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Your guide to radio technology

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How to pick an on-air processor

Here are 10 tips to help you with that important decision

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WHUR has a culture of great community work.

Regulatory fees

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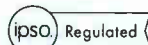
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The pain of higher FCC station fees

Industry says it's tired of subsidizing competitors

Writer
Randy J. Stine

A

proposed increase in the regulatory fees that radio licensees pay the Federal Communications Commission has

sparked backlash from the industry and calls for the commission to revamp the process by which it establishes those fees.

Broadcasters also are repeating their years-old argument that the FCC should also charge unregulated "Big Tech" fees for their use of spectrum.

The FCC in a Notice of Proposed Rulemaking proposed an average increase for radio stations for FY2021 of 8 percent, though some fees would climb by as much as 15%. Broadcasters view the increase as significant especially coming on the heels of a pandemic. The commission aims to collect \$374 million from all the industries under its purview for the fiscal year that begins Oct. 1.

Filings by the National Association of Broadcasters and a joint filing by state broadcast associations complain of discrepancies in how the FCC calculates the fees it collects.

"For the third consecutive year, the commission plans to significantly increase regulatory fees for broadcasters to unfair, unsustainable levels, and in a manner that is unlawful and ignores the COVID-19 pandemic's devastating economic impact on broadcasters," NAB wrote in a filing in June.

THIS ISSUE

NEWS

3 The pain of higher FCC station fees

6 Shulins strikes out on his own

FEATURES

10 Workbench: How about some PM for this AM?

14 MarketPlace

18 How to pick an on-air broadcast processor

GM JOURNAL

23 WHUR serves on multiple platforms

STUDIO SESSIONS

26 How Marc Maron's podcast adjusted to COVID

OPINION

29 FM translators for AMs are a double-edged sword

30 Readers Forum

Radio Regulation

The association believes the FCC failed to explain the basis for the proposed increases “in any meaningful way.” It also said it is “apparent that broadcasters are not being charged more in regulatory fees because of any increased costs or benefits of their regulation.”

Spread the burden

The commission is required by Congress to assess regulatory fees each year in an amount that can reasonably be expected to equal the amount of its appropriation. The commission issues a NPRM yearly seeking comment on the proposal; it did that in May.

The FCC estimates that in fiscal 2021 it will collect approximately \$20.1 million from FM stations in annual regulatory fees, and another \$9.6 million from AM licensees. The fees are based on the size of market a station serves. In all, the FCC projects it needs to collect approximately \$136 million from industries regulated by the Media Bureau, including radio and television licensees, to cover the costs of some 119 full-time bureau employees.

The proposed fee increase would mean a Class A AM station in a small market serving a population of under 25,000 would pay \$1,050 in 2021 compared to \$975 a year ago. The largest FM broadcasters in markets of 6 million or more people would pay a top fee of \$22,650 this year compared to \$20,925 in 2020.

The FCC’s NPRM asks whether it should extend the temporary measures it adopted last year to help businesses suffering financial hardships because of the pandemic. Those include allowing some payment deferrals at a discounted interest rate, and in some extreme cases, fee waivers.

NAB asked the FCC to take steps to require huge tech companies and other unlicensed spectrum users pay their fair share of the commission’s activities from which they directly benefit. It contends that some of the largest and wealthiest companies in the world leverage commission proceedings to develop profitable business models yet contribute no regulatory fees.

The NAB estimates that broadcasters use 0.07% of allotted spectrum but account for at least 16% of the FCC’s entire budget while offering a free service to the public.

“The commission is forcing broadcasters to subsidize the regulation of other entities that are either contributing less than their fair share of the fees; or allowed to free ride entirely on the commission’s activities,” it wrote.

Broadcasters typically pay their annual fee by the end of September unless granted a financial hardship waiver. The FCC says it has the authority to charge a 25% late fee if necessary.

The NAB asked the FCC to issue a Further Notice about expanding the base of payers to include Big Tech so the fee system can reflect the work the commission performs and the entities that actually its resources and derive benefits.

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FY 2021 RADIO STATION REGULATORY FEES						
Population Served	AM Class A	AM Class B	AM Class C	AM Class D	FM Classes A, B1 & C3	FM Classes B, C, C0, C1 & C2
<=25,000	\$1,050	\$760	\$660	\$725	\$1,150	\$1,325
25,001 – 75,000	\$1,575	\$1,150	\$990	\$1,100	\$1,725	\$2,000
75,001 – 150,000	\$2,375	\$1,700	\$1,475	\$1,625	\$2,600	\$2,975
150,001 – 500,000	\$3,550	\$2,575	\$2,225	\$2,450	\$3,875	\$4,475
500,001 – 1,200,000	\$5,325	\$3,850	\$3,350	\$3,675	\$5,825	\$6,700
1,200,001 – 3,000,000	\$7,975	\$5,775	\$5,025	\$5,500	\$8,750	\$10,075
3,000,001 – 6,000,000	\$11,950	\$8,650	\$7,525	\$8,250	\$13,100	\$15,100
>6,000,000	\$17,950	\$13,000	\$11,275	\$12,400	\$19,650	\$22,650

States speak up

NAB is not alone in making this argument. A joint comment filing from the 50 state broadcast associations says the industry “has been unfairly subsidizing its competitors through regulatory fees for almost 30 years.”

The associations pointed to a recent D.C. Circuit U.S. Court of Appeals decision, *Telesat Canada vs. FCC*. They said the court dismissed a non-U.S. licensed space stations’ challenge to the FCC decision to expand the base of regulatory fees to include such entities.

The FCC can no longer “robotically apply its outdated methodology for calculating the regulatory fee obligations of broadcasters.”

The FCC has recently made changes to the satellite and earth station fee category, resulting in an increase in the fees charged to the satellite industry.

Advocates for broadcasters claim the appeals court decision makes it clear that the commission has the statutory authority to charge “Big Tech” regulatory fees.

“The FCC should begin the process of expanding its payor base to include unlicensed spectrum users that broadcasters and other licensees are currently forced to subsidize,” the NAB wrote in reply comments to the FCC’s NPRM.

The state associations also wrote that the Ray Baum Act (RBA) of 2018 makes clear that “benefits, rather than licenses, are the touchstone for assessing regulatory fees.”

“The RBA equipped the FCC with the flexible authority to assess and collect fees based on the benefit of the commission’s work, not on the increasingly arbitrary factors of whether the payor holds a license or how the commission has organized itself.

“However, each year, the FCC has continued to reject that notion, asserting that the fee assessment structure dictated by the statute fundamentally remains unchanged,” state broadcasters wrote.

Above
Fees proposed for
fiscal 2021.

Smaller entities hit?

The New York State Broadcasters Association stated on its website the FCC previously has exempted stations whose fees were \$1,000 or less.

“Some stations, especially Class A AM stations, have historically been assessed a fee under \$1,000, and therefore were exempt. With the new fee schedule, some stations that were exempt in past years could find they are no longer exempt and must pay a fee,” it wrote.

Oscar Rodriguez, president of the Texas Association of Broadcasters, wrote on its website: “TAB once again is pushing back on the FCC’s proposed regulatory fees for broadcasters, which continue to soar while tech giants like Microsoft and others skate free despite benefiting immensely from the federal agency’s decision-making.”

Since the FCC is required to collect the money by the end of the fiscal year, it has to collect the fees in September, according to attorneys familiar with the process.

“That means an order setting the fees normally is released in August,” said Scott Flick, partner at Washington-based Pillsbury Winthrop Shaw Pittman, who filed the reply comments on behalf of the 50 state broadcaster associations. “The FCC needs time to set up the fee database with the correct fee amounts before the filing window can be opened.”

Flick said payers also need notice in order to arrange for making the fee payments, particularly when the fees are higher than what they may have budgeted for.

Melodie Virtue, communications attorney with Foster Garvey, said she is doubtful of the prospects for the NAB petition: “I fear it will take an appeal to make the FCC budge on adjusting the annual regulatory fees imposed on broadcasters. The regulatory fee setting process is so interrelated among the various FCC bureaus, and since the FCC must collect by the end of September for the federal fiscal year, I don’t see any short-term resolution to this issue.”

“The NAB estimates that broadcasters use 0.07% of allotted spectrum but account for at least 16% of the FCC’s entire budget while offering a free service to the public.”



Shulins strikes out on his own with a technical consultancy

Veteran engineer offers site monitoring, drone inspections and consulting

Paul Shulins, known to Radio World readers for his engineering work at Greater Media and Burk Technology and for his frequent presentations at engineering conferences, has struck out on his own with a broadcast technical consultancy.

RW What is Shulins Solutions?

Paul Shulins: It has three pillars: the Stellar Eclipse platform; drone-based tower inspections; and a range of consulting services based on years' of practical experience building and operating broadcast facilities.

Stellar Eclipse broadcast site monitoring provides a systems approach to monitoring and protection of RF systems from simple to complex, featuring exclusive VSWR Sentinel protection technology.

sUAS Drone-based tower structure visual and infrared surveys provide an indispensable tool to diagnose the health of RF systems and tower structures without the risk of climbing the towers.

Broadcast Technology Consulting meets the demands of broadcasters, specializing in remote control solutions, studio design and construction, antenna protection systems and ratings metrics.

We pride ourselves on solving problems with an attention to detail that only comes from firsthand experience in the field. All of our products and services come from the point of view of the user, and are crafted with the passion of a lifelong broadcaster.

RW I assume it's mostly you doing the work. Do you contract out when you need others? Do you have employees?

Shulins: We were a virtual organization before working virtually was cool.

While I wear many hats, including having the technical vision and architecture for our offerings, I have a group of talented people who provide important skills like cloud-based software, hardware layout and fabrication, installations, marketing and so forth, all needed to bring world-class products and services to market.

As a longtime licensed pilot and of course a career broadcast engineer, I have a pretty unique skillset to fly our drones.

Even with the help, I am typically the guy who answers the phone. I like being directly in touch with customers.



Above
A Stellar Eclipse site monitor and protection system with VSWR Sentinel is shown serving four FM stations and their shared antenna and combining systems.

RW What prompted you to become an entrepreneur?

Shulins: With the amazing support of longtime DOE Milford Smith of Greater Media, I was able to think outside the box, and provide exciting new technical solutions to problems that materialized due to the growing industry and technology.

Many of these solutions came in the form of digital playout systems, multi-site remote controls, and Part 101 studio-to-transmitter links before they were popular.

I decided that thinking in this way often led to solutions that others can benefit from too. My drive to share my passion for innovation presented the perfect opportunity to start this business.

RW How do recent trends in how broadcast companies manage engineering affect the marketplace for the services you offer?

Shulins: For sure the market is changing. We are all balancing more projects at the same time, and resources are stretched thin.

During my long tenure at Greater Media, I was fortunate to have the time and flexibility to be able to create a number of custom software systems that really helped improve the operating efficiency of the stations, and are the foundation of many of the products and services I offer today.

That being said, many very capable broadcast engineers simply don't have the time to be able to take on these types of projects themselves.

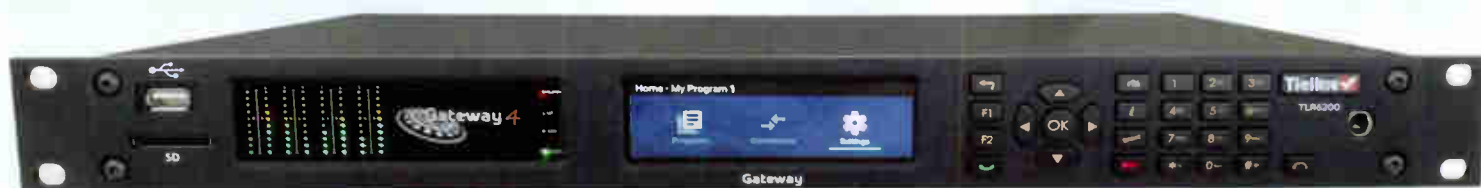


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* The Gateway 4 codec supports 4 channels only and is not upgradable to support more channels.

The solutions we offer can really help engineers manage their transmission sites, and provide a level of protections and monitoring that simplifies their operation. Our drone tower inspections using thermal imagery can help find issues quickly before they cause serious down time. We strive to provide tools that help engineers make the most of their time and help simplify with an approach that's based on my experience walking in their shoes for many years.

RW How widely are drones being used now in broadcast inspection work?

Shulins: We see it growing more and more each day. I think the TV spectrum repack really put a lot of pressure on the tower climbing resources and brought focused, alternative ways to inspect towers beyond simply climbing them.

While nothing can fully replace a physical inspection, sUAS inspections bring new technology and capabilities,

allowing for inspections that can be made more frequently, less expensively, and in many cases with more detail than a physical inspection often finding problems not obvious from the ground.

RW Give an example of a project you're working on or recently did.

Shulins: I had the honor of working with some very talented engineers on a 10-station FM combiner system that had very complex switching and safety requirements. The type of software and hardware solutions I deploy happened to be a perfect fit for this operation. Features like automatic power reduction in the event of line pressure loss, and integrated mode switching using multiple motorized coaxial switches. It was a lot of fun to design and deploy.

I have also recently been able to pinpoint transmission line problems with the sUAS using thermal imagery when more conventional resources like spectrum analyzers and ground based TDRs were unable to localize the issue.

RW What else should we know?

Shulins: My strength is my experience and my passion. The old cliché holds true that if you love what you do for work, then it really isn't work. My entire career has been about innovation and technology, but the most important part is the people. I have had the good fortune of working with some of the very best in the world, and learning from all of them. I enjoy making people's lives easier by providing exciting ideas and solutions to help them save money and compete effectively. I approach each day with excitement and can't wait to see what opportunities are around the corner.

Info: www.shulinsolutions.com **R**

“While nothing can fully replace a physical inspection, sUAS inspections bring new technology and capabilities ...”

RW Newswatch Chip problems for HD Radio

Because of the global chip shortage, General Motors will omit HD Radio from certain pickups.

GM is removing HD Radio from some 2021 Chevrolet Silverado 1500 and GMC Sierra 1500 vehicles, and from all 2022



Chevrolet Silverado 2500/3500 HD and GMC Sierra 2500/3500 HD vehicles.

Jeff Jury, Xperi's SVP and general manager, Connected Car, said Xperi would "continue to work with all car companies to try to help address issues where we can. ... We are confident that overall HD Radio deployment in vehicles will continue to move forward."

HD Radio isn't the only victim. According to automotive trade reports, GM said previously it would build some trucks without certain other tech features. And the Detroit Free Press reported about the broader impact of the chip: "Car dealers have barren parking lots, consumers face limited options on new vehicle purchases and buyers must wait, and wait, for their new ride to be built."

RW Newswatch NAB Radio Board has new chair



The Radio Board of the NAB has a new chair. He's Bill Wilson, the CEO of Townsquare Media Group.

He succeeds David Santrella, president of Broadcast Media for Salem Media Group, who becomes

chairman of the association's Joint Board of Directors, succeeding Jordan Wertlieb of Hearst Television.

John Zimmer, president and owner of Zimmer Radio of Mid-Missouri Inc., was elected Radio Board first vice chair, while Kevin Perry, VP/COO of Perry Publishing and Broadcasting, was elected second vice chair.

Collin Jones, senior vice president of corporate development and strategy for Cumulus Media Inc., was elected as the Radio Board's major group representative on the NAB Board's Executive Committee.

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John Bisset

CPBE

Fifty years in the broadcasting industry and 31 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.



Share your ideas

Workbench submissions are encouraged and qualify for SBE recertification.

Email johnpbisset@gmail.com.

10

How about some PM for this AM?

Summer is a good time for preventive maintenance

If you maintain an AM directional, why not put the summer sunshine to good use and perform a little preventive maintenance (PM)?

With your transmitter off the air and the breakers and interlock in place to prevent re-energizing, use a strong LED flashlight to view the variable coil and capacitor couplings from the back of the phasor. Remember before you begin to copy down all the turns-counter indications for each control as shown in the photo.

Then while your assistant rocks the component crank from side to side, check to make sure the couplings are tight so the variable coil or capacitor rotates smoothly.

I can't tell you how many phasors our crew was called in to readjust because the setscrews holding the crank coupling to the component had become loose, so even though the engineer had turned the crank, one turn only adjusted the component by a half or even a third of a turn.

In such a case, you can see how quickly you can get a phasor mis-tuned. When these setscrews are loose, there's no consistency in how much the component is adjusted as the crank is turned.

The process isn't a time hog and may save you hours of readjustment. While you're inside the phasor, tighten all other strap and tubing connections.

Oops!

In the May 8 Workbench, I referred to selecting tower electrical connections "metrically." Tom Weber, a principal in Weber Broadcast Services out of Greenwood, Ind., points out that I should have written "decimally," as in tenths of an inch.

He's right; metrically would assume millimeters or centimeters, which we are not using. We are converting inches to a decimal equivalent!

Tom concluded his note, "Yours in pedantry." The sign of a great engineer!

Parts is parts

If you've recently needed to buy any broadcast gear, or for that matter any

electronics, you may have encountered delivery delays caused by a parts shortage. The worldwide situation is causing problems for a lot of suppliers, so keep that in mind as you plan late summer or fall projects.

To complicate things, Workbench contributors Paul Sagi and Charles "Buc" Fitch, P.E., both reminded us of a related problem: counterfeit parts, including circuit breakers.

Also be aware that used and harvested circuit breakers, especially larger, more expensive ones above 60 amps, are out there in the marketplace. Most of these were rejected because of trip problems; they may be touched up cosmetically, perhaps with new lug screws to remove tooling marks, and then sold as new.



Right
Checking the turns-counter on the phasor. Write down the indications for each control before you begin your work.

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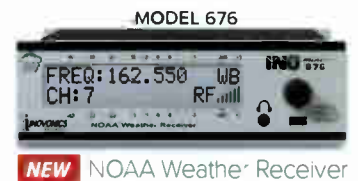
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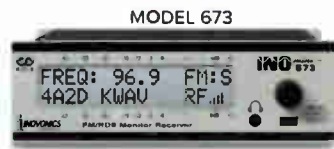
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The problem extends all the way through replacement parts in a variety of industries. In the communications business, RF transistors are especially subject to international counterfeiters.

Paul and Buc have both seen reports of numbers being stripped from similar solid-state device packages. Unfortunately these look-alikes are of insufficient capability and do not meet the high performance specs of the number now imprinted on the device. The cheaper chips are then sold at a premium price, realizing profits of 400% or more. Profits can be even higher if the substitute device is not even an RF transistor or a "pull" or dud, none of which will meet spec.

Many entities cooperate in these crimes and profit from them. Because so much manufacturing is now done outside of North America, the provenance of parts can be very iffy. If the price looks too good to be true, it probably is. Save yourself the frustration and buy your parts from reputable dealers.

Here are helpful resources on the counterfeiting of circuit breakers. At www.ecpowersystems.com/resources/circuit-breaker/, scroll down to "How to spot fake circuit breakers." Or Google "Identifying Counterfeit Square D Circuit Breakers" and look for the result that points to www.lanl.gov.

And Schneider Electric, whose products include Square D Homeline and QO circuit breakers, has a web page dedicated to awareness and action against counterfeits. "We take counterfeiting of our products seriously and pursue every means possible to stop this illegal activity while making the industry and public more aware of this critical safety concern," it states. See www.se.com/us/en/work/support/counterfeit/.



Above Shown, Square D QO model circuit breakers. Counterfeiting of CBs is a real problem; manufacturers like Schneider Electric have tried to raise awareness of the issue.

laments that many products have gotten very expensive, forcing him to search for alternatives to keep within a budget.

One option is common mineral wool insulation, the properties of which allow for excellent sound blocking in walls, more so than fiberglass.

For studios, Dan has built double walls that do not touch but have a foam board between them. He then places mineral wool in each 2-by-4 wall. He completes the job with double sheetrock on the outside.

This can be a bear to construct, but short of bringing in a pro "acoustician," it is a functional poor-man's construction.

Dan has also used Troy Board (which was named after the inventor's second son). It's like a "shredded-wheat" board material but it's really heavy. It can be painted, and it's meant to block audio transfer. Check out

<https://troyacoustics.com/applications/broadcast-recording/>.

If you're looking for the cheapest acoustic foam, try the Foam Factory. While its prices have increased lately, they tend to be less than those of similar products. They also vacuum-suck their product before shipping, so the packages arrive very small; the instant you cut it open, *poof*, it opens up and decompresses, taking about a day to recover fully.

For info, go to www.thefoamfactory.com and click on Acoustic Foam. 🎧

“ One option is common mineral wool insulation, the properties of which allow for excellent sound blocking in walls, more so than fiberglass. ”

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www.arrakis-systems.com

World Radio History



SurferNetwork Supports RadioDNS

Streaming service provider SurferNetwork has implemented RadioDNS to support radio stations that want to participate in hybrid radio.

"With so many features, such as 'follow on' that dynamically switches between broadcast and internet radio, and enhanced 'now playing' information, hybrid radio is the way of the future," the New Jersey-based company stated in a press release.

WEZF(FM) Star 92.9 in Colchester, Vt., owned by Vox AM/FM, was one of the first stations to get a DNS hookup through SurferNetwork. Jamie Dennis is chief engineer and director of IT for Vox AM/FM.

Nick Piggott, project director at RadioDNS, was quoted in the SurferNetwork announcement saying, "RadioDNS is looking



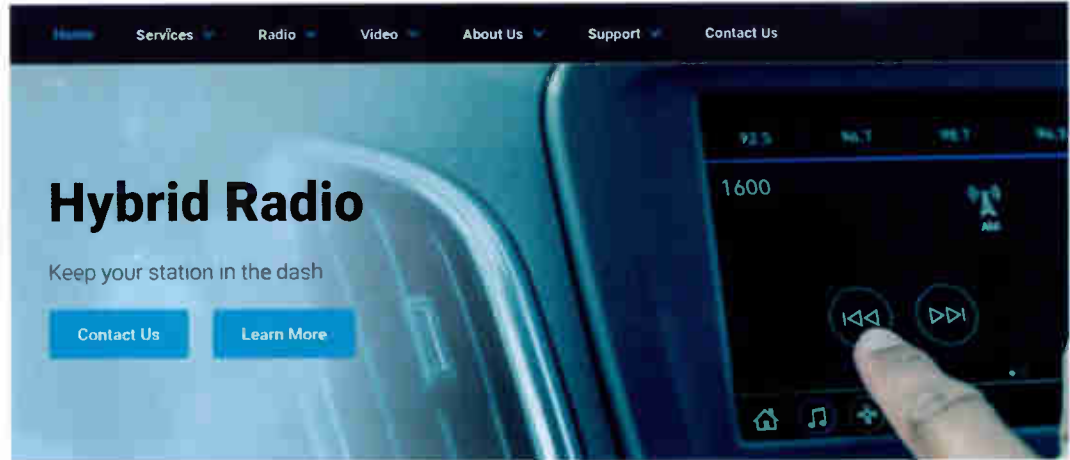
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forward to more stations across the U.S. adopting our standards in the future."

Info: surfernetwork.com



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Firmware Updates for Tieline Codecs

Codec maker Tieline announced a "significant" firmware update for its Gateway and Gateway 4 codecs.

Version 3.02.06 includes support for NMOS IS-04 and IS-05 audio channel mapping features in the ST 2110 specification; phase locking for multichannel event production; dynamic range and EQ on all inputs; SmartStream Plus redundant streaming support for multi-unicast streams; and support for Euro ISDN connection.

Tieline VP Sales APAC/EMEA Charlie Gawley said the release "supports features like NMOS, and up to eight channels of phase-locked multichannel IP audio, which will excite broadcast engineers."

He added, "Processing features like input compression and EQ that can be adjusted from anywhere online using the Toolbox web/GUI interface, also take remote control to another level."

The AoIP stream phase-lock allows for allows broadcasters to stream live events like concerts and major sports in stereo and

surround sound simultaneously, or distribute live phase-locked audio between studios or network affiliates. For instance, the company says, "a 16-channel Gateway codec supports sending 2 x 6 + 2 channels of phase-locked streams, or 2 x 8 channels of phase-locked streams, or 4 x 4 channels of phase-locked streams."

Support for NMOS IS-04 and IS-05, Tieline said, "ensures that components of a networked media system can find each other and delivers connection management and audio channel mapping to device I/O channels. Combined with support for 16 AES67/ST 2110-30 AoIP streams, NMOS brings a new level of interoperability and control with networked equipment throughout the broadcast plant."

This is a free upgrade for existing users.

Info: www.tieline.com/support



PromoSuite Integrates With WideOrbit

PromoSuite announced integration between WideOrbit WO Traffic and WO Automation for Radio and its PromoSuite Production radio workflow system.

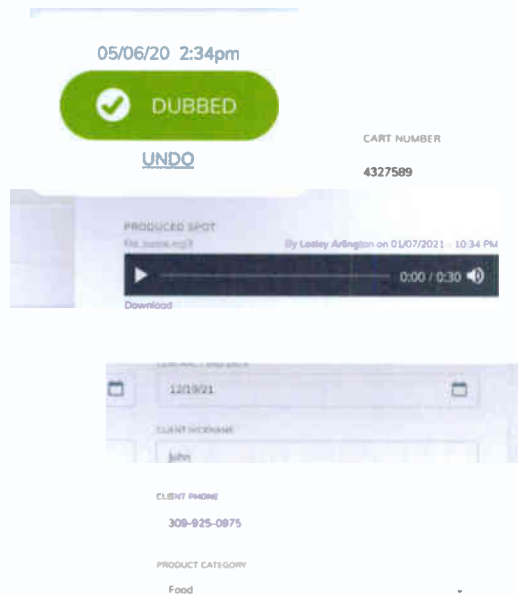
"This solution will provide many benefits to radio stations using PromoSuite Production," it said, "including speeding up the order entry process, streamlining cart number assignments, eliminating duplication, and reducing overhead associated with dubbing audio files into WO Automation for Radio."

The announcement was made by WideOrbit's Dub Irvin and PromoSuite's Rey Mena.

The integration has three "connection points." When an AE enters an order for a client and needs a spot produced, client information is populated into PromoSuite Production, which the company says eliminates duplicate effort in communication.

"Second, cart number assignments are immediately synced between the two systems. Third, audio files are directly dubbed into WO Automation for Radio."

Info: promosuite.com/promosuite-integrations/wideorbit/





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**BLADE-4
COMPATIBLE**



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How to pick an on-air broadcast processor

Here are 10 tips to help you with that important decision



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Buying a new audio processor is a huge decision for so many reasons, and some of them are less than obvious. The goal of this article is to help guide you to make (or not make) the decision to change processors. The tips are based on my experience setting up processors on both the station and the manufacturing sides.

1 Go Over Your Current Airchain
You'd be amazed how many stations I have walked into over the past four decades that had terrible airchains,

and by that I mean the entire audio path, from console to antenna. Many times, program audio was fed to multiple distribution amplifiers with different gain structures as the audio passed from DA to DA. This adds noise, and you can easily soft (or hard) clip your program audio. That "grungy" sound may not be the processor at all.

The best way to tackle this is to do a proof of your system. Your engineer or contract engineer should be able to go through this. If distribution amplifiers are necessary, the audio feeding the processor should always come from the first.



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If this decision is for your AM, the bandwidth of the antenna system adds (or subtracts) from your audio. No matter how expensive the new processor is, it will not overcome poorly maintained transmission systems. I know this only too well. Do a proof on the antenna system, whether directional or non-directional, to observe the behavior.

Remember, the radio station works as a system. The processor is one part of it.

2 Look at Your Source Material

You could have the most immaculate airchain from the console to the antenna, with a modern AoIP system, yet still be feeding lossy audio across that beautiful system.

This is a problem I see with many classic hits and classic rock stations, where the library was digitized in the early 2000s and disk space was at a premium. That's not the case now.

When I was in New York City, one of my missions was to improve the audio sources. I knew the airchain was virtually perfect; it was the source material that had issues. I started to keep a log of songs that didn't sound right. Nine times out of 10 I'd pull up the file in production and, sure enough, it was either a needle drop — you'd be amazed at how many songs were digitized from vinyl — or a low-bitrate MP3.

So I worked with programming to fix this. The powers were fixed quickly; it was the secondary cuts that took longer to source and correct (and in classic hits and classic rock, there's the chore of getting the correct version and making sure that version hasn't be "remastered" by the God of Clipping).

Part 2 of the mission was maintaining a consistent level for commercials, imaging, jingles and music. You may have a beef with your current processor because you're hearing it take a long time to recover from cut to cut. If there's a 20 dB difference between spots or a spot and a rejoin element, that's going to happen.

Luckily our production director already had that under control. But I've seen some studios where a bumper pins the needles on the VU and the next element barely moves them. Processors can do a lot; but they aren't miracle workers.

In sum: Use source better material, change out what you can and keep levels in production in check. This alone can improve an audio processor's performance and may save you from having to buy a new processor.

3 What's Your Price Range?

My hope is that you've taken Points 1 and 2 seriously. But if you still need to change the processor, the next step is to determine your budget.



About the author

Mike Erickson is the president of WirelessMedia LLC, which specializes in matching the right processor with the right station. He worked on the manufacturing side for 10 years after spending 14 years at Infinity Broadcasting/ CBS Radio in New York. He can be reached at wirelessmedia@gmail.com.

Twenty years ago there weren't many offerings at bargain prices. For me this was a good thing, as I built my knowledge and reputation by designing airchains from multiple boxes you could get for cheap online. But as technology improved and demand for inexpensive boxes that offered more grew, suddenly there were plenty of boxes in the \$2,000 to \$4,000 range. In many cases, the \$3,500 box can sound as good as the \$12,000 box, though it has less features — it may be FM-only, or may not have the analysis suite found in more expensive boxes.

Whatever your price range, I implore you to demo as many brands in that price range as possible. You may settle on a well-known brand, but don't ignore the firepower of the new kid in town who may go that extra mile to make you happy with your purchase.

4 More Brand Considerations

Yes there are at least a half dozen brands to look at. But how are these companies with warranty and customer service?

One engineer once told me that you should call the manufacturer of each. The one that gets back to you the fastest is probably the one who will be most helpful down the line should questions or problems arise.

Knowledge is also key. There has been a reduction of force since the start of the pandemic. This slows response time. People may be laid off, but problems aren't. It's important to research tech support for your new investment. My rule about tech support is to treat each customer the same. You could be in Big Rapids, Mich., or Los Angeles, Calif., but if you have an off-air emergency, it's an off-air emergency. Support should be there for you.

5 Talk to Other Engineers

If you're working for a large company, there probably are engineers in other markets who can give you their opinions on which processors they use and what works for them. If you're by yourself, there are still plenty of forums on social media, with many opinions about what is best for your particular situation. Which brings me to ...

6 Price Range vs. Features

You can easily be swayed online towards one brand or another when you participate in one of the many social media groups. But some recommended processors may not have the features you need.

For instance, in the budget range, there are few that offer simultaneous FM/HD processing (if you're an HD station,

you probably can and should be spending more than \$3,500 for your processor).

There are other things as well. Many companies shed front-panel controls in lower-priced processors, so to maximize performance, you'll need to use the associated PC program. Others shed algorithms and use less DSP to cut costs; in other words, they take a Cadillac and cut it down to a Chevy Cruze.

As a user, you can easily get around minimized front-panel options with a PC interface. What you can't get around is a \$3,500 processor that's a \$12,000 processor with its knees cut off. The algorithms left over will not perform as intended if other features are pulled out.

If you are in the market for a top-of-the-line box, look for features like automatic HD alignment (one model has an HD tuner in it to keep the alignment within a sample), patch points for ratings encoders, signal analysis that go beyond the basic gain reduction metering you see on every processor and, most importantly, sound.

If you find your airchain really is immaculate (Points 1 and 2), it is up to the processing to add the extra flair.

7 I Want to Spend \$12K to Sound Like My Competitor

This is actually somewhat infuriating to me. Your branding, imaging, talent, slogan, logo are all designed to set you apart. So why do you want your audio to sound the same as your competitor?

I was recently in a top 10 market and was astonished at how bad the audio was. Sure enough, each station had audible PPM encoding; and competing stations sounded nearly identical, with signature textures from one brand of processing. Everyone claims they want to sound better, but in the end it becomes a race to the bottom.

This is where the "hunger" comes in. Find a dealer that gives you the most flexibility to try as many boxes as you can, once you have checked off which features are important to you. You may end up with something that sounds better than the entire market.

During the demo, call the company. If you have the clout of a major market behind you, most likely they will send their guru to work with you. That's a golden opportunity to explore what the hardware can do.

8 AoIP Suggestions

For me? The last mile should always be AES or analog. But different brands of processors use different AoIP formats, and you can stream in and out of the processors. Some AoIP solutions are brand-specific (Livewire or WheatNet), while others use third-party solutions.

If you've made the decision to pick a specific brand of studio gear, and if you are satisfied with that decision and have a good working relationship with the manufacturer, it's a good idea to look at their processing

line. (Good customers get better prices — the worst kept secret ever).

9 Set Aside Time to Demo

The last thing you want is your processing demo to coincide with your studio move and five other projects. Get the other projects done before you tackle the audio processing. That way, you'll devote the time needed to make the right choice, feature-wise and sound-wise.

10 Ask for Input From Staff But Know Who Makes the Decision

The needs of engineering and programming overlap in the processor. The engineer needs reliable gear that is compliant; the program director needs a processor that will allow PPM insert points, or the encoder built into the processor.

Get on the same page with must-have features and then outline what you want from the processor sonically. Just remember not to fall into the trap of Point 7.

If there is one bit of advice I can pass on to engineers for

“ Find a dealer that gives you the most flexibility to try as many boxes as you can. ”

working with programming, it's this: If the PD has the final say in what the audio will sound like, it's all on them. They are the ones that have to lay down on the pillow every night with the station sounding the way it does.

In the minds of management, processing has a lot to do with the ups and downs of ratings (like it or not). If the PD has set the processing, they have to answer for it. If you decide, you have to answer for it. I'm not telling you who should take the lead, I'm just letting you know how it is.

In conclusion

I've made the decision to buy a processor a lot more complicated than you thought it should be. But I've been on both sides of the aisle and have set processors in every corner of the globe. The best path to your goal is not the quick one, it's the right one. I hope this article has given you some food for thought. 🍌

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WHUR serves on multiple platforms

Recipient of NAB Crystal Heritage Award is deeply connected to its community

Howard University, a historically Black college in Washington, D.C., owns WHUR(FM), one of the few university-owned commercial stations in the country.

Considered a standalone radio station because the school owns no other full-power stations, WHUR nevertheless consists of seven entities: the flagship FM, which is heard on 96.3; three additional HD Radio multicast channels; two SiriusXM channels; and GlassHouse Radio, a student-run podcast operation.

The original content for all these outlets is created in one building on campus that also houses the university's public TV station WHUT.

While the stations play music that appeals to underserved segments of the Washington community, many hours each week are dedicated to community outreach and public service.

Because of its year-round dedication, WHUR this year received the NAB Crystal Heritage Award, an honor reserved for stations that have earned five Crystal Awards. Only 10 stations have been given the Crystal Heritage Award by the National Association of Broadcasters.

"Giving listeners"

"Service is a huge part of what we do," said General Manager Sean Plater.

"We hold an annual toy drive for kids in October and a coat drive in December. Then for the last 40 years we have

dedicated a day's programming to our Food2Feed event, during which we collect canned food and take donations over the phone and online for about 12 hours. We even ask students to go out with buckets to collect money. All proceeds go to the Capital Area Food Bank and Shabach Ministries."

Denise McCain is executive director of the Family Justice Center of Prince George's County in Maryland, an organization affiliated with the circuit court in that area.

"Over the last three years, WHUR donated 300 toys to families who would have otherwise been unable to provide presents for their families curing the Christmas holiday," she said.

"We also received 60 boys' and girls' coats varying in sizes from newborn to adolescent to keep children warm. I can't tell you how much this has meant to the survivors and children we serve in Family Justice Center."

The station also has an ongoing event to assist Howard University students travel to various cities around the world to work on whatever the local communities need. It's called Helping Hands, and WHUR runs it during spring break each year.

"We have some of the most giving listeners in the world, if you just tell them what you are trying to do," said Plater. "For example, we held a Radiothon, "Give Me Shelter," to help build a house for women and children who deal with domestic violence, and we had people stopping our mobile vehicle on the street to donate cash."

Above
Military mothers
face unique
challenges
when it comes
to celebrating
occasions like
Mother's Day.
WHUR teams with
FedEx to host an
annual luncheon
just for military
moms.



McCain also worked with Plater on Give Me Shelter. "This initiative raised over \$800,000, increasing the number of shelter beds from 18 to 42. We value our partnership with WHUR," she said.

Another beneficiary of WHUR's efforts is the YMCA of Metropolitan Washington.

"We worked together with Sean on opening up the totally rebuilt first African American YMCA in the world, named after a slave called Anthony Bowen," said Donnie Shaw, director of community relations-DC.

"Sean has remained accessible to the Y, always returning phone calls with a smile. He's a Y Guy!"

In a digital world

WHUR, which streams at www.whur.com, also was an early adopter of digital radio. On Jan. 21, 2004, it became the first commercial station in the D.C. area to deploy HD Radio.

Then in 2006 WHUR-World launched on its HD-2 channel, with jazz, hip-hop, blues, African-American folk and music from other parts of the world. WHUR-World was a two-time winner of the NAB Multicast Award.

Recently, the HD2 relaunched as "The Quiet Storm Station," a 24/7 channel celebrating the iconic Quiet Storm

Above
Announcer EZ Street does an interview for the annual Food2Feed event, which generates canned food and cash for the Capital Area Food Bank and Shabach Ministries.

Top right
WHUR sponsors a Rolling Food Drive. General Manager Sean Plater, left, and Prince George's County Executive Angela Alsobrooks, center, are shown taking part in a presentation to benefit the Capital Area Food Bank.

Above
The "Protect Your Dream" event focuses on "all things housing."



R&B format that was created at WHUR in 1976 and has proliferated on the airwaves of many other stations.

"We're very excited to celebrate this format, especially as the station heads towards its 50th anniversary in December 2021," Plater said.

Another campus station, student-run WHBC, has moved from carrier current to WHUR's HD-3 channel. WHUR's HD-4 is DC Radio, run in cooperation with the Washington city government. It carries hearings and local community content.

The two SiriusXM channels are programmed by WHUR personnel. In 2011 the satellite company leased several channels to third parties, including Howard University, to fulfill a condition of its merger.

Channel 141 is known as "HUR Voices," and it combines music and talk on issues of importance to people of color. Channel 142 (HBCU) focuses on the Black college experience and includes viewpoints of alumni, current and prospective students nationally.

Making it all work

It takes a lot of people power to run a complex operation like this.

Plater said there are 40 full-time employees and about 15 part-timers, all of whom are paid.

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World Radio History

HOWARD UNIVERSITY RADIO

WHUR 96.3



"We also have up to 60 non-paid students working with us throughout the semester. The students get involved in all aspects of operation including engineering, programming and sales. We talk with them to understand their listening habits because the younger generation consumes radio in a different way. Of course they are hoping for jobs when they graduate, so we use the same automation and other equipment here at WHUR that they will find elsewhere in industry."

Plater said that the aim of WHUR staff is to talk with the audience, not to the audience.

"Almost everything on WHUR is locally-oriented, and while our morning program, 'The Steve Harvey Show,' is syndicated, we still have a segment called 'Taking it to the Streets.' This runs about two and a half minutes every hour, and it's local content. Then we have something different between 7 and 7:30 p.m. on WHUR, a news show called 'The Daily Drum.' It starts with an update of news headlines and then goes into an interview section with local politicians, shows on Covid, anything that relates to the community."

Top

The station sponsored a three-day fundraiser in 2010 called "Holding on to Haiti," benefiting Doctors Without Borders and Save the Children. Haiti had suffered a major earthquake earlier that month. The effort raised more than \$42,000. Students who formed a "Bucket Brigade" collected most of the donations.

Above

Frank Ski is afternoon drivetime host. He's shown at a station Toy Drive.

“ I can't tell you how much this has meant to the survivors and children we serve in Family Justice Center. ”

25


To give the community yet another forum during the pandemic and social justice protests, the station set up a listener response phone line to let people express themselves. Listeners can speak out about whatever is on their mind and those calls are played back on the air.

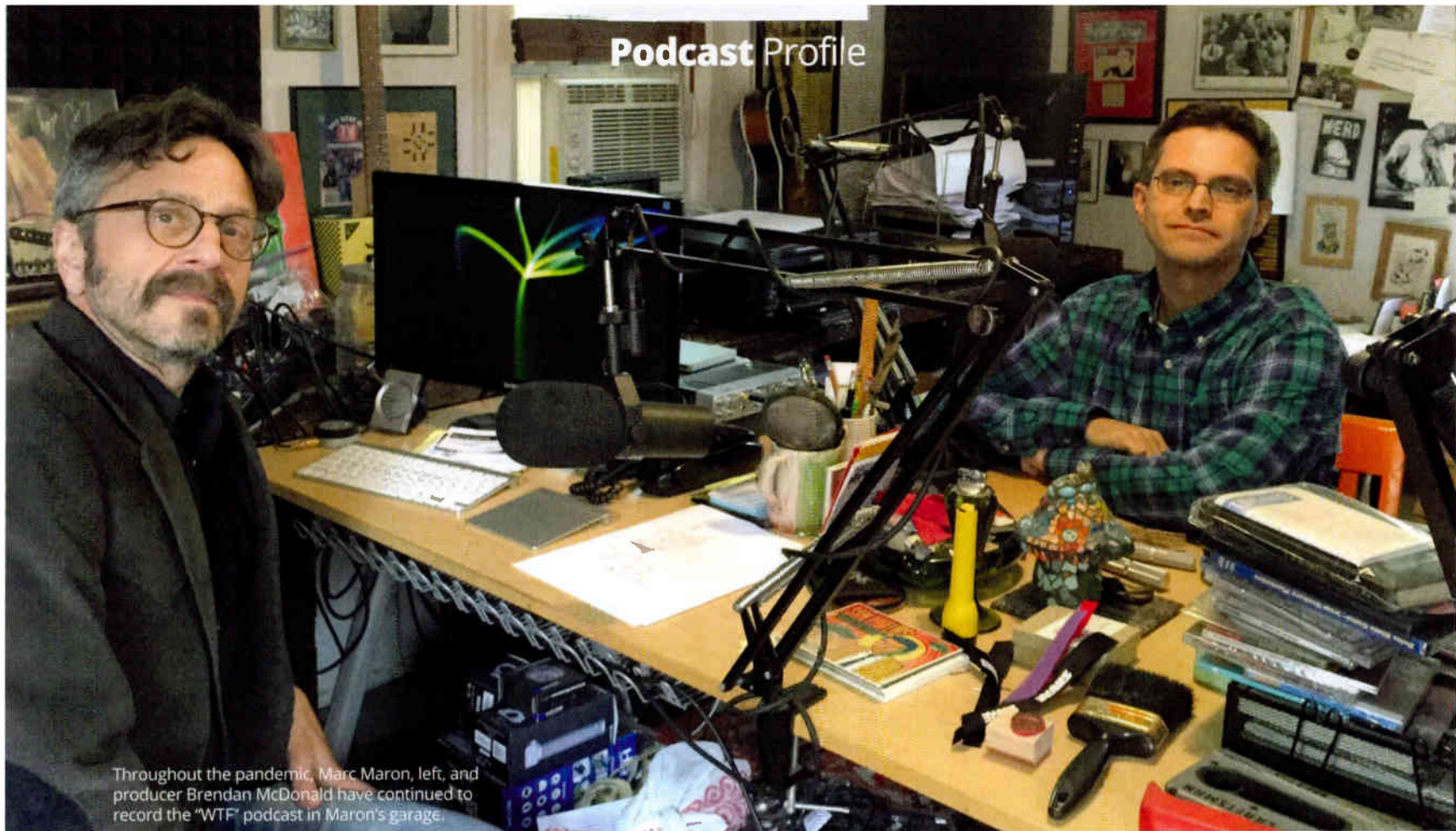
Looking to the future

Plater said that the biggest challenge he faces is just trying to stay ahead.

"We are a standalone going up against large companies in a large market, and we're competing well," he said. "But we have to continue to provide the best product we can. From a service standpoint we can never lose those things that make us special, like that community connection."

That means staying relevant to our audience on all of our channels.

"But another goal of mine is to continue to develop the next generation of broadcasters, and part of that is helping the students understand how great this industry is and what opportunities exist. I want to bring the next generation along to love radio as much as I do." 



Throughout the pandemic, Marc Maron, left, and producer Brendan McDonald have continued to record the “WTF” podcast in Maron’s garage.

Writer



Jim Beugez

Writer about technology, music, audio-visual, software, non-profit and travel.

How Marc Maron’s podcast adjusted to COVID

Long-running program keeps it simple with inexpensive equipment and software in a garage studio

When the popular podcast “WTF with Marc Maron” (www.wtfpod.com) debuted 11 years ago, the iPhone was only on its third iteration and couldn’t muster downloads larger than 20 MB.

That’s an important fact in understanding the evolution of podcasting fidelity from tinny and flangey in the early ‘00s, as the podcast’s producer Brendan McDonald describes, to the comparatively crystalline audio available from podcasts today.

“When podcasts were a fairly young medium, there were a lot of data concerns about them from users,” says McDonald, “people with early data plans or devices that did not hold particularly a large amount of data and did not have cloud storage plans yet. So, you had to be very mindful.”

As MP3 compression technology progressed and the show upgraded to a server whose bitrate was 128 kbps, he found some listeners still preferred the original 22.05 kHz mono file, which was 32-bit at a constant 40 kbps.

Those longtime listeners can still find that format on the podcast’s website, while podcatchers and platforms like Spotify get a modern formatted file.

“I was like, if the default setting is [128 kbps] and I’m compressing down, [then] we’re getting like a VHS copy of a copy here,” he says. “Now we’re using a more standard, almost stereo MP3 style setting of 44.1 [kHz] stereo, 16-bit and 128 kbps — which is a much bigger file, but in the style that people are generally listening to podcasts now.”

No pretense

McDonald has been with “WTF with Marc Maron” for all 1,200-plus episodes, and worked with the host in terrestrial

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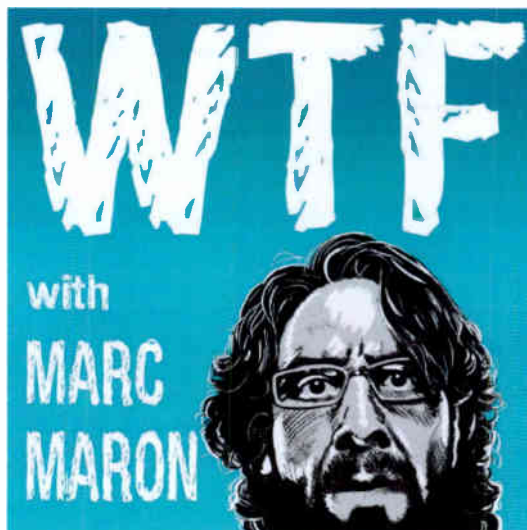
radio in New York and Los Angeles before transitioning to the podcast format.

While he can hear improvements in the quality of the show and audio over that time period, the equipment he used to get the show to today has changed very little.

Maron, in his home studio, still tracks with a Shure SM7 microphone and a Samson MDR6 tabletop mixer with GarageBand. McDonald edits in Adobe Audition, the latest version of what was once known as Cool Edit he used in the show's earliest days.

The only measurable changes to the show's production, in fact, came with COVID-19. Maron and McDonald had to ease off their policy of only taping interviews in person, but maintaining the easy, conversational vibe that comes from conducting face-to-face interviews was a top priority during the upheaval of 2020.


"These interviews, and this show in general, really connect with people because the conversations feel so intimate," says McDonald. "Marc, over the course of a decade, has gotten very good at that — basically creating an environment for people to feel like they're comfortable



and they can share with him. It doesn't have a lot of pretense, it doesn't have a lot of roadblocks to actual conversation, as opposed to feeling like it's stilted or a list of Q&A. He wanted it to be personal; he wanted it to feel like two people connecting. And so that was really important to us."

Social distancing protocols meant that videoconferencing became a necessity. For interviews in which the subject has a home recording setup, McDonald is able to get a tape sync recording, but most audio now comes through Zoom with the Audio Hijack extraction tool by Rogue Amoeba (www.rogueamoeba.com) added to the mix. In the software's Voice Chat mode, McDonald can select Skype, Zoom

or another videoconferencing platform as the audio source and tweak the audio on the fly while Maron conducts the interview.

"It's actually brought me back to my early days of live radio production, in that now I can actually sit on the live call with Marc and I can tinker with the sound if I need to," he says. "It's been more work in the last year, but we've been able to make it work and largely have been very satisfied with the way things have sounded." 

BROADCAST EQUIPMENT EXCHANGE

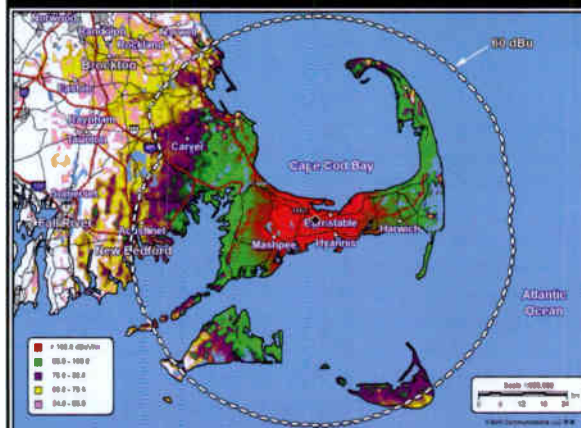
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Writer
Ron Schacht
Consulting engineer and station owner

FM translators for AMs are a double-edged sword

Maybe I'll put the plug on this translator and take my chances

29



Comment
Submit letters or commentaries by email to radioworld@futurenet.com.

I've been in the broadcast engineering field since 1963, since the days of microphonic 6J7s in audio consoles thumping on the air to the announcers tapping the beat with his fingers, and changing coupling capacitors in ITC cart cue decoders three or four times in the same machines — you know, too long.

Well in 1985, thanks to the Docket 8090 ruling, I happened to find an FM frequency that fell smack at my home in the woods on a mountaintop, in a community with no radio stations.

I had the frequency dropped in and applied, along with half of the East Coast. After four long years, I was awarded a CP, and my wife and I put on our very own station.

In spite of my limited knowledge of actually operating a station with programming, money, sponsors, money, insurance, money and just plain money, the station was quite successful even though we were the new guys in a market of 40 stations.

It was a lot of fun until deregulation, when the money guys bought up all of the stations they could and went for the throat of the successful stations, of which we were one.

A mom-and-pop operation is hard-pressed to go head to head with guys who give away \$1,000 a day to listeners and

have a sales staff of 20 cutthroat sales people, while we had three who were "nice guys."

So my wife and I opted out and sold the station for a lowball figure just to be able to pay off the bank and get away from it.

I remember sitting in a burger joint after the closing saying to my wife, "I will never ever own another radio station again." So I kept on with contract engineering a bunch of other stations; and all was well.

Can't say no

Over the years, we relocated a few times, and I wound up in northern Iowa doing engineering for a smaller group, taking care of 23 stations.

Although it was a decent job with decent pay, I was pushing 70, and years of traveling a thousand mile a week got to me. So I partially retired, keeping only the stations within an hour or two ride from home.

Then it happened. A broker had a small AM station in a small town for sale. Wow, it was a standalone AM. I love AM for the engineering opportunities and as an avid ham. It was a directional AM, even more fun.

The whole thing without a studio was on 15 acres of farmland, great. And most of all, the price was slightly more than a Ford F-150.

Above
Much of South Dakota looks like this stretch of I-90, visible straight all the way to the horizon. The author's FM translator can't be heard in cars beyond about 15 miles.

Wow, how could I go wrong? "If it flops, I can sell the farmland, cut the towers down and sell off the scrap iron and the equipment, and get my money back. Not only that, but it has an FM translator! Best of all worlds. This will be fun."

At least that's what I told my wife, who pointed out, "You said you would never own another radio station." Well, I couldn't pass it up.

Now, after operating for a few months, let me say that I wish the FM translator never existed. Single-handedly it has been the thorn to our total success.

Perception is reality

Why, you may ask?

Here we are in the middle of South Dakota, where the earth is solid sodium. The dry ground is white, the drinking water has got 530 mg per liter of sodium in it, but the ground conductivity is 30, best in the entire U.S. of A.

So this little 500-watter can be heard easily on the worst car radio 100 miles in just about every direction. The 2 mV/m contour in the lobe goes into North Dakota, about 90 miles away.

Ok so much for this little screamer, now the FM. It's a 250-watter at the same location as the AM. No mountains in eastern South Dakota, so it's sitting on the prairie.

Most automobile radios can hear it 15 miles — then it's gone.

Big deal, you say, what did you expect?

Well, most of the business people in the small town want to attract business from the other small towns around. Everyone in this town already buys from them.

So the business owner drives out of town with his car radio on FM and loses the signal before he gets out of sight of the town water tower.


To which he says, "I won't advertise on your station, I can't even hear it at my house 15 miles away, your coverage map lies."

He neglects to check AM and discover that at 20 miles the whip on his car is glowing cherry red from the AM RF. So we don't get a buy.

In other words, I would rather take my chances with 25% of the people who listen to the FM going to the AM and carrying it for 100 miles than giving the FM listeners the idea we peter out at 15 miles and never try AM.

I know it's a different story in places like Pennsylvania, New York, Wisconsin and the like, where you can put the FM on a mountaintop and the ground conductivity is 1, so you can have a 250-watt FM that blows a 5 kW AM out of the water. But it ain't so here.

I think my AM revitalization will involve pulling the plug on the FM and not offering the choice.

I see a lot of small-town AMs that succeed. From the service we give the town we will, but it won't be from the business people in our city of license, it will be the people 50 miles out who never knew about the FM. 



Above
Bob du Treil Sr.
during an FM
station inspection
in California in
the 1970s.



Readers Forum

Remembering Bob du Treil

Thank you for your recent article on Bob du Treil Sr. I had the privilege of knowing and working with Bob, as well as Ron Rackley, for over two decades. Their contributions to the AM band are phenomenal.

Bob and I traveled to conduct due diligence on Radio Aahs stations that were being sold to Radio Unica in the mid-1990s; I represented Radio Aahs as VP of that organization and Bob was retained by Radio Unica. We bonded immediately.

I will never forget the Dallas AM 1360 upgrade in Dallas. The system arrived set by Bob to theoretical parameters; it was connected, powered up and the monitor points were in!

Bob also did the tricky KATD AM 990 upgrade that provided an upgrade to second-adjacent KIQI AM 1010 in San Francisco. That was genius.

These are only two examples of the creative engineering that Bob, and colleagues like Ron Rackley and Ben Dawson, have provided to the AM band.

Jim Giogowski
LifeBridge Media Group



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