

RADIOWORLD

Your guide to radio technology

radioworld.com | October 12 2022 | \$5.00

Mono vs. stereo on FM

Readers had quite a lot to say about David Bialik's and Gary Keener's ideas on the subject.



"Dear Landlord ..."

The FCC goes after people it thinks are harboring pirates.

Meet me in the metaverse

iHeart is trying out new ways to engage consumers.

GatesAir at 100

Bruce Swail on the new ownership, plus a sampling of historical photos.

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FUTURE US, INC.

130 West 42nd Street, 7th Floor, New York, NY 10036

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Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by Future US, Inc., 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.



Future plc is a public company quoted on the London Stock Exchange (symbol: FUTR)
www.futureplc.com

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A sweet spot for bees

CPR puts its roof to another good use



Paul McLane
Editor in Chief

S

ometimes it takes very little to be a good corporate citizen. Colorado Public Radio offers a great example. It is now providing space on its

rooftop in the city of Centennial for 150,000 honeybees, in support of the work of Free Range Beehives.

"It's a great opportunity for us to improve our environmental stewardship by taking an unused space

and providing a home for thousands of honeybees," said President/CEO Stewart Vanderwilt.

CPR said there are numerous pollinator-friendly plants nearby to support the bees, which can travel more than two miles from the hive.

The Earthwatch Institute has described bees as "the most important living animal on the planet" due to their immense impact on the environment and human health. Honeybees pollinate a huge percentage of both wild and agricultural plants but are under pressure from development, disease and climate change. Free Range Beehives says urban environments are great for foraging honeybees and that rooftops are ideal because they keep hives above traffic and out of the way of most humans and predators.

Many of our readers have a voice in how their organization's facilities are managed. CPR has found a great way to put some readily available space to a great second use.

Info about the program is at www.freerangebeehives.com/.



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Please recycle. We are committed to only using magazine paper which is derived from responsibly managed, certified forestry and chlorine-free manufacture. The paper in this magazine was sourced and produced from sustainable managed forests, conforming to strict environmental and socioeconomic standards.



Lowry Mays Dies at 87

The man who grew Clear Channel Communications into the largest radio group in the United States died in September.

Lowry Mays was a former investment banker who founded San Antonio Broadcasting in 1972 with business partner B.J. "Red" McCombs and later renamed the company Clear Channel Communications.

The group eventually grew to as many as 1,200 radio stations and approximately 50,000 employees. It was purchased for \$24 billion in a highly leveraged buyout by private equity firms Bain Capital Partners and Thomas H. Lee Partners in 2008, and later renamed iHeartMedia.

Mays was a controversial figure to some who painted him as the face of unwelcome consolidation in the radio industry following the relaxation of broadcast ownership regulations in 1996.

But there is no underestimating his lasting impact on the broadcast radio industry. NAB President and CEO Curtis LeGeyt said Mays was a "trailblazing icon whose historic career revolutionized and reshaped the broadcasting industry."

LeGeyt continued in a statement: "(Mays) founded and built one of the foremost media companies in the world through bold and innovative thinking, while his philanthropic and generous spirit helped countless people during his lifetime of service."



The Broadcasting & Cable Photo Archive

The San Antonio Express-News reported through the years on Mays' philanthropic work. There are numerous reminders of his financial contributions across Texas, from Mays Cancer Center at UT Health San Antonio to the Mays Business School at Texas A&M University. Mays graduated from Texas A&M in 1957 with a degree in petroleum engineering, according to the school's website.

— Randy J. Stine

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Pirate Radio



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In pirate hunt, FCC puts the focus on landlords

2022 has seen a flurry of letters to property owners

Writer



Randy J. Stine

Longtime contributor to Radio World and veteran radio journalist.

The FCC is deploying new tactics to pursue pirate radio offenders, targeting the owners and landlords of properties where illegal signals are being emitted.

But it's too soon to tell how well the strategy is working.

A review of a commission database shows that the frequency of enforcement actions has seemingly increased this year after a pandemic in which agents had to cut back on field time chasing signal complaints.

The FCC does have a bigger hammer to deploy now. The Preventing Illegal Radio Abuse Through Enforcement (PIRATE) Act, signed by President Trump in January 2020, has been "a helpful tool" in

the fight against illegal broadcasters, according to the commission. It gives the FCC authority to levy fines of up to \$100,000 per violation and up to \$2 million total.

Stronger penalties and "the fact that those penalties can now be applied to landlords and others who help illegal broadcasters is a helpful deterrent," according to an FCC spokesperson. The new law "is a strong tool when we warn those that are facilitating illegal broadcasting, who are then incentivized to stop the pirate radio operations on their property."

However, no forfeitures have been assessed under the act.

"To date, due to pandemic-related restrictions, as well as lack of funding to implement the PIRATE Act until earlier in 2022, no forfeitures have



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Pirate Radio

been assessed” under the act, the spokesperson said.

In early 2021 the head of the Enforcement Bureau noted that Congress had not yet provided additional funding for implementing the act even though the Congressional Budget Office estimated it would cost \$11 million to do so.

The act requires the FCC to take further steps, such as mandatory sweeps of the top five cities with the highest concentrations of pirates — typically New York, Los Angeles, Chicago, San Francisco and Dallas — and the creation of a public database that lists all entities that have received notice they are operating a broadcast station with proper authority. The database was one of the items for which the commission lacked funding.

A summary of the commission’s FY2022 budget discusses proposed hiring in connection with the new law, but the FCC does not comment on personnel matters, according to the spokesperson.

At this writing Congress is considering a \$390 million FCC proposal for FY2023, which begins on Oct. 1. That budget could allow the FCC to hire as many as 15 new full-time employees to work on anti-pirate initiatives.

The commission declined to answer specific questions about current efforts, “since we do not comment publicly on the details of enforcement sweeps or other investigative techniques in order not to compromise the effectiveness of its enforcement efforts.”

It did not provide Radio World with a copy of its annual PIRATE Act report, which it submitted to Congress earlier this year, deferring questions to the

relevant congressional subcommittee. A request for interview with Loyaan Egal, acting chief of the Enforcement Bureau, was declined.

But recent public notices indicate that the FCC is actively using its new landlord authority now.

In a recent instance, field agents traced an FM signal to a property in the Cambria Heights section of Queens in New York City. The property, which is owned by Paul Wilfrid, is on 229th Street. He received the following notice: “You are hereby notified and warned that the FCC may issue a fine of up to \$2,149,551 if, following the response period, we determine that you have continued to permit any individual or entity to engage in pirate radio broadcasting



Broadcast Complaints

The FCC’s Spectrum Enforcement Division handles complaints involving unlicensed operation of a broadcast station. Learn more at www.fcc.gov/research-reports/guides/broadcast-complaints.

letter in July went to the owners of a property in the Bronx where a signal on 105.7 MHz was emanating. The FCC followed in September with notifications warning property owners of alleged pirate operations in places like Brentwood, N.Y., Battle Creek, Mich., and Beltsville, Md.

If forfeitures eventually are levied but not collected, PIRATE Act cases are referred to the Justice Department or Treasury as governed by section 504 of the Communications Act. But for years, broadcasters have complained that such cases seem rarely to be prosecuted.

The most recent forfeiture order in the FCC database was in June 2020. In that case, Gerald Sutton of Alma, Ark., was issued a civil penalty of

“To date, due to pandemic-related restrictions, as well as lack of funding to implement the PIRATE Act until earlier in 2022, no forfeitures have been assessed ...”


from the property that you own or manage.”

Wilfrid was told to respond with evidence he was no longer allowing illegal broadcasts to originate from his property.

A similar notice was delivered to Michelle Hepburn of Yonkers, N.Y., also this summer. The letter stated: “Agents from the New York Office confirmed by direction-finding techniques that radio signals on frequency 104.5 MHz were emanating from your property at 159 South 13th Avenue, Mount Vernon, N.Y.”

Again the letter indicated that fines of over \$2 million could kick in if the broadcasts didn’t cease. Another

\$10,000 for operating an unlicensed pirate radio station. It’s not clear from FCC recordkeeping whether that fine was collected.

But in some cases the threat of large fines seems to be effective. The FCC in 2019 issued Notices of Apparent Liability against several alleged pirate broadcasters in the Boston area, including one for \$450,000 against Gerlens Cesar, operator of Radio TeleBoston. Cesar eventually entered into a consent decree with the commission in which he admitted he violated the FCC’s rules and agreed to pay a civil penalty of \$5,000. He also agreed to pay \$225,000 in additional fines if further violations occur. 





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Don't confuse PA efficiency with overall efficiency

The latter is a better gauge when shopping, says Mark Persons

A recent Radio World ebook explored trends in transmission and best practices for planning a transmitter purchase. This story is excerpted. Mark Persons is a longtime radio contract engineer who built 12 new commercial AM and FM stations for clients, and rebuilt or upgraded many others in the course of his career. Now retired, he received the Society of Broadcast Engineers John H. Battison Award for Lifetime Achievement in 2020.

RW **What's your overall philosophy or approach to shopping for a transmitter?**

Mark Persons: The transmitter needs to fit all criteria including, in the case of an AM transmitter, the ability to go to some very low power level for night operation. Not all transmitter designs can do that. Don't get surprised on this one after the fact.

RW **What are the most important recent developments in how they are designed, and what do you wish manufacturers would do differently?**

Persons: Transmitter remote control via the internet is a big plus nowadays. Also, a transmitter with a Smith Chart display showing antenna bandwidth is great for troubleshooting. Any and all manufacturers should have a 24-hour hotline to call when problems develop.

RW **How can a manager best calculate what it will cost to operate a transmitter over time?**

Persons: A transmitter salesman should provide operating cost information for existing and new transmitters. The

numbers should be passed by a knowledgeable radio engineer to verify the thinking is correct.

RW **The concept of efficiency is often discussed, but many managers may not understand what it represents. Why does it matter?**

Persons: Don't confuse power amplifier efficiency with overall efficiency. PA efficiency involves just the final stage of a transmitter. It was typically 70% in the days of tube transmitter designs. Today it is in the 90% plus range for solid-state transmitter designs and should not be used as a deciding factor when comparing transmitters.

Overall efficiency is what I look for. Define that as AC electrical utility power in watts going to a transmitter compared to RF power in watts of output going to the antenna. The difference is waste heat/heat load in a transmitter building. Then think about air conditioning costs for the difference in transmitter overall efficiencies model vs. model.

RW **Is availability of parts for legacy transmitters that are still in service a serious problem in our industry? What could be done about it?**

Persons: Remind transmitter manufacturers and/or transmitter salespeople when you've had problems getting parts or even factory advice for an older transmitter. As a result, you are purchasing from a company that still offers service for older models. That vintage unit might be a backup transmitter that needs to be available for service for a long time to come.

RW **What should engineers know about effective use of MDCL, that isn't known as widely as it should be?**

Persons: MDCL can provide a power savings, but sometimes at the price of reduced audio fidelity. Some hear it and some don't. Setting the right level of MDCL is like adjusting audio processing for the right sound compromises. It can be good or bad.

RW **In countries like the United States, AM radio is considered a very challenged industry. Has the market for new AM transmitter purchases basically dried up?**

Persons: AM transmitters are still being sold to keep viable AM stations on the air. Moving from a tube transmitter to a solid-state transmitter is a great choice for keeping operating costs down. That includes maintenance and power. 🎧

Below
Mark Persons,
shown taking field
measurements.



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John Bisset

CPBE

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



These spurs have no boots

Frank Hertel troubleshoots spurious signals in an exciter



Tips Please

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

10

Frank Hertel's repair shop, a division of Newman-Kees Consulting, was asked to resolve a problem of spurs on either side of the main carrier in an Energy-Onix 30W Stealth FM Exciter.

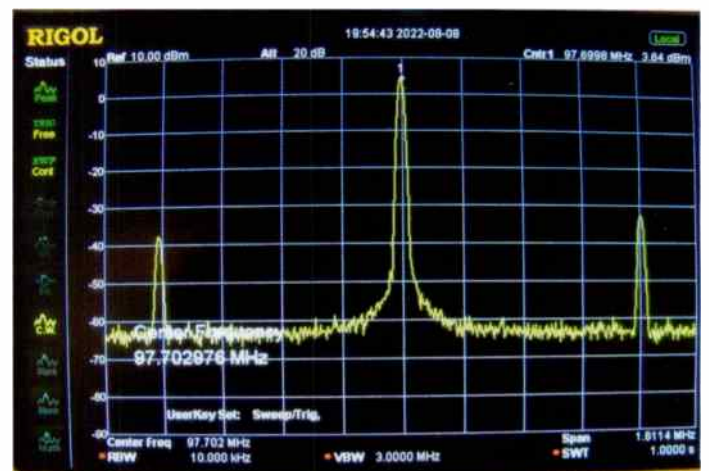
As these exciters age, the electrolytic capacitors in the RF power output module will dry out. At this point, the capacitors begin to become inductive and lose value, as well as developing an elevated equivalent series resistance, or ESR.

The repair is easy, Frank says, but it can be time-consuming. To provide a tight RF cabinet shield, the manufacturer uses a lot of screws. You can expect to spend more time accessing the RF module than you will spend in replacing the two electrolytic capacitors that are inside the RF Module.

Fig. 1 shows an overview of Frank's workbench. Note the spurious signals (spurs) on either side of the main FM carrier, in the center of the display at upper left in the photo. Fig. 2 is a better view of the spectrum analyzer showing these unwanted emissions.

This exciter was managing to interfere with some slightly distant stations, as far away as 30 miles from the offending exciter's transmitter site. This was a citation (fine) waiting to happen.

Figs. 3 and 4 show what the capacitor checker revealed, once the defective



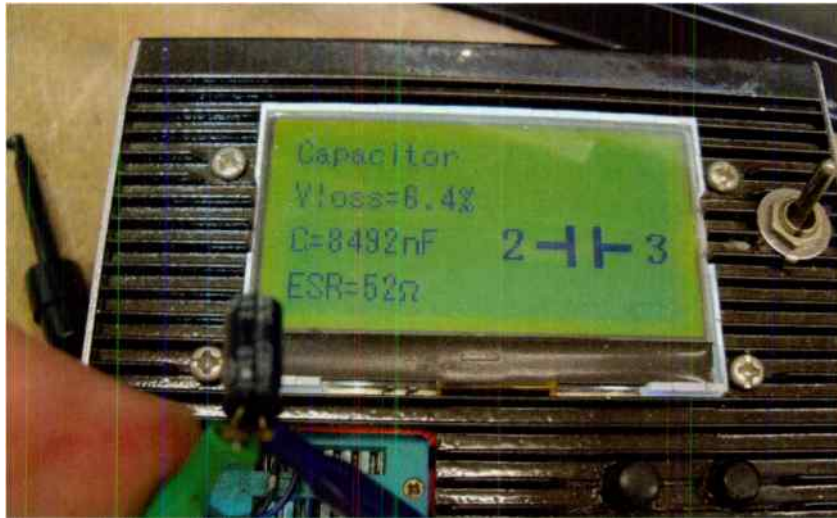
capacitors were removed. Fig. 5 shows the clean spectrum after replacing the bad capacitors.

Frank adds that if you are careful, you will not need to remove the circuit board from the heat sink (more screws). The 100 MFD capacitor is surface-soldered, on the pads of the circuit board. However, the 10 MFD capacitor has its positive lead soldered on a through-the-hole connection. If you apply your skills, you can still solder the positive lead without removing the circuit board from the heat sink.

Above
Fig. 1: Frank's setup for repairing the FM exciter.

Right
Fig. 2: Spurs are seen on the spectrum analyzer of the exciter RF output.





Above left

Fig. 3: To confirm Frank's diagnosis, he measured the capacitance and the ESR of each capacitor.

Above right

Fig. 4: Although the ESR is acceptable for this capacitor, the capacitance value is low.

Left

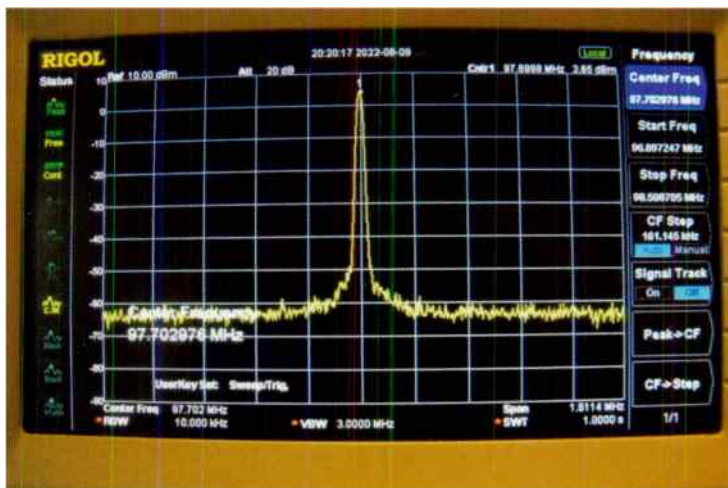
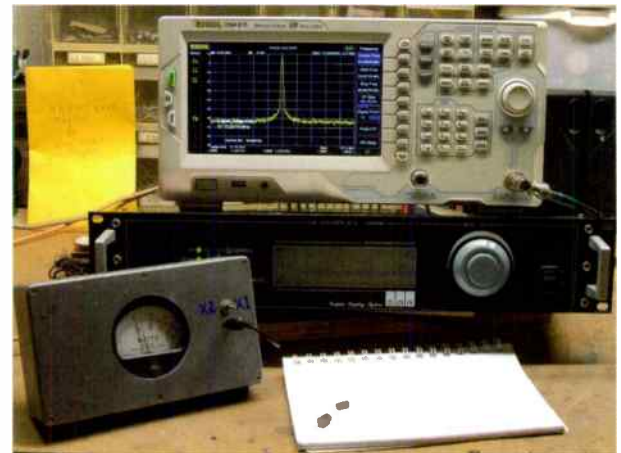
Fig. 5: The spurious emissions (spurs) are nonexistent after replacing these two electrolytics.

Right

Fig. 6: The two capacitors to be replaced are marked with orange dabs of paint, one on the left, and one on the right of the RF module board.

Bottom

Fig. 7: The repaired exciter with no spurs and making licensed power.



Using your ohmmeter you will be able to find that the leads of some smaller, nearby RF bypass capacitors are in a parallel, with the connection, for the positive lead, of the 10 MFD capacitor. Use a little ingenuity and view the schematic to see that soldering the positive lead of the 10 MFD capacitor to the appropriate lead of one of the small bypass capacitors is essentially the same physical connection as the through-the-hole connection provides. It will work quite well and save time without compromising the stability of the RF driver stage.


Fig. 6 shows a view of the two capacitors to be replaced. Each is marked with a red slash. Fig. 7 displays the spectral performance and RF output power after the repair is completed. This easy repair will save you both time and money, which will make the bean counters happy. Don't forget to tell the GM you did so, too.

Make songs in seconds

While searching the web, Dan Slentz found a piece of equipment that could be useful for every production director. Artiphon offers the Orba 2, a \$149 handheld

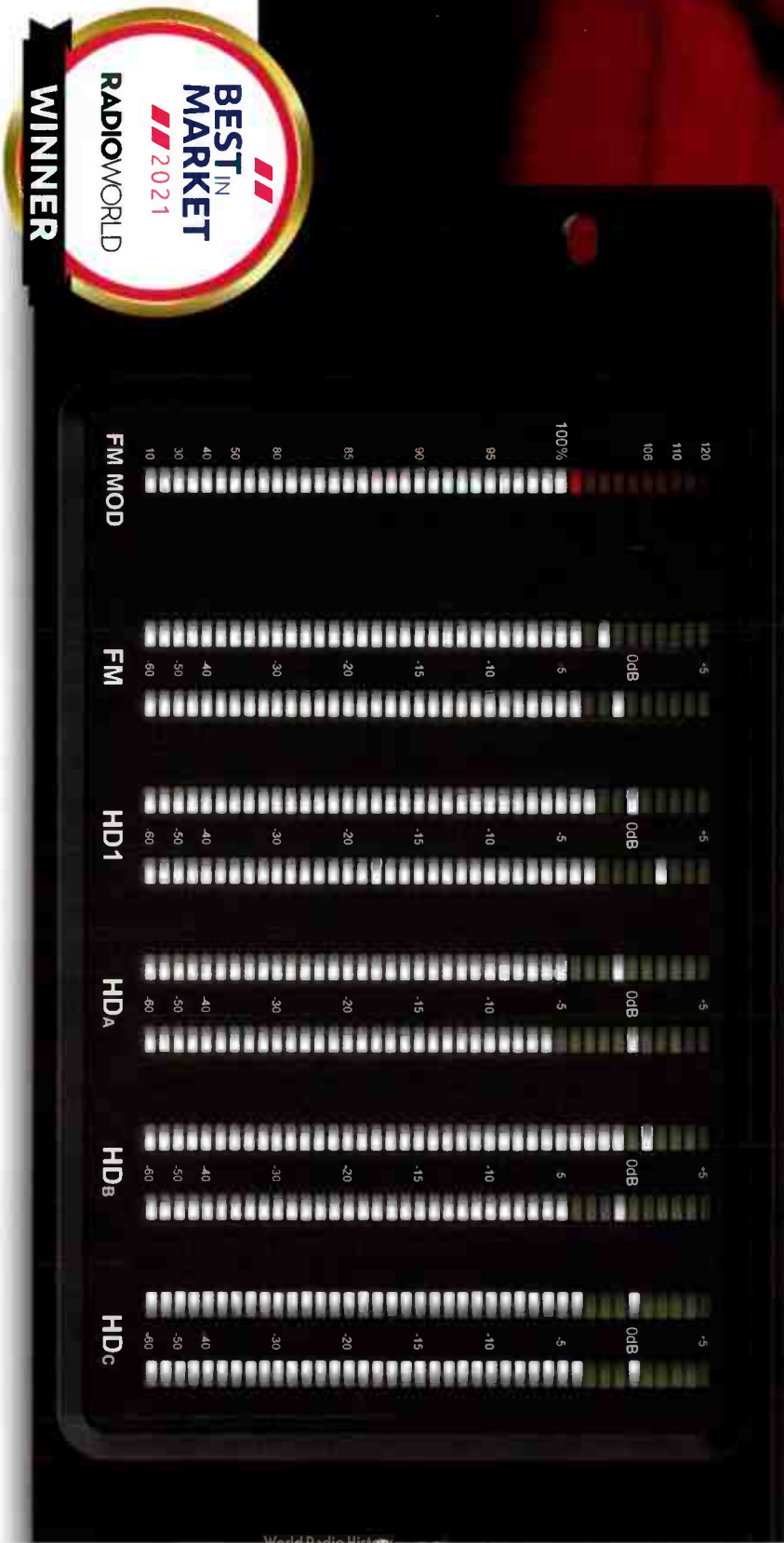
device that permits the composition of music using synthesized instruments like drums, guitars or piano. It can also record and modify voice.

There's a link to watch a video on the Orba's features: <https://neworba.artiphon.com>.

Remember the Sonovox Talk Box, which dates to the 1940s and was popular in some of the 1960s PAMS jingles? The Orba offers similar effects. (To see a short video of the Talk Box in action, go to YouTube and search "This is Sonovox." )

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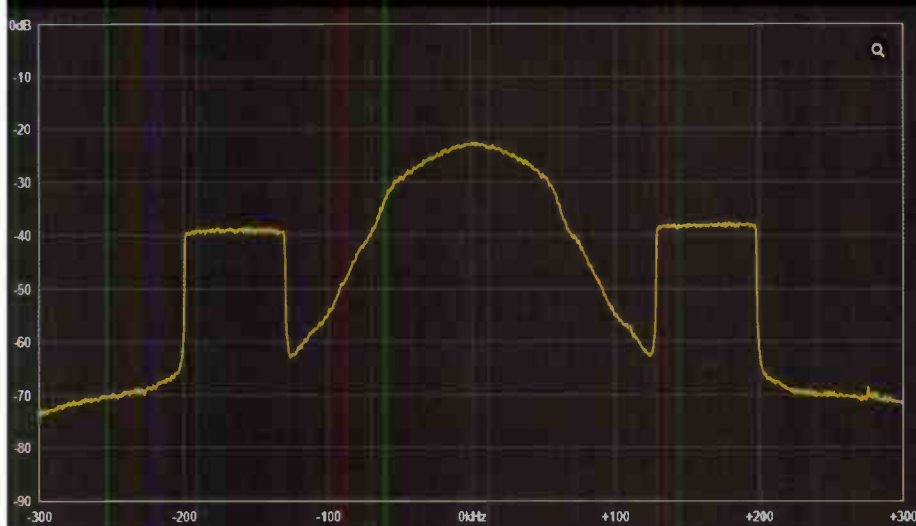
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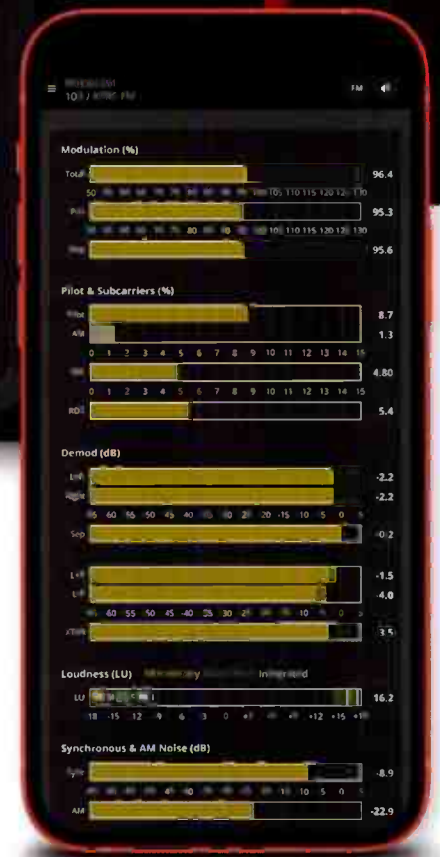
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Comment

What role will the metaverse play in radio? Email us at radioworld@futurenet.com.



Meet me in the metaverse

iHeart is already there, building new engagement spaces

don't do well on roller coasters. But when presented with a "virtual" ride in the metaverse, I figured that a roller coaster existing only in my mind couldn't hurt me. Wrong!

I felt so sick I had to take a Dramamine. When engineered correctly, the metaverse really can convince your brain that it's having an actual experience. Powerful stuff, indeed.

Like it or not, various forms of the metaverse are here already. And as with every other new consumer-focused platform, radio needs to learn whether there's a place for us there.

Just weeks ago, iHeartMedia boldly took the plunge into hosting metaverse concerts in the game Fortnite (and subsequently Roblox). Their area within the game is called "iHeartland," described as a "state-of-the-art, always-on entertainment space where music and gaming collide."

iHeartland features a calendar of concerts, album releases, podcasts, events, and of course, games. Initial artists include Charlie Puth, Ariana Grande and Travis Scott. What a cool way for artists and stations to break new music. And there are cool fan experiences being tested in "iHeartland" that involve celebrity interaction in a way that could never happen in the real world.

iHeartland has scheduled an initial 20 events that are unlocked through gaming. Lest you get the impression this is just for fun, they've nabbed a major sponsor, State Farm Insurance, with naming rights for "State Farm Park," which is in the center of the island. The area has a red carpet where players snap selfies, a countdown clock for the next big event,

food and tents. Okay, so you can't really eat the food — at least not yet, but by now I'm sure you get the picture.

Most importantly, radio/audio in some fashion will be able to reach consumers where they are spending significant quantities of time. In the iHeart example, they're reaching a demo of young men, who are increasingly difficult to attract to broadcast radio.

It's true that we do yet know the results. Like all new endeavors, we should not be too quick to draw major conclusions. It's going to be a true exercise of test-and-measure, adjust, test-and-measure, try again ... then after an extended time we'll have a few answers about scalability and whether the metaverse is a place for radio to become a permanent fixture.

It's also impossible to know if there is a first-mover advantage. While that's the typical thinking, radio's past is littered with companies who invested big sums and then failed. Anybody remember the initial stand-alone streaming devices that would send a signal to your computer to listen to streaming radio stations? I have one in my garage and still marvel at how cool it looks and how quickly the company went bankrupt.

There is a medium ground where the radio industry begins testing and, as iHeart is doing, selling in advertisers to cover at least a portion of the cost. Another trick is not to take our overall attention away from our core product. That's why it's so useful to have a group of people who specialize in new platforms.

In case you don't know, the metaverse exists way beyond gaming. There's a reason that Facebook chose Meta as their company's new name. If the metaverse sounds like a foreign language to you, it's past time to do your own research. Got kids? Ask them about it and just watch the excitement as they take you to the latest new world. 





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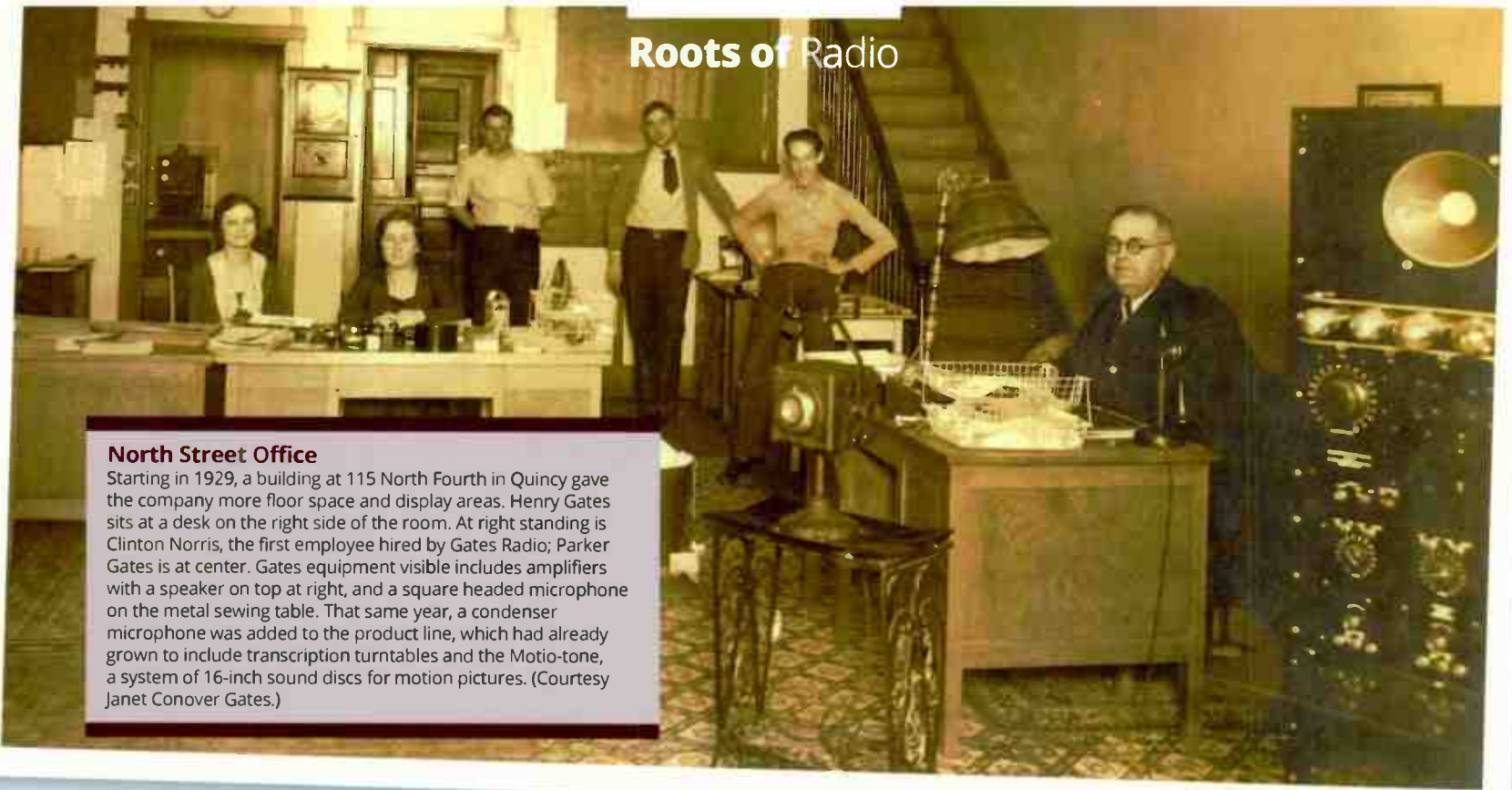
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Roots of Radio



North Street Office

Starting in 1929, a building at 115 North Fourth in Quincy gave the company more floor space and display areas. Henry Gates sits at a desk on the right side of the room. At right standing is Clinton Norris, the first employee hired by Gates Radio; Parker Gates is at center. Gates equipment visible includes amplifiers with a speaker on top at right, and a square headed microphone on the metal sewing table. That same year, a condenser microphone was added to the product line, which had already grown to include transcription turntables and the Motio-tone, a system of 16-inch sound discs for motion pictures. (Courtesy Janet Conover Gates.)

Writer



Brian Galante

The author is a representative of GatesAir.

18

GatesAir's 100 years of history in pictures

A sampling of images from the manufacturer's century

In the same year that it was acquired by a new strategic owner (see page 22), GatesAir is celebrating a rare business milestone, turning 100.

Founded in 1922, Gates Radio Company was established in Quincy, Ill., by Henry and Cora B.

Gates and their son, Parker, who at 14 was the company's engineering visionary. Parker would later lead

Gates Radio and Supply Company, which was sold to Harris Intertype in 1957 and later became a part of Harris Corp.

Shortly upon its divestiture from Harris, the Gates family name was returned to the company in honor of its roots. This photo essay samples the company's 10 decades; the online version includes more photos. Find it at radioworld.com, search "GatesAir history."



More Photos

Find these and other photos in the online version of this story. At radioworld.com, search "GatesAir history."

First Transmitter Sold

In 1936, the industry's first 250-watt broadcast transmitter was manufactured by Gates Radio and sold to station WJMS(AM) in Ironwood, Mich., for \$2,750. The closest competition at the time was a 100-watt model priced at \$8,400. RCA and Western Electric had strong patents in the field, making Gates' achievement all the more impressive. (Courtesy Janet Conover Gates.)



Post-War Audio Products

An unidentified Army Radio announcer broadcasts over a Gates Radio SA-40 console from KOLD studios in Thule, Greenland in 1955. The SA-40 was a nine-channel mono console manufactured from 1949 through the early 1950s. A Gates Radio 12-inch transcription turntable with a Grey Research tonearm is seen in the forefront. These turntables predated the 45 rpm era, supporting 33 and 78 speeds. (Courtesy John Schneider.)



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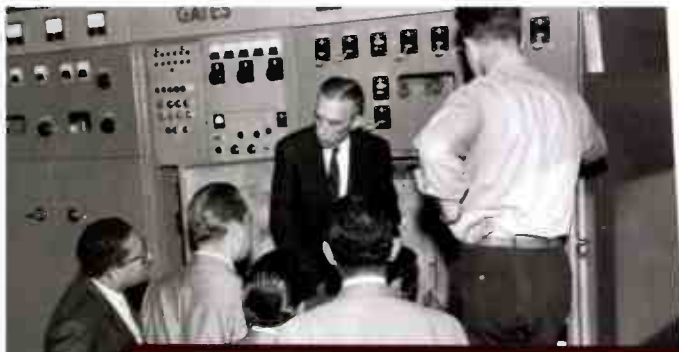
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World Radio History

Roots of Radio



On the Shortwaves

This 1950s-era photo shows an audience in front of a Gates Radio 20 kW shortwave transmitter. According to Geoff Mendenhall, who spent much of his broadcast career at Harris, the predecessor of GatesAir, in engineering leadership roles, high-power shortwave and medium wave were important components of GatesAir's international growth. (Courtesy John Schneider.)

With the Vanguard

General Manager Dave Morris, right, of Houston AM/FM station KNUZ was presented Harris' first Vanguard I transmitter in 1960s by a Texas-based Harris sales representative (curiously named London England). The Vanguard Series were 1 kW AM transmitters available from 1966-68. They used low-level modulation and were considered all-transistor designs with a single tube, considered engineering marvels for the time. (Courtesy Bob Weirather.)



GatesAir FLX Transmitter

GatesAir has continued to leverage efficiency improvements in solid-state technology to grow its Flexiva FM radio and Maxiva TV/DAB transmitters. The introduction of the Flexiva FLX transmitter in 2016 represented an important new phase as an ultra-high-efficiency liquid-cooled transmitter to serve higher power levels. WEBE(FM) in Bridgeport, Conn., was among the first to install an FLX transmitter. This picture was taken within weeks of being brought to air in 2017. At left is Dave Supplee of Cumulus Media, with Peter Partineo of systems integration firm RES at right.



1 Million Watt DX

Hilmer Swanson spent the final 35 years of his career with the company until his 1999 retirement. Chief among his innovations were the first Pulse Duration Modulation AM and the first all-digital AM transmitter branded DX. Mendenhall calls Swanson "the forefather of all modern, high-efficiency, AM modulation technologies and the giant among GatesAir's legacy" of engineers. Swanson is shown in 1994 testing a 1 million Watt DX AM radio transmitter with digital modulation. The company had shipped more than 1,500 units by 2004; many remain in operation. Technician Dave Kerker is in the background. (Courtesy John Schneider.)



1 World Trade Center

Never Forget: 9/11 was the most profound US tragedy of our lifetimes. Bob Ross, a retired CBS Engineering executive, recalled that CBS lost two employees and some transmitters when the towers fell. A 34-year-old Harris tube remained on the Empire State Building. "Harris brought in an original design engineer of that transmitter who had retired, and within one day they machined and shipped parts so we could rebuild the cavity and return to full power. That is customer service." Current GatesAir Chief Revenue Officer Joe Mack shares that the company "threw out the playbook" for ordering transmitters to bring NYC broadcasters back to air quickly. This photo shows the 1 World Trade Center transmitter room today, which includes GatesAir TV and Radio transmitters. From left: Mark Voorhees of GatesAir; John Byrne and Jeff Birch of CBS TV stations; GatesAir's Joe Mack; Bruce Swail, CEO of GatesAir; and kneeling, Richard Mulliner of WCBS(TV) and WLNY(TV).



GatesAir Quincy Facility

A recent image of the 3200 Wismann Lane office in Quincy featuring the extended GatesAir family. Quincy remains the company's main manufacturing center and is where its TV and radio transmitters are built and assembled today.

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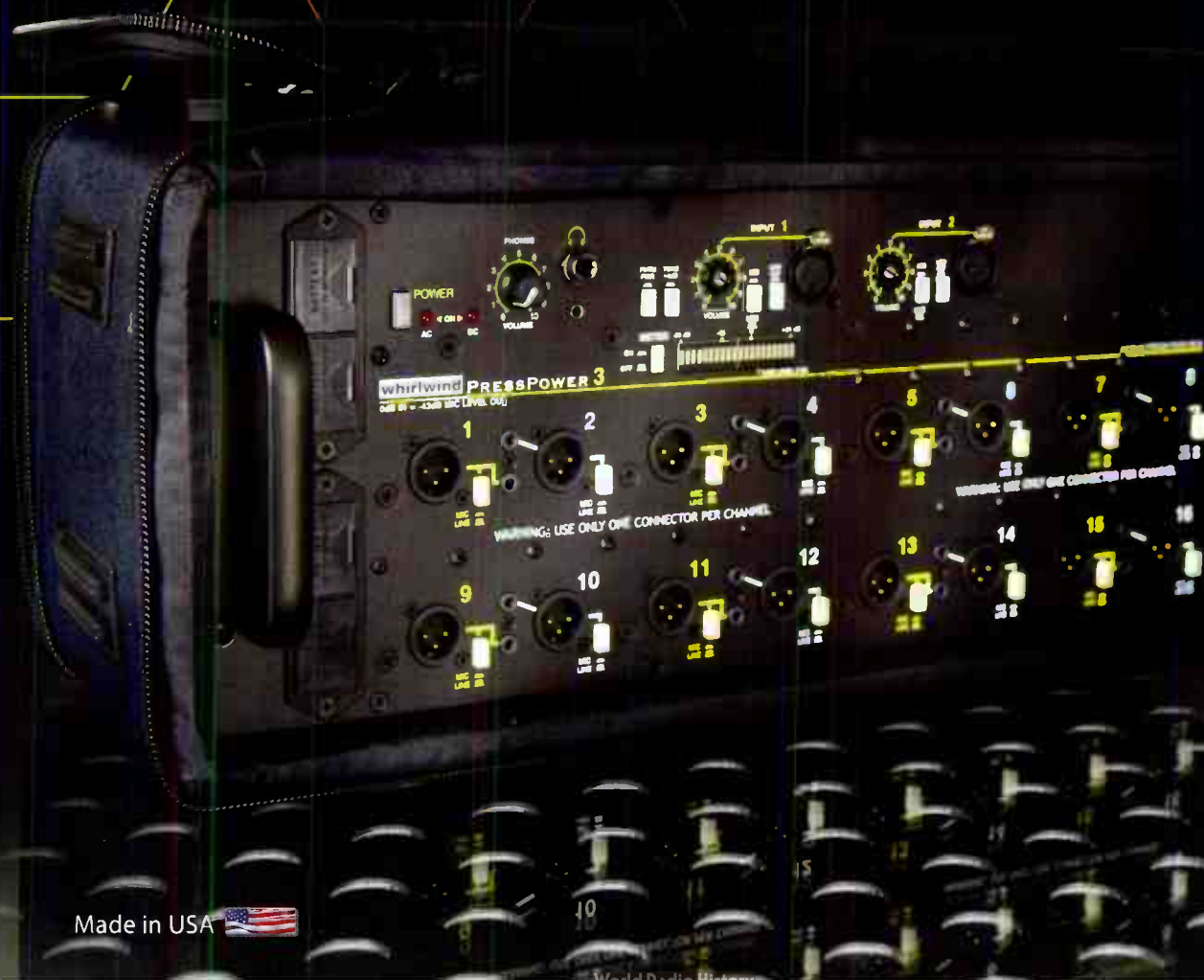
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Writer



Randy J. Stine

Radio World's lead news contributor wrote recently about the FCC's network resiliency initiative.

Thomson Broadcast assumes control of GatesAir

Swail welcomes acquisition by "a strategic owner"

RF company Thomson Broadcast made a splash in the U.S. broadcast equipment marketplace this year with its acquisition of GatesAir, thus adding an established American radio and TV brand to its offerings.

GatesAir officials said they expect no changes in operations or staffing levels following the recent sale. John Belza, its chief financial officer, opted to depart, but no other senior management shuffling is expected, they said.

The roots of both companies go back a century, though both have changed hands several times.

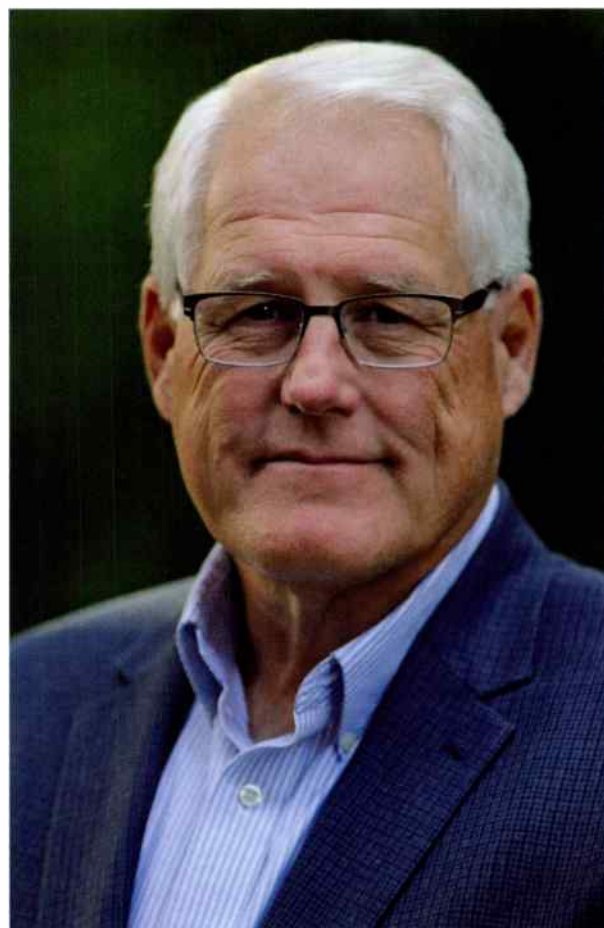
GatesAir, which is celebrating its 100-year anniversary, is a manufacturer of radio and TV transmitters as well as STL and networking gear, both IP and RF. It is headquartered in Mason, Ohio, with manufacturing in Quincy, Ill., and has about 200 employees globally.

In 2012 The Gores Group, a private equity company, purchased Harris Broadcast Communications from Harris Corp. for \$225 million. It subsequently split Harris Broadcast into Imagine Communications and GatesAir.

Terms of the sale to Thomson, which was finalized in July, have not been made public.

Thomson Broadcast is based in Paris, France, with additional U.S. operations in West Palm Beach, Fla. Its website notes that it was a founding member of Digital Radio Mondiale. The company was owned by the Arelis Group from 2012 to 2018, then sold to Group Sipromad, which describes itself as "the biggest conglomerate in Madagascar" including businesses in industry, real estate, tourism, aviation and renewable energy.

Thomson Broadcast opened operations in Florida several years ago to enter the U.S. market organically, according to Bruce Swail, CEO of GatesAir, but realized it could grow much more quickly with this acquisition.



"Scale player"

Swail said the acquisition "was not unexpected for us. We had hired an investment banker a year and a half ago to explore this.

"Typically, private equity firms have a deadline to turn over a company. They raise money to buy a few companies but eventually they have to sell off those funds to liquidate them in order to buy others. So the timing was right for us. We have turned around the company the past five years and built up a good performance record, so we became an attractive asset to go onto the market."

Principle R&D for GatesAir will remain in Ohio, Swail said, and development engineers are still based in Illinois. GatesAir also has a facility in Brescia, Italy and an Asia Pacific sales office.

Right
Bruce Swail



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Swail said the weeks following completion of the sale were "fast and furious," with meetings between Thomson and GatesAir leadership.

"We went from a private equity owner to a strategic owner. (Thomson) is in the business and familiar with the marketplace. As an operations manager you always prefer to have a strategic owner rather than a financial owner. They are living and breathing the same things you are. We are super excited. It's all good stuff."

Swail said there is very little overlap in businesses between Thomson and GatesAir.

"Their principal interest in the acquisition of GatesAir was to gain a U.S. presence. They have become a scale player in this country virtually overnight. There are no really operational synergies between the two companies. It was more of a strategic play for them. And we'll collaborate with them on the international front where they have some strengths that are complimentary to us."

Swail joined GatesAir in 2017, succeeding Phil Argyris, and has spent 40 years in the technology industry, including a long stint with Motorola.

He describes Group Sipromad as "historically a business that tends to go into industries for the long term, which is different from a private equity firm. The new ownership group could open up some investment opportunities for us."

Thomson Broadcast Chairman Ylias Akbaraly declined to answer Radio World's questions about the strategy behind the acquisition.

In a press release he described it as "an excellent and significant step for Thomson Broadcast to further reinforce its worldwide leadership in the fast-evolving world of broadcast technology. The combined force of these ideal strategic partners will support each other's growth and the growth of the industry at large."

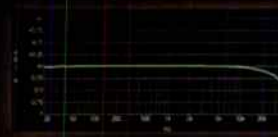
Thomson Broadcast posted a video to YouTube in September documenting Akbaraly's first visit to GatesAir's Cincinnati-area headquarters and tour of its Quincy,

“As an operations manager you always prefer to have a strategic owner rather than a financial owner.”

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Ill., production facility. (At YouTube, search "Akbaraly GatesAir.")

Cloud ahead

The current broadcast equipment marketplace is mature yet still growing, Swail said, specifically including radio.

"We have had a couple of good years. Several of the major broadcast groups have been through financial restructuring in recent years, but that is in the rearview mirror now so they are aggressively refreshing their plants and modernizing and unifying their networks so they can have standard operating procedures.

"That has resulted in good run rate for us. We have a couple of products that are well suited for what the radio groups are going through."

He cited the Intraplex Ascent product, a virtualization of the Intraplex codec line, which he said has been popular with major broadcast groups.

"We essentially took a page out of telecom's book. They had been moving toward the notion of getting rid of 'boxes' for entities and instead having virtualized slices in a server array in a server farm. Then you can scale up or down on capacity for real-time demands and needs," Swail said.

"I think that theme will continue. We don't play in all the software solutions at the station level, but you'll continue to see more development of cloud-based and virtualization implementations. The network resiliency and redundancy you get by going to the cloud with this stuff you just can't pass it up."

GatesAir is beginning to see good growth internationally in DAB, Swail said, which he said is gaining deployment momentum. He also mentioned India and its planned growth in FM.

"We certainly have opportunities in India. It's a focus of ours. We have introduced a new FM product that hits the



Above
Thomson Broadcast Chairman Ylias Akbaraly, right, is shown in a YouTube video during his tour of GatesAir facilities in Mason, Ohio, and Quincy, Ill. He's with Bryn Burke, GatesAir vice president of global operations and services.


price and power density footprint that is well suited for that country," referring to the Flexiva GX, a transmitter line with power levels of up to 10 kW.

"It's analog FM only, so we have taken off the cost burden for digital, since some markets just never expect to go to digital FM. By taking out the digital circuitry we can be aggressive on the price."

GatesAir plans to continue its presence in other markets, like public safety and emergency response.

"We have done some military work, some products that went into experimental physics where high-power RF was needed as part of particle accelerator programs for the U.S. government. I would expect that you would hear more from us in industries that you would not consider to be RF in nature."

The broadcast manufacturing marketplace does continue to cope with semiconductor chip shortages, Swail said, creating a tough climate for tech companies.

"We are going to struggle with this problem for a few more years before it gets better. It just creates a lot of headwind for an industry that is challenging enough already." 

Who's Buying What

An occasional feature about recent technology purchases and installations.


New Vision, Uganda's government-owned radio/TV station and newspaper, will use a **Jampro FM Broadband Antenna**, shown in the first photo, as part of an expansion program.

"New Vision is in the process of building the forthcoming regional FM radio station, Kabalega Radio," Jampro stated in an announcement in August. The installation will be to the west of Uganda in the oil-rich city Hoima. ...

AEQ and its local partner **Falcon Technologies** won a big order to supply and install more than 100 audio consoles for **All India Radio**.

"AEQ has been awarded the project to supply digital consoles for three types of studios, all of them with IP connectivity based



on Dante technology in more than 33 cities throughout India," the manufacturer announced. AEQ's Gustavo Robles is shown with some of the consoles in Madrid prior to shipping. 



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An Introduction to Radio Resources

Radio Resources, which launched in July, describes itself as a “toolkit of end-to-end products and services.” It partners with product and service providers to create a single-source turnkey platform.

We asked Director of Product Services Alex Quintero about the company; this is an excerpt.



RW What's your mission?

Alex Quintero: We're a single-source, multiple-solutions platform. Our goal is to offer medium- to small-market owners and operators the best provider for every component necessary to running a radio station or group. ... We are more than a middleman. Our team has extensive knowledge about the goals and challenges of running a radio station. We work with stations and groups to gain insight into their specific needs, and then build a customized plan that delivers the right tools for them.

RW List the types of services that fall under your umbrella.

Quintero: Currently we offer accounting, consulting, IT, back office operations, programming, production & imaging, finance, research analytics, national sales representation and sales training and more.

We're in the process of rolling out Phase Two in early October to include broadcast equipment. Right now, under our consulting service we offer engineering services. Finding engineers who specialize in RF has been a big pain point for many radio broadcasters and we're in conversations with providers who fill that need.

RW Is this a monthly fee arrangement?

Quintero: Access to Radio Resources' suite of products and services can be through barter, cash or a combination of the two. We created Radio Resources to be a viable resource for stations to benefit from, as they evolve in the formidable years ahead.

Read the full interview at radioworld.com, search Radio Resources. Its website is radioresources.com.

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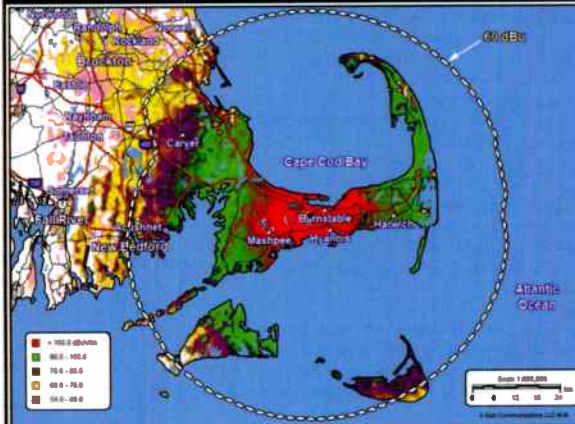
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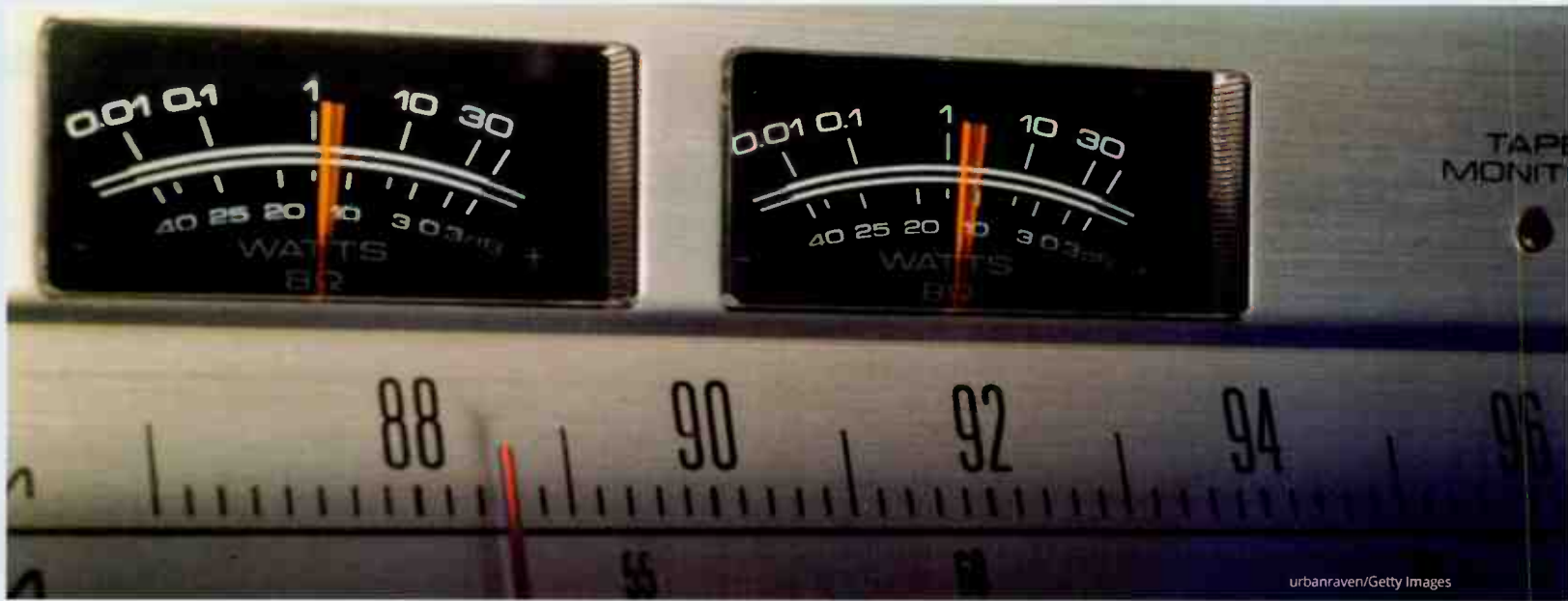
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Your feedback on stereo vs. mono

Readers comment in response to commentaries by David Bialik, Gary Keener & Glynn Walden

28

Numerous readers have responded to recent commentaries by David Bialik and Gary Keener suggesting that some FM stations or translators could benefit by broadcasting only in mono rather than stereo, and to the reply commentary in which Glynn Walden raised caution flags about that idea.

What follows is a sampling of reader reactions. Some letters are excerpts or edited for length. (You can read the original commentaries at www.radioworld.com/tag/mono.)

Perception matters

David Bialik asks, "Why stereo?" One answer: prestige.

I worked for a little FM station in northwest New Jersey decades ago that competed with the New York City stations. My station had a mono audio chain. The owners asked if I could switch the exciter to stereo just to light the stereo lamp in receivers, which I did. Dual-channel mono. They were delighted and felt they were swimming with the big dogs as an apparently stereo station.

Bialik's point about coverage is well taken. My reception in the southern Missouri Ozarks is fringy and my car radio breaks back-and-forth between stereo and mono, with the stereo position noisy and weaker. Wish it were still a manually switchable option!

*James B. Potter
Kimberling City, Mo.*

The penalty is real

Gary O. Keener hit the nail on the head with "Turn Off the Stereo and See What Happens."

The "stereo penalty" is a known engineering issue; it is real when it comes to coverage. It is a fact: FM monaural uses only 15 kHz of bandwidth while stereo uses 53 kHz. The greater the bandwidth, the more noise gets in and degrades the audio, a definite tune-out for most listeners. I've noticed it on all FM stations. Those most greatly affected for coverage are translators and lower-power stations.

Try it yourself with a radio that has a stereo/monaural switch. Tune around to distant stations and you'll be convinced. You usually can't do that on car radios, which sometimes blend to monaural in an attempt to reduce noise. That's a nice trick but isn't available in all radios.

Another stereo problem is in areas where there are high signal reflections, causing audio distortion and dropouts. Monaural will survive much better in those mobile environments. Try driving a troubled route. Then have someone turn the stereo pilot off before driving the same route again.

Stereo was big in the days of the Beatles and one-hit wonders of the 1960s, with some instruments in the left channel and some in the right. Today much of it is a big wall of sound with little actual stereo content, as far as I can tell. Yes, there are still some who enjoy stereo; but think of the big picture. How many listeners do you get each way?



Your Turn

Comment on this or any Radio World content. Email radioworld@futurenet.com.

The hype about FM stereo is lost on most listeners today. They want clean audio and will tune away when it isn't.

Mark Persons, CPBE, WOMH

Take me to the pilot

Gary Keener's article clearly suggests the advantage of an FM station operating in mono.

In the past, though, we learned that some FM receivers will mute without a stereo pilot. Something to think about if you are considering this mode.

*Bill Ruck
San Francisco*

Save foot, lose patient?

Interesting articles that point out how we've technically messed up a most worthwhile medium.

In many cases the listener is hearing the station in a vehicle that's built with four or more speakers. Separation on FM tuners is affected by the distance from the transmitter, and many stations' stereo signal is "blended" as the pilot carrier loses strength. My 2018 Toyota Camry has a pretty good FM tuner including HD, but the "Stereo" indicator is missing. Prior tuners indeed showed whether a stereo signal was being received or not.

In 1982 we installed AM stereo on WKRC in Cincinnati. The signal was fed through an Orban stereo synthesizer to minimize the artifacts that the Kahn AM stereo provided. Few of our listeners could hear the stereo, and few could see that the "light" was turned on. But it was a good indication that we had gone the extra mile.

I'd suggest that if a station operator with a lesser signal wanted to minimize the noise in fringe areas, they keep the stereo pilot on while providing two identical channels. There are still tuners out there that rely on that stereo signal to even activate audio. Otherwise it sounds like a dead signal — or would even be bypassed by scanning circuitry.

Most music created these days has very little discrete left and right information, unlike the original stereo version of "Meet The Beatles" with music in one channel and vocals in the other.

But the other school might suggest putting out the best stereo signal for the majority of the audience receiving a robust quality signal. It may affect the fringe listener, but keeping the core listener satisfied is a great way to keep your business running smoothly.

Granted, it's tough to keep everyone happy; but turning off stereo might be akin to saving a patient's foot while losing the patient. Still, a worthy experiment.

Dave Mason

The idea in practice

Thanks for publishing the Keener letter on translators in mono. I have been suggesting this to my brokerage and consulting clients for years, especially the spoken-word ones. Heck, one of my full-power stations is doing this.

The usual multiplex noise is perceived as weak signal. With that gone, even the 48 dBu is a solid and listenable signal.

I've also read what Mr. Walden wrote and I still stand by my comments. Regardless of what I'm driving, my new Jeep or old Jaguar, or when listening on a portable radio, dropping the stereo eliminates a lot of the problems associated with stereo. Sure, the signal strength is still present either way, but the mono is perceived as being stronger due to the lack of noise. Also, commercials on spoken-word stations usually have no music beds. Three of my FMs are in mono and I have not had one person comment on it.

*Jonathon R. Yinger
President/CEO
The Christian Broadcasting System, Ltd. and
Broadcast Properties LLC*

Blasting Seattle

I am reminded of the operation of CKO-FM 4 in Vancouver, which was part of the short-lived Canadian All News Network.

The transmitter site was on or near Mt. Seymour, with very high HAAT to the south. In mono, it was fed from eastern Canada on a circuit that appeared to roll off at 8 kHz or so. In downtown Seattle, and lots of other places in "multipath city," it was by far the hottest audio signal on the FM band.

Years ago I tried to convince a friend and client who owned a couple of "beautiful music" stations to turn off the stereo, since most of his audiences were in environments where the radio was really just there for background. But he was a pretty good "seat of the pants" engineer and he'd been an FM pioneer; he couldn't give up on the technical allure of FM stereo.

*Benjamin F. Dawson III, P.E.
Hatfield & Dawson Consulting Engineers
Seattle*

In-car clarification

Gary Keener wrote that "about 70 percent of OTA listening is currently in vehicles." Please pass along that he is not reporting the percentage of in-car listening correctly.

Nielsen in the Q4 2021 "Audio Today" report notes that 65% of listening is out of home. Of that out-of-home portion,

70% is in-car. So the numbers are 35% at home, 46% in-car and 19% work/other.

I understand that his point is about when to use mono FM to extend the "enjoyable" listening range on smaller stations. Good comments.

*Brent Lightfoot
Vice President, Research
iHeartMedia — Markets Division
Myrtle Beach, S.C.*

Talk in stereo

The search function of many receivers will not stop on a mono signal. They have to see a stereo pilot to consider the station "listenable." Therefore, when transmitting in mono, you may be losing listeners by being "skipped over."

Also, most current receivers have a progressive mono blend or other similar functions that eliminate separation (and noise) on weaker signals.

Most RBDS encoders require a 19 kHz pilot to sync to, or they will not provide output. In this case, running mono will prevent you from using RBDS.

In view of the above, I run all my talk and mono stations in stereo with no apparent degradation in coverage.

*Rod Rogers
Rogers Engineering
Salina, Kan.*

Only in emergencies

Mono on FM? Only in an emergency, in my opinion.

We have a mono output on our board that goes to the transmitter room just in case we need it. Our stereo feed is our primary signal source to AM and FM. Although our AM is in mono we use a small mixer to combine left and right.

When I returned to KRFE after so many years I found out that previous engineers told management that "talk radio doesn't need stereo because no one will notice." Even the

“Regardless of what car I’m driving, dropping the stereo eliminates a lot of the problems associated with mono.”

stream audio was a left channel sample split to left and right stream! I also couldn't find a lot of equipment that was on the old station inventory lists. Maybe our stereo equipment found better use in other stations?

Our network shows are in glorious stereo so we will utilize it to the fullest and yes, you can tell a difference. Dana Loesch sounds remarkable in proper stereo.

Technology isn't an issue with us as long as our listeners are happy. And stereo talk radio sounds great in vehicles and in homes.

*Kerns Garza
Chief Operator
KRFE Radio
Lubbock, Texas*

Mono has its place

I agree with everything Glynn Walden explained in his article "Mono on FM: Hang on a Moment."

In-car listening has been greatly improved over the years, with DSP and other techniques to improve the listening experience, and operating in mono is not a huge improvement for many situations.

I'm a big proponent of mono transmission for low-power stations or spoken word. It makes a huge difference in non-mobile receiving environments.

Office and home audio systems, portable radios and the like have their limitations. I've observed that listening to lower-powered stations (or full-power stations outside the 70 dBu contour) in residential and commercial environments can be a noisy experience; the receiver could be decoding full stereo even with noise -20 dB below the decoded audio. Many radios have automatic switching with no manual override for mono, and there are other situations where the user is unaware of the improvement mono can provide.

Those who have chosen to broadcast in mono likely have many experiences where they felt powerless about local noise, so they made the conscious decision to force the issue and provide the best experience possible for the greatest number of listeners by using mono.

So far, with three music translators, I've received only one call about not broadcasting in stereo. I've also found that many radios don't even have a stereo light, so who's to know which mode the station is in?

One compromise: The Omnia 9 audio processor, a wonderful toolbox of audio innovation, has a feature that is useful for just this situation, called Auto Pilot. This feature detects speech and low L-R to automatically switch off the pilot. I see this as a reasonable option for those who want music in stereo (which will mask the noise) and speech in mono.

*Andrew Armstrong
Chief Engineer and IT Manager
Portland Radio Group*



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