuration
- Native support for Livewire+, RAVENNA, AES67, ST 2110-30, ST 2022-7 (XTRA), NMOS IS-04 and IS-05 and SIP
- Failover to another connection, HTTP stream, or file playback

Expand the power of your network with Bridge-IT II and Bridge-IT XTRA II – cutting edge features that deliver affordable excellence.

ORDER NOW!

Tieline®
The Codec Company

Web: www.tieline.com
Americas: +1-317-845-8000 | International: +61-8-9413-2000

The signal is just too weak given restrictions of placement and interference. An LP-250 service is needed.

That's still a regulatory issue you are tracking?
Urick: Yes. We thought an LP-250 docket was in the works in the last four years. It's unclear what will happen in the new presidential administration. We also hope REC Networks' proposed rulemaking RM-11952 for FM translator application reform makes it to rulemaking. Tweaking the NCE point system for FM translators to favor indie, college and stations that originate local content, with a new NCE/LPFM translator filing window, would be exceptional.

> **CF believes there should be at least one truly local station in every community, but it's been an uphill battle.**

You work with a variety of non-commercial stations. Is there a secret to success?
Urick: The secret is finding a group that includes someone with the radio bug that will do anything to get a station on, and has a dedication to community service. Because the whole process isn't easy, and it takes someone who will do the menial labor. Then after getting on the air, it's a matter of getting the community involved and not just airing a playlist of your favorite songs.

How much does it typically cost to launch an LPFM station?
Urick: It's anywhere between the $8,000 setup with an antenna stashed in a tree, to $50,000 or more if you're getting local construction permits to put a tower on top of a building and whatnot.

As you've indicated, the regulatory system can be quite complex. Do groups typically need more help with the FCC licensing process or with the technical side of building a station?
Urick: It depends on whether there's a local ham or someone who had college radio experience helping in the group. The ability of an experienced broadcast tech to execute the original application correctly is important. The application is a booby trap with wolves looking over it the whole time.

What does it cost for stations to use your services? How do you typically work that out?
Urick: It's a sliding scale. We have a recommended donation level. But I'm sucker to helping community radio folks in a jam and underrepresented groups in a community.

Common Frequency is a non-profit. Where does your funding come from?
Urick: CF is a 501(c)(3) nonprofit. It comes from donations, fees for services and occasionally we negotiate or broker some deals. We're always facing funding challenges. Any radio fanatics out there who want to fund real radio, call me.

What are your thoughts about the Trump administration's actions so far in areas of interest to radio?
Urick: The Republican viewpoint tends to view any deregulation as paramount, without viewing the history of deregulation and its effect on localism and public interest considerations enshrined in the Communications Act. Most deregulation in radio has destroyed the public service and localism obligations. You don't need an intense study to tell you that — just ask any radio listener. The "public interest" regime has just not worked. Is one 15- to 30-minute syndicated informational program early Sunday morning effectively a broadcaster's only community obligation?

What kind of media ownership issues are you tracking?
Urick: Baked into the Communications Act is the public interest standard, this notion that broadcasters are public fiduciaries of the public's airwaves. There is also a precedent for §307(b) transmission service, which asserts stations should participate locally.

The FCC has shirked policing these mandates, yet doubled down on driving around in vans looking for a kid with a juiced-up Mr. Microphone. We believe that if commercial radio doesn't want to participate in the public interest, they should pay a fee to go towards non-com broadcasters to accommodate that service. We also wish we could get FM translators for LPFMs and indie NCEs.

Is there a particular LPFM success story you could share?
Urick: Well, I'm most excited about prospective LPFM projects of new freeform community stations in Las Vegas and Phoenix in the next couple years. Exposing eclectic, new indie, rare vinyl, and free ideas was our original passion for starting new stations.

I have a dream that one listener stumbles upon the one radio station playing loud obscure psych records in a wasteland of corporate automation on the radio, and that listener's mind being blown. Is that anachronistic at this point? I don't know. Gen Z are using flip phones looking for analog experiences. This fantasy station in my mind is like the biggest middle finger to the digital corporatocracy.

BEST OF SHOW 2025
RADIOWORLD
WINNER

Telos®

POTS is dead. Long Live Telos VX® Duo.

It's no secret: POTS is on life support. With service costs rising and availability dropping, there's never been a better time to move to economical, high-quality broadcast VoIP from Telos®. And there's no better choice than our affordable new multi-line VoIP system, VX Duo.

It's Expandable. VX Duo can grow from 2 hybrids to 4, 6, or 8 to match your needs. **Compact, too.** VX Duo's fanless base station takes almost no space. Put it on your countertop - or rack 3 in just 1RU. **Op-Ex friendly.** Switching to VoIP can easily cut your phone bills by 50% or more. **Stunning sound.** Crystal-clear quality for interviews and call-in segments that shine. **Easy to use.** Intuitive XScreen software and Telos VSet phones make operations a breeze. **Expert help.** New to VoIP? No worries - we invented VoIP talkshow systems. Our support team is dedicated to your success.

Economical, flexible, expandable. VX Duo, from Telos - the leader in broadcast VoIP.

Telos Alliance®

LOVE WHAT YOU HEAR

TelosAlliance.com/VXDuo

John Bisset
CPBE

The author is in his 34th year of writing Workbench. He handles western U.S. radio sales for the Telos Alliance and is a past recipient of the SBE's Educator of the Year Award.

Commercial Radio has got your mica capacitor

Centura Churchill, daughter of the founder, carries on the family business

At the NAB Show, several consulting engineers shared with me their concerns about reliable sources of replacement mica transmitting capacitors.

This prompted me to check on the always reliable Commercial Radio Co. The company stocks only U.S.-made Cornell-Dubilier Mica caps and is the largest in-stock supplier of these capacitors in the country. It accepts credit cards for payment and ships rush orders every day.

It was founded by Dan Churchill, who'd worked for General Radio for four years while studying at the Massachusetts Institute of Technology and later spent 25 years in engineering at RCA.

In 1970, he established Commercial Radio Company Inc.

Amazon

Above right
Centura Churchill is shown with her late father Dan. She now runs Commercial Radio Company.

Right
Pymeter dual thermostat with AC-controlled outlets.

after purchasing Radio Corporation of America's vacuum tube inventory when the company rebranded as RCA and shifted to transistor-based electronics. According to the company website, "His vision was to provide specialized expertise as a broadcast engineer to companies, universities and individuals in need of service for radio transmitters and other apparatuses."

Dan Churchill passed away in 2023, and his only daughter, Centura Churchill, now runs the business. In addition to a love of capacitors, Centura raises designer chickens! It is a hobby that became a passion; and on the cover of this issue, she is shown with a Silkie chicken named Frostella.

"I now go to chicken shows around the country and have been deemed the 'Chicken Lady' in town. The chickens are our ambassadors and provide therapeutic support to the Commercial Radio team. Frostella sits in the office with us all day."

By the way, Danielle Goodwin is the company's director of sales, and by the time you read this she will have received her doctorate in business from Liberty University. Congratulations!

Located in Cavendish, Vt., Commercial Radio's website is *www.commercialradiocompany.com*.

Feel the heat

Daniel Hochstein is founder of Media Technologies Consulting of Sedona, Ariz., and a longtime Workbench reader.

He saw the dual adjustable thermostat suggested by consultant Frank Hertel in the March 26 Radio World. Daniel tells us he has been using a Pymeter PY-20TT at a number of his client stations with great success.

INOVONICS BROADCAST

BETTER RADIO SINCE 1972

www.inovonicsbroadcast.com

AUTHENTIC RADIO

AM | FM | HD RADIO | DAB+ | RDS | STREAMING

Online Demo Center
CONNECT TO REAL PRODUCTS IN REAL TIME

vCard
ADD US TO YOUR CONTACTS

www.inovonicsbroadcast.com | sales@inovonicsbroadcast.com | +1-831-458-0552

WHY INOVONICS?

- Quality Solutions. Competitive Prices.
- Quick to install. Easy to Program.
- Three-year Factory Warranty.
- Quality after sales service.

This controller displays the temperature in Fahrenheit and can be calibrated. The thermostat control is tied to two independent AC outlets. It is easy to set up and provides dual temperature probes, dual AC outlets and dual zone control.

The first AC outlet is set to turn "on" at a certain temperature, then turn "off" at a second temperature. The second AC outlet is programmed the same way. The thermostats are accurate to 0.1 degree. Available via online retailers or the Pymeter website *www.pymeter.com*, it sells for around $35, a little more expensive than the Uxcell mechanical thermostat we described earlier.

Amazon

Above
This LG writer, sold on Amazon, also supports the long-lasting M-DISC.

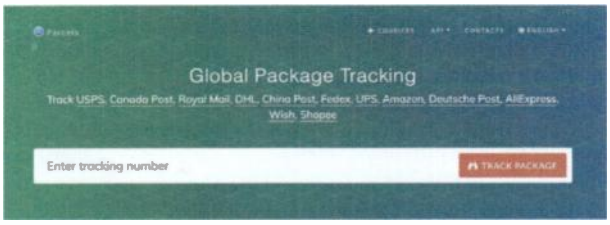
Right
Verbatim M-DISC media are not cheap but promise to archive your documents for up to 1,000 years.

Amazon

Paul's package tracker

Paul Sagi writes from Malaysia to share an interesting link: a free worldwide package tracker.

In this day of shipments coming from all over the world, here's a tracker that works with USPS, UPS, DHL, FedEx. the Canadian Postal Service, Royal Mail, Amazon and Ali Express. Various online resources cite it as trustworthy. Try this URL to track your next shipment: *https://parcelsapp.com/en/tracking/*.



Paul also spotted the rubber mats we showed from the Tyler Media workbench. He remembers that in Kuala Lumpur, non-skid mats were placed on car dashboards to hold tissue boxes, sunglasses or a cellphone. Just as on your workbench, the grip can hold things in place, and the material won't deteriorate in hot weather.

Have you ever wondered ...

... why tinned wires loosen when they are screwed down in a connector? Frequent contributor Dan Slentz sent me a link to an interesting article prepared by Phoenix Contact USA, makers of the popular Phoenix Connector. Here's the URL: *https://cdn.thomasnet.com/ccp/00142951/263810.pdf*. Or use *tinyurl.com/rw-phoenix*.

Document archiving solution

Consulting engineer Frank Hertel has purchased a reasonably priced portable DVD writer that supports M-DISC, a version of DVD used for archiving files. He chose the LG GP65NB60 model.

Rather than a degradable plastic, the M-DISC is made with a ceramic compound. The archived files are expected to last 1,000 years!

I can see the wheels turning in your head as to the many pictures and documents you'd like to archive for posterity. This LG burner is under $30 from Amazon; however, the M-DISC Media are a bit more expensive. Five disks are $60, but each disk holds a hundred Gigabytes of data. For information, search for LG GP65NB60 8X and Verbatim 100GB M-DISC on Amazon.

Don't Be Chicken

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

One more thing to check

Today's broadcast engineer has a lot of responsibility. It's easy to forget the station license or FCC authorization. Take five minutes to check that the correct ownership is listed and that the transmitter output power and frequency are correct. How about the antenna coordinates, number of bays and effective radiated power level? Also confirm that your antenna structure registration number is correct. Mistakes can and do happen.

Paul Shulins on "the honor of a lifetime"

"The broadcasting industry lends itself well to the entrepreneurial spirit"

Courtesy NAB Show

Paul Shulins received the 2025 NAB Radio Engineering Achievement Award at the NAB Show in April. Here is the text of his remarks. He was introduced by NAB EVP/CTO Sam Matheny.

Wow! Thank you, Sam, and thanks to the NAB for this incredible honor, and to the folks who nominated me for this prestigious award. To be invited to be a part of such an elite group of industry icons is truly the honor of a lifetime. Throughout my career I have been fortunate to work with some amazing talent in programming, management and of course engineering. Learning from some of the best in the business has been the privilege of a lifetime.

I first must thank Richard Wholey, who was the director of engineering for Sconnix Broadcasting and who gave me my first job in radio. Then several years later I spent the balance of my career working for Milford Smith at Greater Media, to whom I owe a great deal of gratitude, for his belief in me and his strong support during AND after the 30 years I had the privilege of working for him. Smitty, as most of you know him, is also in the elite club receiving this very award, in 2005. I also am grateful to my current business partner Jim Stenberg for his unwavering friendship and support.

But most importantly my family who put up with my crazy hours over many decades, my wife Susan who kept me on track and made it possible to have a full and rewarding career, and my greatest source of pride, my son Jesse, who is a far better communicator than his dad!

The broadcasting industry lends itself well to the entrepreneurial spirit. This is true for many aspects of the industry including sales, promotions, programming and of course engineering. By identifying the challenges, and seizing the opportunities, there are tremendous chances for creative solutions to practical challenges.

> **"Broadcast engineering is as much about the people as it is about the technology."**

This has been a hallmark of my work, to put together customized solutions that help broadcasters achieve their goals. This work brings me much satisfaction, but the real thrill is the ability to share these ideas and learn from others, and I have done this through presentations at the BEIT conferences, as well as regional meetings with the Society of Broadcast Engineers, the IEEE Broadcast Technology Symposia, and through publications such as Radio World magazine. I encourage other engineers to use these resources to contribute their creativity and share their experiences with others.

Broadcast engineering is as much about the people as it is about the technology. This award is a testament to the collective effort of everyone who has been a part of my journey. So, I would like to recognize just a few of my dear friends who have meant so much to me over the years and have provided advice, encouragement and support:

Ralph Hogan, Tom Silliman, Frank Foti, Roz Clark, Eric Wandel, Marty Sacks, David Layer, Russ Mundshenk, Jim Leifer, Dirk Nadon, Paul McLane, David Wing, Gary and Cindy Cavell, and Peter Smyth.

In closing, I would like to dedicate this award to honor my father Sid Shulins, as I credit him with all the inspiration for living a good life that I ever needed.

Thank you all, and let's continue to shape the future of radio together.

Zyclone promises flat broadband performance

Eric Hoppe talks about the new antenna from Progressive Concepts

Progressive Concepts of Streamwood, Ill., has introduced a new circularly polarized, broadband FM antenna called the Zyclone. We asked company founder Eric Hoppe about it.

There are antennas on the market in this niche. What sets this one apart from those?
Eric Hoppe: This model is made of high-grade stainless steel and has a very flat frequency response all the way across the FM broadcast band. Most broadband model antennas on the market have some roll-off near the top and the bottom of the FM band. This model is different in that it stays very flat all the way from 88 to 108 MHz.

How is that accomplished?
Hoppe: Well, this is a bit of proprietary information that I can't give too many details about. Let's just say that the unique design of the antenna allows for this excellent frequency response.

What are the available configurations?
Hoppe: The Zyclone antenna is available in single-bay, two-bay and four-bay models. The single- and two-bay models can handle up to 3 kW, while the four-bay models handle up to 7 kW. There is also a two-bay model available with a 7/8-inch flange that can handle up to 5 kW.

What is the normal input connection?
Hoppe: The single-bay and two-bay models come with a 7/16-inch DIN connector while the high-power two- and four-bay models come with a 7/8-inch EIA flange on the power divider.

More Info
www.progressive-concepts.com

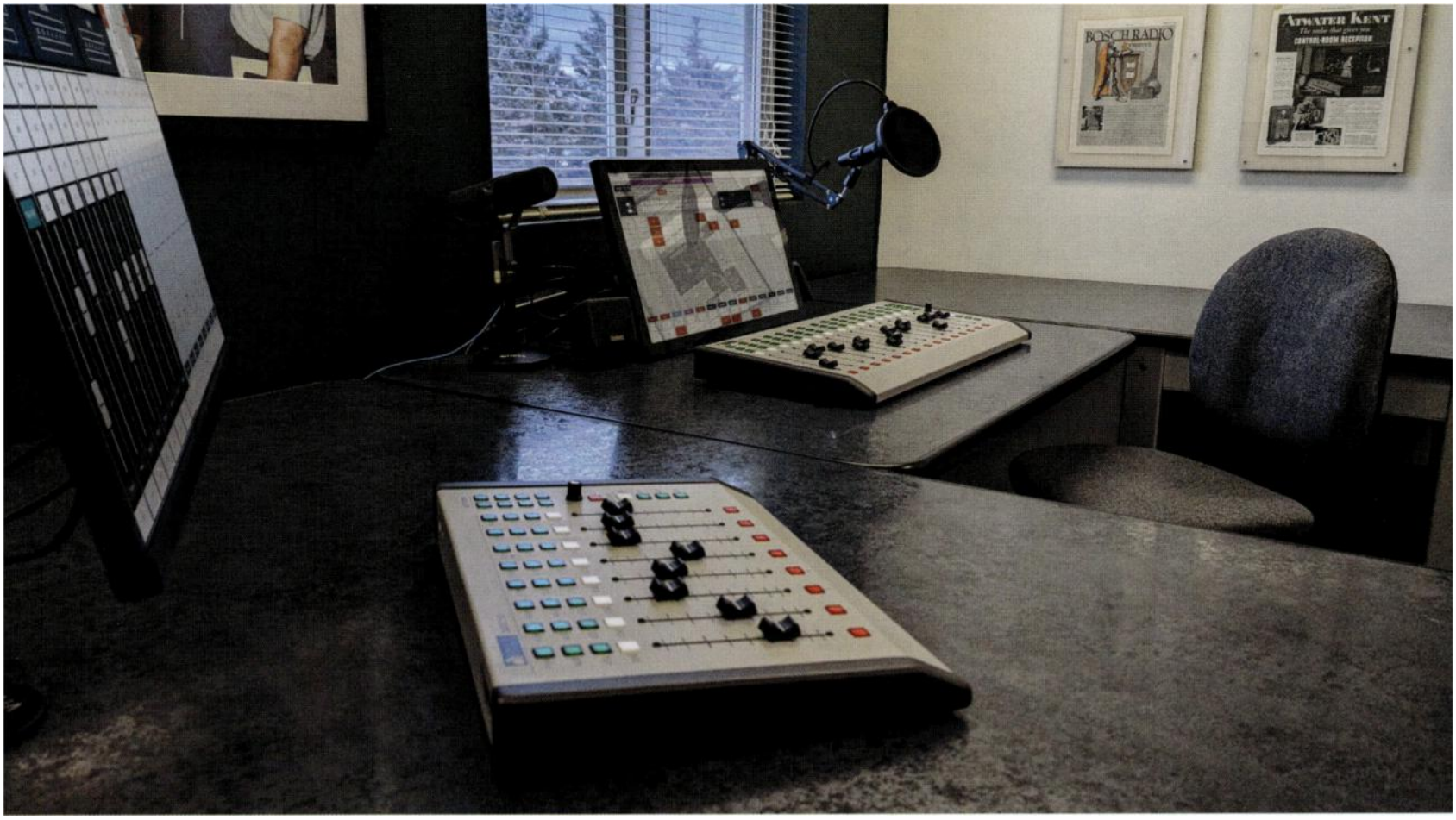
Are heating or ice protection options available?
Hoppe: Currently there is not any heating or ice protection available for this model, but the design of the antenna does make them less vulnerable to SWR problems from icing.

Who manufactures the antenna?
Hoppe: Progressive Concepts manufacturers these models and several other popular antenna models such as the PCP model, CIRPA model and the recently acquired Dominator model antenna.

What is the retail pricing?
Hoppe: Single-bay Zyclones are priced at $799.95. Two-bay systems go for $2,699, and the four-bay model is priced at $3,899.

What else should we know about it?
Hoppe: We have all of the Zyclone models in stock at our Streamwood, Ill., facility and ready to ship. All models include mounting hardware. Multi-bay models come complete with power divider and all interconnect cables.

> **"This model is different in that it stays very flat all the way from 88 to 108 MHz."**



Welcome the new kings of AoIP.

AoIP used to be complex and expensive, but the DARC family has changed that.
Starting at just $1,999, it's as simple as:

1. a Simple-IP or Dante-enabled node,
2. the DARC Virtual software console, and
3. the optional DARC S-Series controller.

Dante®

Introducing the **S8** & **S15** AoIP Consoles with the new **Simple-IP 16** node.

Priced at $2,899, the DARC S8 bundle offers all the features of the competition at less than half the cost. For only $4,799, the DARC S15 bundle delivers twice the I/O and channels of anything in its class. With the Dante-enabled DARC family, nothing in the industry is more powerful or capable.

ARRAKIS SYSTEMS
arrakis-systems.com

HD Radio blend is designed to be seamless

So monitor and course-correct what is important to you

Writer

Ben Barber
President/CEO, Inovonics Broadcast

Nothing drives me crazier than skipping or stuttering audio when blending from FM to HD, or HD to FM. The blend is designed to be seamless. Even if not perfect, it should never be jolting!

Unfortunately, there are a lot of earlier-generation of exporters and transport systems still in use today. If you have one and you think everything is locked down tight, first, congratulations, second, don't power cycle anything.

Even in a system that has been perfectly set up, with GPS locked, 10 MHz locked or 1 PPS locked, things can still drift. In our lab we have an exporter in which the PLL clock is always moving, and nothing short of replacing the board will fix it even though it is set up with GPS, 10 MHz and 1 PPS.

As outlined in the NRSC-G203-A guidelines published in 2021 (a great resource), alignment of the FM and HD Radio audio is extremely important.

What is really useful is to look at the alignment over time. If you take a quick sample and the number comes back indicating that your HD audio is 10 samples ahead of your FM audio, you may make the adjustment in your FM air chain and think everything is set. But if you take another sample and see that fixing the 10 samples of delay didn't really "fix" it, you are stuck trying to figure out what is going on.

One way would be to continue to take samples at regular intervals, write them down, then take more samples, and then eventually plot something on a graph. The real solution is much easier if you have a piece of gear to do that for you automatically.

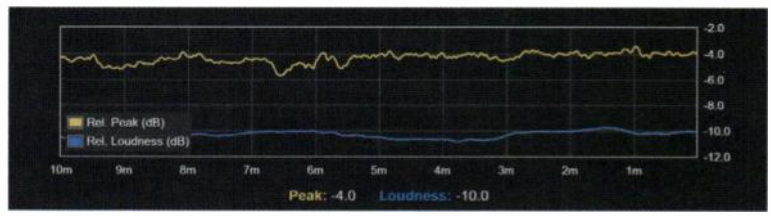
You can see from Fig. 1 that if you were simply taking readings every 5 minutes, your delay samples would be all over the place. Without the means to look at your delay over time, it is extremely hard to make sense of what is going on.

The other "issue" with FM and HD blend is audio levels. If these are not matched, the experience can be quite annoying for listeners. Fortunately, this one is not as hard to monitor or fix, even if you don't have the proper equipment since you can use your ears or audio level meters.

See Fig. 2. The yellow graph shows that the Peak (dB) levels are –4.0 dB below the FM level. FM is always the level to compare against because you are limited in your modulation to ±75 kHz deviation and can't really turn that level up or down. The blue line shows the relative Loudness (dB) is –10.0 dB lower than the FM level.

The most important thing you can do is to make sure your gear is GPS, 10 MHz and 1 PPS locked together. Using one "Master Clock" helps to keep things in sync. If you lose power or need to reboot things, always recheck your alignment and levels. Next, monitor your system on a daily basis. If you have the gear to do that automatically, fantastic. If you don't, you need to get some.

Bottom line, you monitor and course-correct what is important to you.



Right
Fig. 1, top, is a 30-minute sample of alignment as shown on a Justin 808. Fig. 2 shows that peak level is –5.2 dB lower than FM, and loudness is –10.7 dB lower than FM (shown on a Model 551).

More Info
This article is excerpted from the ebook "HD Radio Best Practices 2025." Find it at *radioworld.com/ebooks*.

SBE Elevates Three to Fellow Rank

The Society of Broadcast Engineers elevated three people to the rank of Fellow, the highest membership level in the SBE. Members must have made significant contributions to the broadcast engineering field or the SBE. Candidates are nominated by their peers.

Roz Clark, CPBE, CBNT, is executive director of radio engineering for Cox Media Group. He joined SBE in 1990 and served two terms on its national board. He is a past recipient of the Robert W. Flanders SBE Engineer of the Year Award and Radio World Excellence in Engineering Award. He has served SBE Chapter 39 as treasurer since 2013 and is involved in its annual Technical Symposium. His engineering career began in the 1980s with stations in the Tampa and Orlando areas; he joined CMG in 1993, receiving his current title in 2023. He is involved with the National Radio Systems Committee, IEEE Broadcast Technology Society and Association of Federal Communications Consulting Engineers, and has served on the NAB's Radio Technology Committee.

Steven Keeler is a distinguished service professor emeritus at Cayuga Community College (SUNY). He is a member of SBE Chapter 22 Central New York and joined SBE in 1989. He began working for the school in 1987. He is board vice-president of Auburn Regional Media Access, and executive committee member of the SUNY Distinguished Academy, a founding board member of the Auburn Public Theater, vice president of the Cayuga Community College Faculty Association, executive producer of the SBE 22 Student Career Seminar LIVE Stream, former chair of the National Education Association/NY State Technology Committee, and a member of MENSA. He is a two-time recipient of the James C. Wulliman SBE Educator of the Year Award.

Thomas McNicholl, CBTE, began his broadcast career 50 years ago at WKTV in Utica, N.Y., where he has been chief engineer since 2003. He is chair of SBE Chapter 22. In 2003 he took over as chair of the annual SBE Technology Expo. He worked with local colleges and universities to invite young technical talent to the event, to increase their awareness of technical careers within media, acquaint them with some of the latest equipment available and attend some of the technical papers/presentations.

Working with caps in a phase converter

At first glance, this looked like a tedious project

Writer

Michael Baldauf

The author has worked in various radio roles including chief engineer and project manager since the 1980s.

A phase converter provides three-phase power from a single-phase source. Old-style mechanical converters use a hybrid motor/generator, while electronic converters use capacitors and other devices to simulate three-phase power.

The first image provides a look inside the cabinet of a Phase Technologies phase converter cabinet. Many of the electronic components are on the circuit boards on a metal panel in front of the capacitor bank. To replace the capacitors, this panel must be moved out of the way.

At first glance, it appears that the task of moving the panel will take hours and be very tedious. But the second image shows an easier solution that requires disconnecting a few cables at the bottom of the panel and gently swinging up the panel to reveal the capacitor bank. (I held the panel up with bungee cords and put some bubble wrap between it and the connectors behind it.)

Be sure to take pictures and draw a diagram listing all connections that were undone.

Making space for removal of the capacitor bank requires disconnecting one wire from a contactor lug and one other wire. Thankfully, the capacitors in this system are non-polarized. They are reconnected with one terminal to a grounding wire and the other to a numbered wire. (Note the bleeder resistors across the capacitor terminals.)

A few important notes about this task.

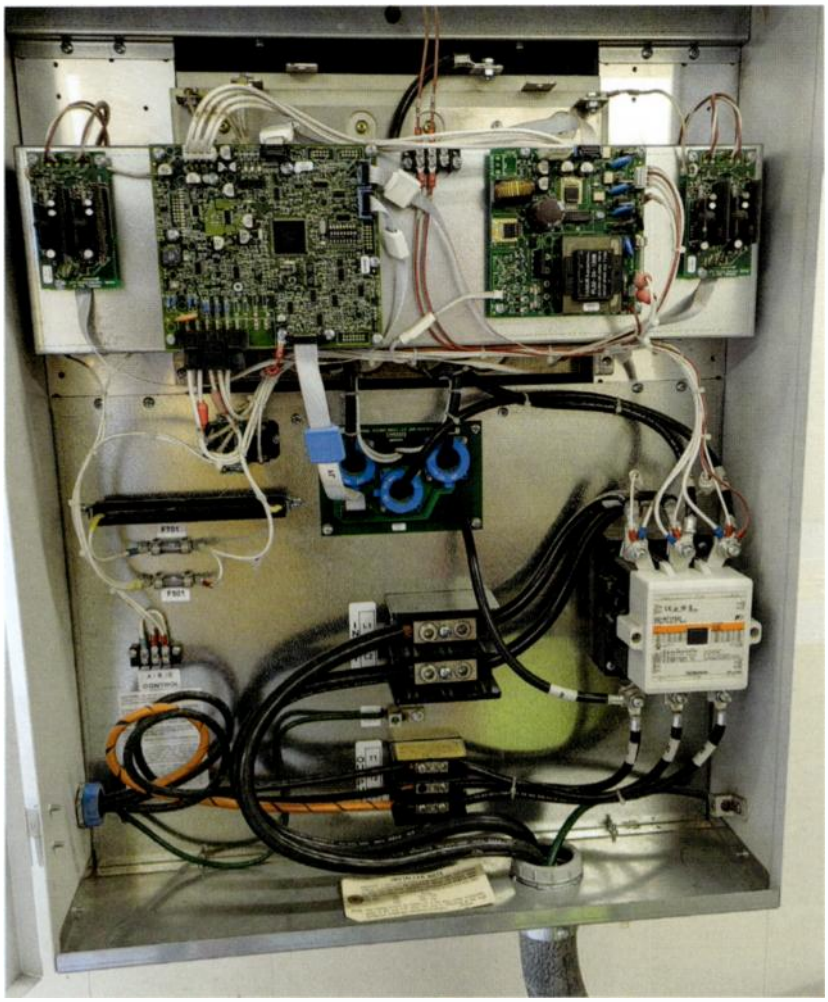
The most important step is to discharge the capacitors before beginning any work. According to the manufacturer, 30 minutes with the power source off before doing any work should be sufficient. I found that discharging required at least 30 minutes, then I used an alligator clip lead taped to the end of a dowel (the other end hooked to ground) to tap the connections and drain any remaining energy.

To do the job I also needed a long Phillips screwdriver to get to the panel mounting screws, a #20 Torx driver, a smallish adjustable wrench and a good tiny flashlight. Aside from a few zip ties, the reconnection of the wiring was straightforward.

Capacitors age while just sitting on the shelf, and their quality and testing can vary, as well as fakes being sold. Buy replacements from trusted vendors and test them yourself if possible.

Additional maintenance on these units includes testing the ventilation fans. They pull air from the bottom of the box and across the aluminum heat sinks, and blow it out the top. A thermal sensor on a heat sink starts the fans

Below
Inside the cabinet



> **“The most important step is to discharge the capacitors before beginning any work.”**

Above
I lifted and held the board using bungee cords.

above a certain temperature. The sensor may take a few minutes to close. If the fans never start, check the voltage at the terminal strip. You can replace the fans if necessary.

Also check the contactor that closes when the converter is operational. Remove the cover to check the contacts for burning and pitting.

Phase converters add another layer of complexity to any facility. The newer generations require little maintenance and can run without problems for years. Keep spare fans and contacts to reduce potential downtime.

The Phase Technologies website provides support resources including the white paper "Phase Conversion Technology." Find it at *www.phasetechnologies.com/support/white-papers*.

Comment on this or any article. Email radioworld@futurenet.com with "Letter to the Editor" in the subject line.

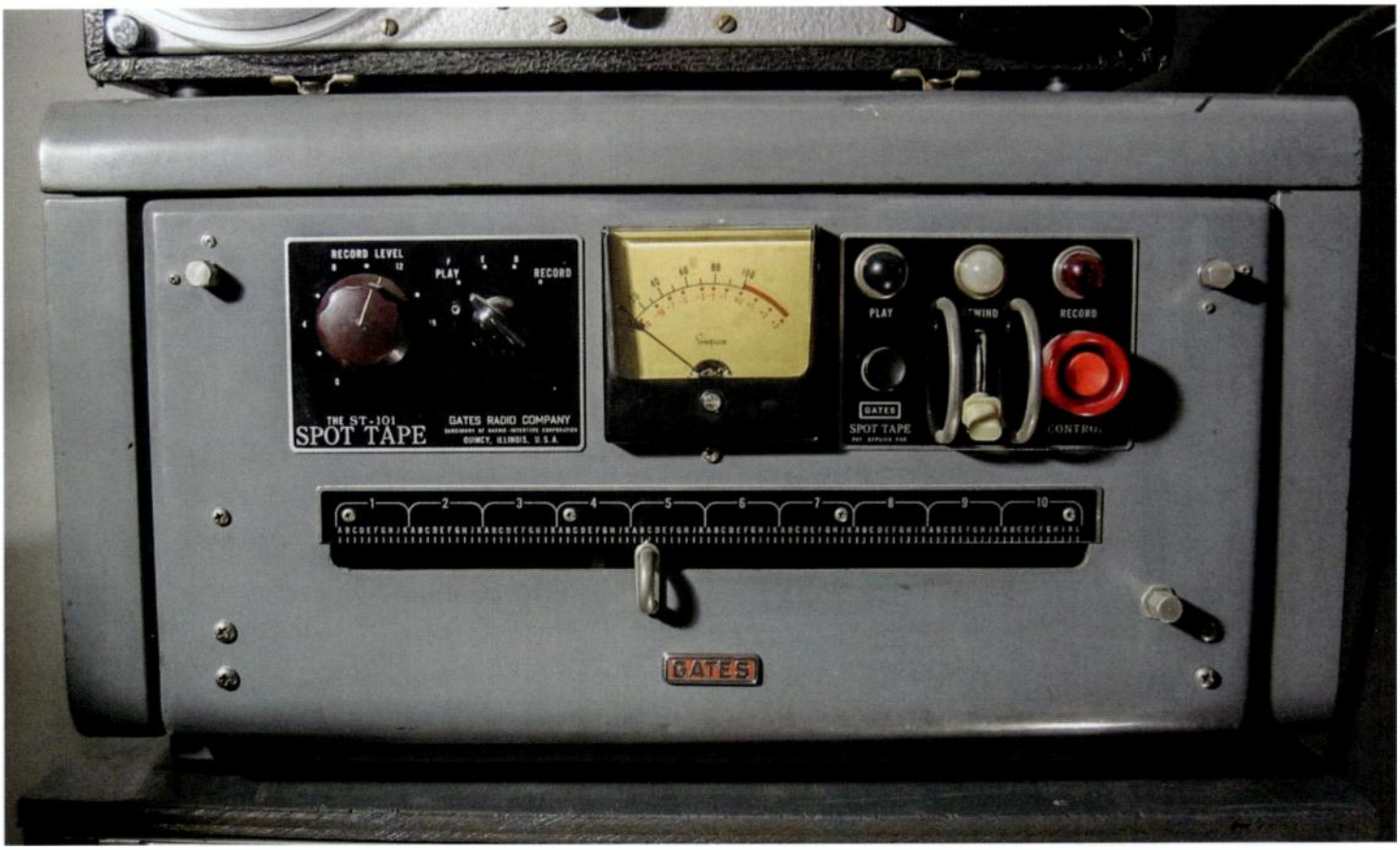


Photo by John Schneider

A belt from Gates Radio

How we might have learned to "belt" rather than "cart" spots.

Writer

Criss Onan

The author wrote a retrospective about cart machines in the Sept. 25, 2024 issue.

Above
The Gates ST-101 Spot Tape was introduced in 1959; it became obsolete after the introduction of the tape cartridge machine.

In the 1950s, radio was undergoing a programming revolution in response to television. Rather than airing most of what came down a network line (and being paid to do so), stations increasingly originated their own programming and sold their own spots to local and regional advertisers. The programming was mostly music — more and more rock and roll — featuring fast-paced format elements.

Tight playback was difficult with the standard tools of the time: turntables for music singles and transcribed spots, taped spots on small (often 3-inch) reels, live spot reads and longer-form programs on transcription discs or larger reels of tape (7 inches or more).

Gates Radio, owned by Harris Intertype Corp., sought to simplify operations by developing a control storage device using a wide audio tape belt for spots, promos and PSAs.

The ST-101 tape recorder was introduced in 1959 at the NAB Show, in an engineering session technical paper and on the exhibit floor. An article in the company's internal Gates Studio Review noted the crowded conditions around the new "Spot Tape Recorder." Gates reported selling 55 units at the show for $850 each (about $9,300 in 2025). By 1961, Gates claimed in a trade magazine ad that 500 stations were using the ST-101.

The 1962 Gates General Catalog described the ST-101 as storing 101 announcements, each up to 90 seconds long, on a 13-inch-wide magnetic tape. An index lever was used to select the desired cut and playback could then be started. When the 90-second cut finished, a photoelectric cell reversed the motor, rewinding the tape in 22 seconds. Individual tracks could be erased and re-recorded.

The ST-101 had a specified tape speed of 5-1/4 inches per second, a frequency response of 50 Hz–8 kHz ±2 dB, SNR of 45 dB or better, distortion below 2%, and wow & flutter below 0.35%. It used five vacuum tubes.

The unit could be mounted in a table cabinet or an equipment rack. An optional tabletop "SPOT TAPE" remote control allowed users to start playback, stop, manually rewind and control the unit.

A comment in the catalog said: "Exhaustive tests operated Spot Tape for 18,000 continuous cycles without

turn-off and leaving the tape playback head on the same track, with no adverse effects on tape life or quality. Tapes may be replaced in about 15 minutes if needed, but routine exchange of tapes is not needed or recommended."

A Gates ST-101 service manual has recently been added to the excellent World Radio History website, which is *www.worldradiohistory.com*.

How reliable was it? Broadcast historian Bill Jaker shared his experience at WLIR-FM in Garden City, N.Y, on the website *http://oldradio.com*.

"You couldn't segue between spots because it was necessary to rewind the foot-wide tape — and that couldn't be done near an open mic because the rewind sounded like a washing machine going into a spin cycle. ... One morning, I came in to put the station on the air and found that the tape belt was completely wrapped around the take-up roller. Seems the guy who'd signed WLIR off the night before had shut everything down as the belt was rewinding, thus disabling the electric eye that recued the ST-101. It took some careful unwrapping and a piece of Scotch tape to get it back in order," Jaker wrote.

"I once asked the station owner what we'd do if we had more commercials than would fit on the limited tracks of the belt tape. He smiled and said, 'Then we'd have enough money to buy a second ST-101.'"

Even without the benefit of hindsight, the ST-101 presented several operational limitations that were immediately apparent.

Spots had to be recorded or dubbed in the control room while it was on the air. A spot couldn't be saved while another was playing. Two announcements couldn't play back-to-back. Further, a device malfunction could render

Photo by John Schneider

Above
Inside view showing the wide tape at the top.

Pictured above on the right are the usual crowded conditions, seen at all times of the convention, around the new Spot Tape Recorder. Broadcasters actually operated this to witness its flexibility and its adaptability to their own station. The other items that attracted special attention were the Nite Watch Automatic Programming system, and the new CB500 urntables. All of these were in operation.

Courtesy worldradiohistory.com

Tighten Up Your Programming Format with the

GATES SPOT TAPE RECORDER

A tight, on-the-nose format means more ***sales appeal*** for your station.

With the Gates Spot Tape Recorder, control room operations are greatly simplified and perfect program continuity is maintained. ***You stop wasted motion!*** Operation is simple and exact . . . you simply move the index lever to the spot your log calls for, push the play button and let Spot Tape do the rest.

On ***one*** tape 13" wide are 101 announcements, jingles, themes, station breaks or any other program content up to 90 seconds duration each. ***This is versatility!***

Through planned rehearsals using multiple voices, background effects and themes, each announcement is aired with ***professional perfection.*** When complete, the tape automatically reverses and then cues up for ***split-second*** airing of the next spot. Erase any track not needed and record a new one as schedules change. The adjacent track is not affected.

Spot Tape Recorders are now available for immediate delivery.
Place your order today.

GATES **GATES RADIO COMPANY**
Subsidiary of Harris-Intertype Corporation
QUINCY, ILLINOIS

Offices in HOUSTON, WASHINGTON, D.C. In Canada CANADIAN MARCONI COMPANY
Export Sales ROCKE INTERNATIONAL CO., 13 EAST 40th STREET, NEW YORK CITY

Courtesy worldradiohistory.com

all announcements unplayable. And there seemed to be no notion of a backup tape, meaning a damaged one could put the station's entire spot inventory at risk.

Radio history enthusiast John Schneider acquired two derelict units and used them to restore one working machine, which is currently on loan to the GatesAir factory museum.

"Its idiosyncrasies made for interesting situations at times," Schneider said. "For instance it was customary to play a recorded spot, read a live spot and then play another recorded spot. The whir-clunk rewind of the machine was always heard in the background during the live spot, and the head position had to be changed out of the corner of one's eye while reading the spot."

By 1963, the ST-101 was no longer listed in Gates' general catalog.

Interestingly, Gates was already offering a cart deck at the same time as the ST-101 called the Cartritape. The 1962 catalog specifically noted that "Spot Tape" was not an automation system. However, as electro-mechanical automation systems became more popular, Gates needed a multiple cart player for them. Automated Tape Control (ATC) in Bloomington, Ill., had one in its Model 55, along with a large installed base of single-cart decks. Since Harris-Gates couldn't beat them, they decided to buy them.

In an ironic twist, Parker Gates had turned ATC down in 1959 when they asked Gates to manufacture their first cart decks. He believed that the ST-101 would be a superior spot playback device. He was also concerned about potential legal issues related to mixing the ST-101's and ATC's patents, according to an interview with ATC's Jack Bailey.

By 1966, Harris-Gates had acquired ATC, stating that ATC products would continue to be made in Bloomington. In 1969, Gates moved ATC manufacturing to Quincy, Ill.

Above
An NAB Show photo from the Gates Studio Review in 1959.

Right
A 1961 advertisement in Broadcasting magazine. "On one tape 13 inches wide are 101 announcements, jingles, themes, station breaks or any other program content up to 90 seconds duration each."

The author is a broadcaster who worked at both stations and manufacturers. In retirement, he researches broadcast history. Sources for this article include "Archaeology of the Broadcast Tape Cartridge," an unpublished paper by Dr. David MacFarland; "Tape Cartridge Machine History" by Andy Rector, 2009; "Gates Spot Tape Recorder" by Jay Blakesley, Gates Radio Company Audio Sales Manager, NAB Technical Papers, 1959; the April 1959 issue of "Gates Studio Review"; the 1962 Gates General Equipment Catalog; "The Pantagraph," Bloomington, Ill., May 9, 1966; and the website http://oldradio.com.

Futuri Updates Mobile App

Futuri Media has launched a new version of its mobile app platform. It's called Mobile v12 and is designed for radio stations and media brands. The company said the platform offers more customization, audience engagement and monetization opportunities.

Content modules are now fully customizable to align with station branding. The user can display real-time lyrics on the now-playing screen. Listeners can submit images and videos through the app. The native video player supports MRSS feeds. Navigation menus now are more flexible and can be personalized further.

Features include Live Lyrics, flash contesting and support for programmatic ads, video pre-roll and audio pre-roll.

Info: *www.futurimedia.com*

A-Media Launches Lexi Voice

At the NAB Show, AI-Media introduced Lexi Voice translation.

The company said the product offers real-time alternate-language voice tracks using AI, with support for up to five alternate tracks per channel. A single-language broadcast can be converted into multiple languages using synthetic voices that the company described as natural-sounding — all within eight to 12 seconds and with no hardware required.

Lexi Voice can translate voice tracks into more than 100 languages. The voices are customizable by region, gender and tone. A glossary and phonetic tools are available to ensure brand and name consistency.

The company said Lexi Voice is available at $30 USD per hour, plus Lexi's standard captioning rate. It works with the company's global encoder network, which includes Alta, Encoder Pro-HD 492 and iCap.

AI-Media said the NAB Show marked the first time customers could see the Lexi Voice platform live.

Info: *www.ai-media.tv*

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.

InrushVoice assists CMG in wake of Helene

Service helped broadcaster maintain regional business continuity

Radio World readers may know Inrush Broadcast Services for its consulting and installation services, but the company recently added a service called InrushVoice that connects directly to a station's VoIP talk show system over the internet.

When Hurricane Helene tore through Tampa, the devastation was immediate and widespread. Roads were flooded, power was down, and, most critically for broadcasters, phone circuits failed.

While their resilient infrastructure kept them on the air and connected to their local TV simulcasting partners, Cox Media Group's studio phone lines went down with only hours before hosts were set to resume live in-studio coverage. On Friday evening, with no estimated restoration time from local carriers, CMG Tampa's Director of Engineering Dylan Scott contacted Inrush for help.

While he and his team worked tirelessly in the field — clearing paths through debris to reach transmitter sites, coordinating fuel deliveries, and troubleshooting storm damage — Inrush got to work remotely restoring phone service.

Korey Brooks was the primary on-call Inrush engineer that week. He deployed InrushVoice and configured the station's Telos VX system to connect to it, bypassing the damaged telco infrastructure entirely.

By Saturday morning, CMG Tampa's lines were ringing again, just as calls from listeners in need and emergency officials with critical updates began flooding in.

With the phones handled, Scott and his team could stay focused on the bigger battle: keeping their stations on the air despite wind damage, power outages and flooded access roads.

"Having Korey and the Inrush team on hand to help us pivot quickly and restore our connection to our listeners was key during an extremely stressful time," he said. "Callers were able to share key information on fully restored phone services across our multiple radio stations."

"Dylan isn't just responsible for Tampa; he manages multiple markets, including Orlando, which was also impacted," said Roz Clark, executive director of engineering for Cox Media Group.

"InrushVoice helped his team maintain regional business continuity during the storm, and continues to serve our daily telephony needs as we expand its use across our markets."

InrushVoice is a phone service designed for broadcast talk show systems, but it also was a tool that let Dylan Scott's team focus on the work of keeping the Tampa Bay community connected when listeners needed it most. While traditional telecom networks were still assessing damage, CMG Tampa was already back in action.

More Info

https://inru.sh/voice

Tech Update

SCMS Expands Its Plant

SCMS Inc is celebrating its 49th year in the broadcast industry.

"Those years represented many facets of broadcasting, to include station ownership, hardware installations, engineering and the core business of distribution of broadcast hardware and software-related products," President Bob Cauthen said.

The demand for installation and integration has evolved a number of times, he said.

"Early on, customers primarily needed assistance in the RF sector, especially antennas, transmitters and tower work. Most stations had their own engineers."

But as consolidation transformed the industry, it also dramatically changed the engineering side, and studio integration became more common.

"SCMS Inc. completed many turnkey projects in both the RF and studio areas. The primary demand for those services come from major groups and educational institutions."

SCMS occupies a 12,000-square-foot facility in Pineville, N.C. and is expanding that with an additional 4,500 square feet of warehouse space.

"This provides plenty of room for project staging, to be more efficient when the space is ready for the installation. It is expected that more hardware needs will require installation, and that will continue to be available from SCMS Inc."

Info: *www.scmsinc.com*

Above
A studio installed by SCMS for Summit Media.

Tech Update

MK Technical Is Ready to Help

MK Technical Services, a division of MaxxKonnect, a Triple Helix brand, provides project planning, installation and maintenance services to broadcast companies of all sizes.

"Our team of engineers has decades of experience in all things technical, from the studio all the way to the broadcast antenna," said President/CEO Josh Bohn.

MKts is equipped to assist with projects ranging from a phone system or console replacement to a complete new studio or transmitter facility buildout.

"Our engineers have the know-how to help you get the most out of your existing audio over IP system, or we can help you plan for and deploy a new one."

The firm works with most major studio and transmitter brands. It has experience with most major automation systems and can guide a client through upgrades or replacement.

"If you are struggling with frequent and costly repairs of existing transmitters or antenna systems, we provide planning, installation, configuration and maintenance of transmitters and can guide installation of line and antenna systems," Bohn said. "Whether it's a translator, low-power FM, complex high-power combined system, or an AM system, our team is ready and able to assist. We do HD systems too."

Booster site, KSRC/KFCO Denver.

MKts also provides STL systems, including traditional 950 MHz or IP codecs using licensed or unlicensed IP radio systems or priority LTE and satellite.

The company is based near Birmingham, Ala., and has offices and engineers in Alabama, North Dakota, Indiana, Ohio, Maryland and Texas. MaxxKonnect also offers broadcast products including MaxxKonnect Wireless, Satellite and MaxxPhone, as well as the award-winning RMT416 radio multi-tuner.

Info: *https://maxxkonnect.com*

Tech Update

Radio Gearheads: Expertise and National Reach

Founded two years ago, Radio Gearheads has quickly established itself in the radio broadcast equipment distribution sector.

Despite being relatively new, the company leverages more than 20 years of experience in designing and installing studio and transmitter equipment.

"Our team's deep expertise spans from initial studio layout planning to the final installation of state-of-the-art equipment, ensuring high standards of efficiency and functionality," said Sales Coordinator John Lackness.

"We also specialize in transmitter site installations, which is crucial for any broadcast facility, and take pride in delivering solutions that ensure optimal performance and reliability."

He said the company travels nationally to bring its services to clients across the country. "Whether you are in a bustling city or a remote location, we provide the necessary equipment and support to keep your broadcasts running smoothly. We offer over 20 years of hands-on experience, quality equipment, customized solutions for each project, and a national presence to serve clients far and wide."

Info: *www.radiogearheads.com*

Tech Update

Wavelength: "Radio Is in Our DNA"

Wavelength Technical Solutions provides comprehensive broadcast engineering services to help stations get on the air and stay on the air.

"We offer project management solutions for stations planning to build, relocate or upgrade," founder Jeremy Preece said. "Whether it's a major project or a simple transmitter or antenna replacement, we're here to help."

For those buying or selling a station, the company offers due diligence inspections to provide a pre-sale evaluation of AM and FM broadcast systems. It delivers detailed reports with recommendations, helping clients avoid unexpected costs and complications during or after closing.

"Our remote troubleshooting services offer a cost-effective solution for diagnosing transmission issues. Using remote PC connections, we can assist with common HD Radio and IP-audio challenges — saving stations the expense of on-site visits," Preece said.

It also provides scheduled maintenance services for AM and FM stations on the West Coast, and it can help stations that are planning to purchase broadcast equipment.

"Whether you need STLs, transmitters, codecs or other gear, we'll help you find the right equipment at the best price," Preece said. "At Wavelength Technical Solutions, our mission is to keep radio on the air and sounding great."

Info: *www.wavelengthtechnical.com*

Tech Update

E2TS: Expertise in Signal Flow

E2 Technical Services LLC is an integration services and support company founded by Edwin Bukont, a small firm offering a full range of competencies to clients in broadcast and AV of every size and scope.

The company's strengths include project management, signal flow, audio over IP, custom solutions and remote support.

"As technologies evolve, we do less cable pulling and more device configuration," Bukont said.

"In turn, we often work with a client's existing labor. This may not even be an engineer; it may be the operations manager, IT/AV specialties, trades or other integrators. We also work on behalf of equipment manufacturers and vendors."

Prior to the pandemic E2 was already using remote access to take care of clients across the country, so it sustained its operations through the business disruption.

"We continue to service some clients via a retainer for consulting and remote support, even for sites that we did not have a role in building."

E2 often provides support on projects without needing a site visit. "The client sends us info, we look at their systems remotely, and their products are sent to us for configuration, including their network switches. We send the equipment to the client ready to plug-and-play to the greatest extent possible. We call this 'packaging the integration.'"

E2 Technical Services
An Artist in the Application of Science

Shipping costs are offset by savings in travel.

"We also may help a client with a need find a client with something to sell, providing a benefit to all. We even have a small AoIP test lab."

E2 provides training for what it builds. "Yet there is a great expanse of knowledge between what we configure, what a vendor configures and what the operating staff needs to know for daily use," Bukont said.

"Vendor training is important, but the ROI is limited for a client to invest time and money in a learning curve that may be of little use past installation. Part of our value an integrator is knowing what must be done. Brand loyalty has been eclipsed by network compatibility, and no one vendor makes everything necessary to bring a project in on time, on scope and on budget," he continued.

"We try to engineer beyond the wiring and tech, to be artists in the application of science in service to the mass media arts and to train others in the emerging technology."

Info: ***www.e2techserv.com***

BROADCAST EQUIPMENT EXCHANGE

BROADCAST EQUIPMENT EXCHANGE

NRB

How the FCC can define the future of free speech

Faith-based media isn't asking for special treatment — just fair access

Writer
Troy A. Miller
President/CEO, National Religious Broadcasters Association

Imagine walking into your town's public square — a place where neighbors have always gathered to talk, share ideas and speak their minds. But this time, something's different. A few people stand near the mic, quietly steering you away. "Not today," they say. "Your message doesn't fit." You're not shouted down or thrown out — just quietly redirected, told your voice isn't what the crowd needs to hear.

These aren't abstract hypotheticals. They are real stories of broadcasters being excluded by corporate gatekeepers who draw invisible red lines and decide which voices are welcome and which are not.

The digital public square is no longer a quaint town square; it's a global network controlled by a handful of corporations and tech giants, operating with immunity under Section 230 — the very law meant to keep them out of editorial activity. With these digital gatekeepers wielding unchecked power, our First Amendment protections must be upheld — for every voice, in every medium, across every platform.

Free speech isn't optional. It's the foundation of the American experiment.

But today, that foundation is under threat not just from private platforms, but from the very institutions tasked with upholding it.

Above
Troy Miller speaking at the 2025 NRB International Christian Media Convention.

While new leadership in Washington offers the hopeful prospect of a regulatory environment where all voices can be heard, we must not confuse optimism with resolution. The work is far from done.

Take religious broadcasters for example. For years, faith-based broadcasters and Christian communicators alike have faced hurdles, particularly in digital spaces where tech platforms wield unrestrained authority, often under the influence of a weaponized government that seeks to suppress dissenting viewpoints.

There is no doubt that federal agencies have, at times, been turned against private citizens. We saw this under the previous administration, with pressure campaigns aimed at social media companies to censor and blacklist disfavored content. The FBI singled out Catholic Americans and churches for surveillance under the guise of monitoring domestic extremism. The Treasury and FBI urged financial institutions to flag private transactions for law enforcement without following standard legal procedures.

The stakes go far beyond Christian media. If one group's voice can be silenced because of its beliefs, every voice becomes vulnerable.

The First Amendment doesn't play favorites; it protects unpopular voices just as fiercely as popular ones.

But in the digital age, constitutional protections don't always translate into practical access — especially when corporate platforms operate outside the regulatory frameworks.

For example, while traditional cable providers are regulated by "must-carry" rules, religious programmers are repeatedly denied carriage by over-the-top (OTT) services (think Netflix) and virtual Multichannel Video Programming Distributors (vMVPDs, like YouTube TV). Without regulatory requirements, these platforms are allowed to exclude faith-based content, effectively limiting access to Christian programming and leaving their voices underrepresented.

Whether it's a media conglomerate deprioritizing religious programming or a car manufacturer deciding to remove the AM radio option from the dash, censorship today comes dressed in new clothes, but with familiar intent.

Faith-based media isn't asking for special treatment — just fair access.

And the audience for this sector is far from marginal: new Barna Group research, in partnership with NRB, reveals that 61% of Americans use Christian media, with nine in 10 of those who do so engaging with it at least weekly. Clearly, a broad and deeply engaged community relies on faith-based content, making it a vital force in the current media environment.

Radio World welcomes comments on this or any article. Send to *radioworld@futurenet.com* with "Letter to the Editor" in the subject field.

Ensuring this landscape remains balanced and competitive is a key function of the Federal Communications Commission. With fresh leadership in place under Chairman Brendan Carr, NRB is optimistic that the FCC will continue to investigate claims of discrimination against faith-based broadcasters, curb corporate censorship and safeguard free speech for all broadcasters.

However, we caution broadcasters and communicators not to become too comfortable. A friendly administration or FCC allies does not guarantee the battle is won.

The FCC's effectiveness hinges on the active involvement of industry stakeholders. Now is the moment to push forward, ensuring new leadership delivers on promised reforms and holding both government and corporate entities accountable. At NRB, we are engaging closely with the FCC and advocating for policies that champion viewpoint diversity, particularly for small and non-commercial educational religious broadcasters.

So, what can be done? First, broadcasters must speak up. Ask questions. Push for platform transparency. If your station or network has been excluded, make it known.

Second, listeners and viewers must speak with their dollars. Platforms respond to market pressure. If Christian content is excluded, audiences can take their loyalty elsewhere.

Finally, we must stay engaged with the policymaking process. NRB remains committed to ensuring faith-based broadcasters have a seat at the table.

Now is not the time to become complacent — it's the time to lead.

By defending free speech for all, we help preserve the promise of this country: that every citizen, every community and every conviction has a place on the airwaves of a truly free nation.

"Free speech isn't optional. It's the foundation of the American experiment."

Readers' Forum

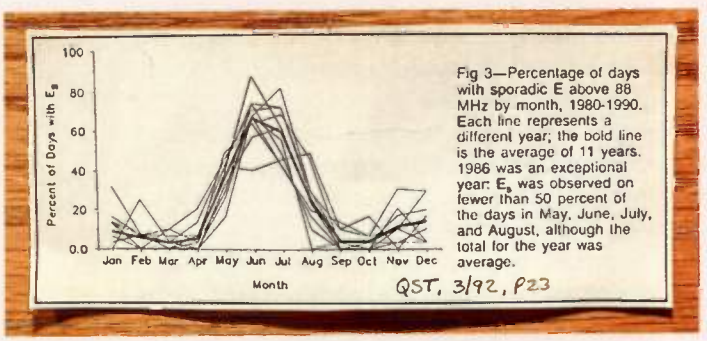
Sporadic E and Me

Regarding Nick Langan's excellent website article about Sporadic E propagation and FM DXing ("Radio Magic on a Cold Winter's Night"), great reporting!

Of course, Sporadic E also impacts over-the-air TV signals. The accompanying chart is kept in our company's frequency and spectral lab as a reminder of this curious mode of propagation.

I've given talks on Sporadic E and meteor scatter to local ham clubs and have played tape recordings of the signals received. It is my understanding that Sporadic E impacted TV Channel 2 to such a large degree in the NTSC days that CBS frequency locked their CH-2 O&O stations to WWVB in order to reduce mutual interference effects.

One such example was KCBS(TV) in Los Angeles. Our lab checked KCBS at monthly intervals to make sure it was indeed locked to WWVB.



Because of KCBS' wide reach in southern California, 55.250000 MHz (their visual carrier frequency) was often used as a secondary "frequency standard" to check the accuracy of communications service monitors in the field.

Robert F. Gonsett
Communications General Corp.
Fallbrook, Calif.

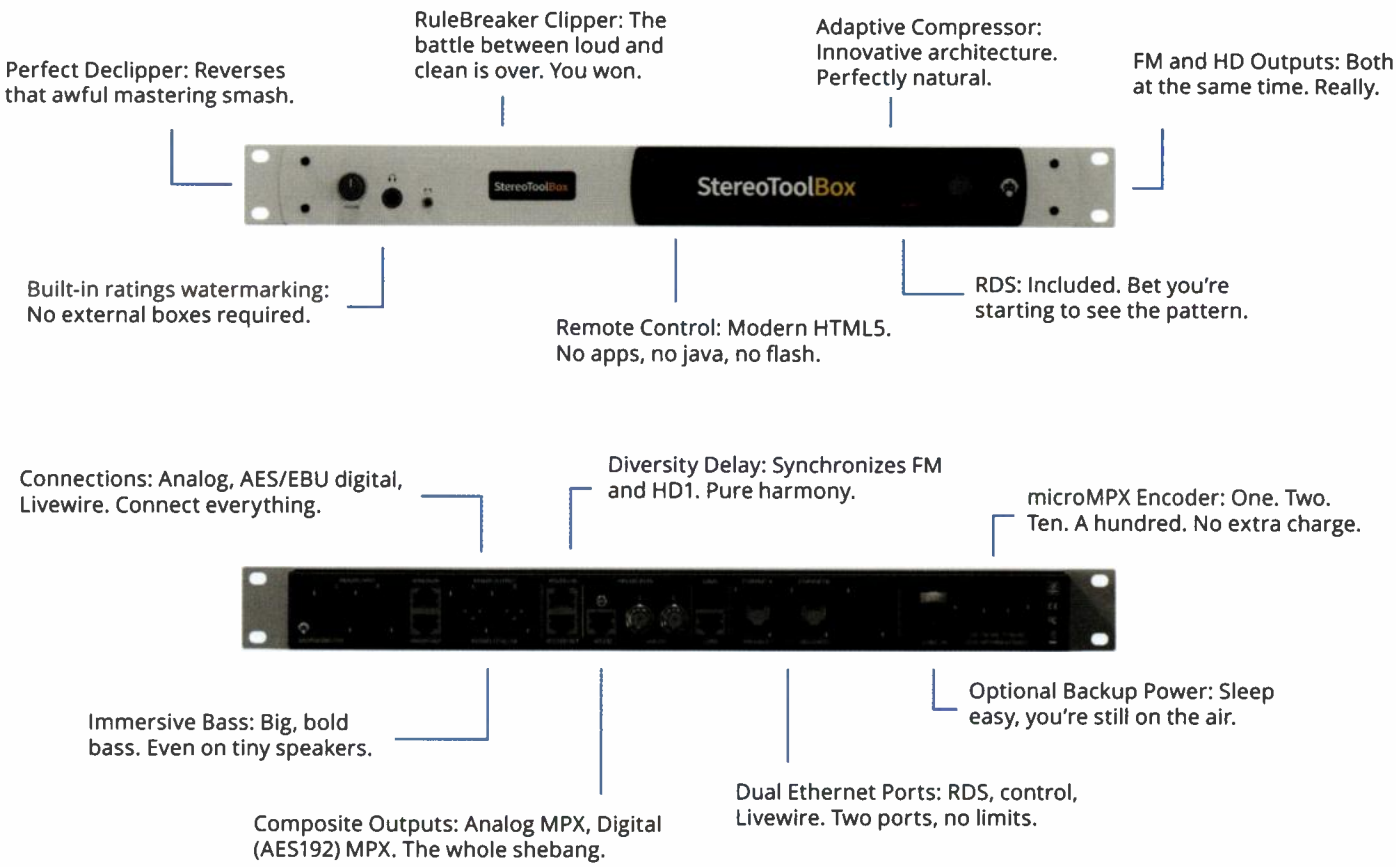
That sound. Those features. That price.

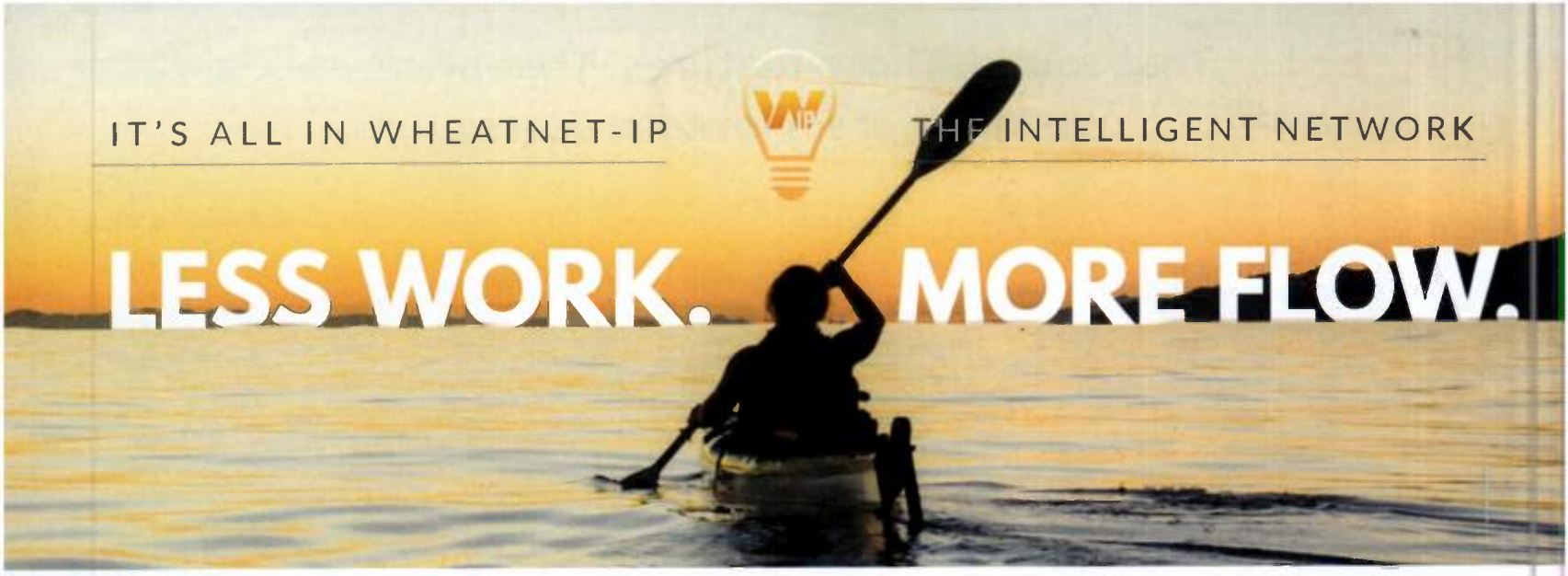
We know, it's a lot to process.

Remember when radio was fun? When beating the competition wasn't just a numbers game—it was a sound game. When tweaking your processing chain felt like tuning a race car. When you'd lean back, listen, and feel that rush—knowing your station sounded bigger, cleaner, louder than anyone else on the dial.

We remember, and we're here to bring that feeling back. StereoToolBox isn't just another processor—it's the one you've been waiting for. The one that makes radio exciting again. The one that crushes those $10K+ processors—for less than half the price. The one that puts the power back in your hands. No upcharges. No missing features. No shenanigans.

Put it on your station, and you won't just be in the race—you'll own the dial. Or, sure... blow $10K on their best and still get beat. Go budget and enjoy the sweet sound of compromise. Or get StereoToolBox and have it all. Your call.





LXE & GLASS LXE

Control it all, automagically.

One-touch event recall, smart soft controls, fader mirroring between LXE console surface and LXE under glass, and a powerful mix engine under the hood that handles hundreds of details for you, automagically.

DMX & REMOTE DMX

Audioarts Value. WheatNet IP Flexibility.

Now WheatNet IP compatible: Audioarts DMX console system including mix engine with local I/O, five-port Ethernet switch and automation plug-in for a fully self-contained AoIP system in one. Ideal for smaller facilities or for budget studios that serve as backup to a main.

STUDIO PROJECT PLANNING GUIDE

Smart Studio Planning eBook

Smart AoIP routing, control, touchscreens and console surfaces for handling workflows, automagically. Plan your studio project—download your FREE guide! Scan the QR code now.

Wheatstone
BROADCAST AUDIO PERFECTIONISTS®

Phone: +1-252-638-7000 | wheatstone.com | sales@wheatstone.com
Engineered, manufactured, and supported 24/7 from North Carolina, USA