CRANE'S PREMIUM PORTABLE — Page 14

RADIOWORLD

DECEMBER 18, 2019 | The News Source for Radio Managers and Engineers | $5.00 | RADIOWORLD.COM

Look for Your 2020 Radio World Source Book & Directory!

Included with this issue.

The 100th Anniversary of KJR Seattle, 1919 to 2019

Perhaps the first in the U.S. to achieve a century of continuous broadcast activity

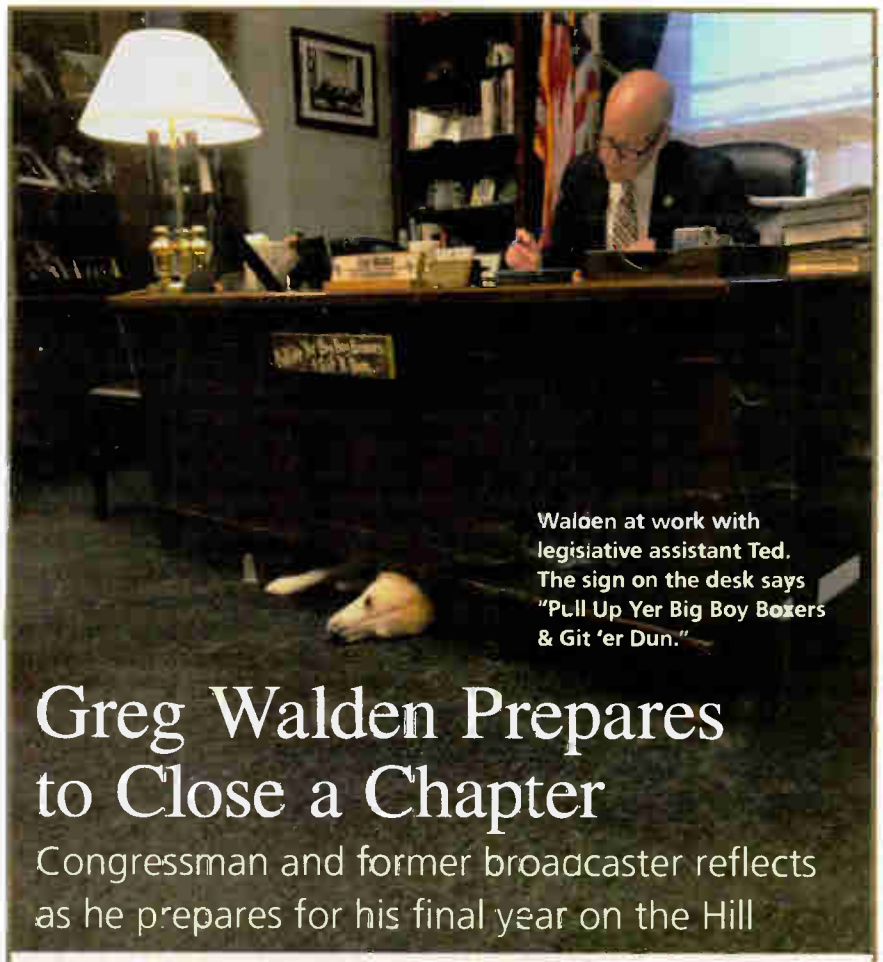
BY JOHN SCHNEIDER

The question of which station was the first broadcaster in the United States has been debated for most of the past century. KDKA in Pittsburgh historically has received this honor, due principally to the untiring early efforts of the Westinghouse promotions department. But there is overwhelming evidence that a handful of other broadcasters in

(continued on page 18)

Kraft's first microphone was a "Wonderphone," originally developed for the Dubilier Wireless Telephone. From the collection of Sonny Clutter.

Vincent I. Kraft was Seattle's first broadcaster. He created a local sensation in 1919 by playing phonograph records over his station 7XC. In July, 1920, he broadcast the results of the Dempsey-Carpentier fight for the local audience. By 1922, Kraft's station had become KJR.



Walden at work with legisiative assistant Ted. The sign on the desk says "Pull Up Yer Big Boy Boxers & Git 'er Dun."

Greg Walden Prepares to Close a Chapter

Congressman and former broadcaster reflects as he prepares for his final year on the Hill

BY RANDY J. STINE

Rep. Greg Walden, Republican from Oregon, knew the question was coming before it was asked. After all, as soon as he'd announced that he would not seek another term in 2020, people had begun to wonder if the former radio owner might not have his eye on eventually becoming leader of the National Association of Broadcasters.

"There was all this speculation that Gordon Smith was resigning and that was why I was stepping aside," said Walden with a chuckle, referring to the current president/CEO of NAB.

"No. It's none of the above. Look, I love broadcasting. It's in my veins.

(continued on page 6)

THE FUTURE CAN BRING ANYTHING
LXE IS READY FOR EVERYTHING

Virtually every button, knob, and display is configurable to your workflow at any time. Built to last in every way. Whether it's 2020, 2040, or 2080, your LXE will adapt to your needs.

LXE: YOUR FOREVER CONSOLE

wheatstone.com/lxe-forever-rw

Wheatstone
BROADCAST AUDIO PERFECTIONISTS®

1.252.638-7000 | wheatstone.com | sales@wheatstone.com

RADIOWORLD

Vol. 43 No. 32 December 18, 2019

www.radioworld.com

FOLLOW US
www.twitter.com/radioworld_news
www.facebook.com/RadioWorldMagazine

CONTENT
Managing Director, Content Paul J. McLane, paul.mclane@futurenet.com, 845-414-6105
Senior Content Producer — Technology Brett Moss, brett.moss@futurenet.com
Content Manager Emily M. Reigart, emily.reigart@futurenet.com
Technical Advisors Thomas R. McGinley, Doug Irwin
Technical Editor, RWEE W.C. "Cris" Alexander
Content Director — International Marguerite Clark
Contributors: Susan Ashworth, John Bisset, James Careless, Ken Deutsch, Mark Durenberger, Charles Fitch, Travis Gilmour, Donna Halper, Craig Johnston, Alan Jurison, Paul Kaminski, John Kean, Peter King, Larry Langford, Mark Lapidus, Jim Peck, Mark Persons, Stephen M. Poole, James O'Neal, Rich Rarey, Jeremy Ruck, John Schneider, Randy Stine, Tom Vernon, Jennifer Waits, Chris Wygal
Production Manager Nicole Schilling
Managing Design Director Nicole Cobban
Senior Design Director Karen Lee

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

SUBSCRIBER CUSTOMER SERVICE
To subscribe, change your address, or check on your current account status, go to www.radioworld.com and click on Subscribe, email futureplc@computerfulfillment.com, call 888-266-5828, or write P.O. Box 282, Lowell, MA 01853.

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

MANAGEMENT
Senior Vice President, Content Chris Convey
Vice President/Group Publisher Carmel King
Vice President, Sales John Bubello
Head of Production US & UK Mark Constance
Head of Design Rodney Dive

FUTURE US, INC.
11 West 42nd Street, 15th Floor, New York, NY 10036

Connectiv

O'Rielly Highlights PIRATE Act Benefits

Pirate radio "will continue to be a top priority for me during my time at the commission"

FCC Commissioner Michael O'Rielly provided an update about pirate radio enforcement while speaking at a Massachusetts Broadcasters Association event in November. Here are excerpts.

I would be remiss if I didn't start my speech to the Massachusetts broadcasters with an update on pirate radio and where things currently stand. As many of you know firsthand, the Boston metro area happens to be one of the more active places for pirates to operate, but of course we see them in many major metropolitan areas, and now they are spreading to smaller markets as well. Unfortunately, progress is slow, and I hoped to see more success when I first got involved several years ago. That said, we are playing a long game here, and there is reason to be optimistic that we will be able to get a better handle on the situation in the coming years.

First, I am told that Senate passage of the PIRATE Act is imminent and that we should see it signed into law in the near term. The bill is important for a couple of reasons, but I would highlight a few in particular.

Increasing the amount of the fines is significant, not simply as a punitive measure, but in order to attract the attention of the Department of Justice. Our enforcement tools are somewhat limited at the commission, and often times we must rely on other agencies for assistance. In the case of prosecutions to collect our forfeitures, the cases must be worth more than a few hundred, or even thousand, dollars to gain the attention of DOJ, so the PIRATE Act will help in this regard. Further, the bill will allow the commission to skip existing intervening steps and file notices of apparent liability as soon as pirate operators are discovered.

Commissioner Michael O'Rielly at the MBA event.

We are playing a long game here, and there is reason to be optimistic that we will be able to get a better handle on the situation in the coming years.

But there's an education component to the effort to combat pirate radio as well. I have met with officials in New York City to explain what pirate radio is and to enlist their support. One concern that has been raised is the difficulty in some cases of telling the pirates from the legitimate operators, as some pirates have relatively sophisticated advertising and programming. The PIRATE Act requires the publication by the commission of a list of licensed operators, which will help to discern between good and bad actors.

In the meantime, it's incumbent upon entities who are buying advertising time to provide a basic level of due diligence in making sure they are working with legitimate broadcasters and not pirates, whether these are retailers or political organizations buying ads during election season.

You should know that legislation alone won't completely solve the issue and the commission is focused on using all of its tools to identify, track, punish and end pirate radio in the Boston market and everywhere else. As I have alluded to in the past, we are also deploying state-of-the-art technology to make it very difficult for pirates to escape scrutiny.

Put simply, pirate radio is an affront to the rule of law, but more importantly, it directly harms local broadcasters and puts the listening public at risk. It will continue to be a top priority for me during my time at the commission.

[O'Rielly also discussed payola.] "My approach has been to take a thoughtful, collaborative tone on this matter, as we have not been able to pinpoint yet whether this is, indeed, an actual problem or not, and if so, whether it's an issue implicating the major labels or only independents, as the recording industry has alleged in their response to my letter," he said.

"The Recording Industry Association of America (RIAA) recommended that I reach out directly to their members, so I am in the process of doing just that. I'll be asking for feedback on what processes record labels have in place to prevent payola and their structure for responding if evidence shows the need to do so. More to the point, if it's true that the big labels have effectively rooted out this practice through implementing their own safeguards, then I'll look forward to learning how those processes work. In hearing from many participants in the industry and individual listeners — yes, my twitter account has been quite active as the topic generates significant, and passionate, responses — there are some legitimate questions involving fairness, competitive effects, industry trends and the like generated by accusations of payola. It is not necessarily a victimless crime."

Read his speech at www.fcc.gov/document/orielly-remarks-mass-broadcasters-sound-bites-2019-event.

The Console Is Part of the Revenue Generator

The SVP of engineering for Townsquare Media shares his thoughts on consoles and best practices

A new RW ebook explores trends in console design. Mark T. Simpson, CPBE, AMD, DRB, CBNE, MCP, is senior vice president of engineering for Townsquare Media.

***Radio World:** What's the most important trend in design of consoles for radio broadcast studios?*
Mark Simpson: In my personal opinion, it is all about flexibility and the most capabilities for your money.

I believe having AES-67 capabilities, outside of the console's native language, for the lack of a better term, is very important, and that all manufacturers play nice together. The more we can do on the AoIP level, the easier the installation can be.

We have fewer, classically trained broadcast engineers; and if we can draw talent in from other IT industries, I believe consoles may aid in that.

As far as the design of the console is concerned, due to various outside events, be it weather related, other equipment failures, etc., we need the console and the network designed around it to self-heal. Remote capabilities are huge, and monitoring via SNMP is very important.

If we can tell ahead of time that a piece of equipment — whether it is the console control surface, computer attached to it or the engine running it — has a developing problem, we should know about it ahead of time. If there is a firmware upgrade that causes a memory leak, we need to know that before the console crashes or stops communicating with other devices.

***RW:** How could equipment manufacturers make your life as a user and buyer of consoles easier?*
Simpson: They should start talking to each other, to help the overall development of the product. They should also fully embrace the latest technology and not have an attitude of, well, we never did it that way before, or it's just a fad.

The companies should also communicate with the peripheral equipment manufacturers so their equipment can be incorporated easily, through discovery, not forcing the network to "see" the peripheral equipment. Items such as XDS receivers such as the Pro 4R, codecs, phone systems, even speakers.

Anything that can make the installation of a console or an entire facility easier, faster, standardized on the latest Cat-6 or higher cabling, is a huge benefit.

Being able to remotely access the console during a remote, storm or failure is a huge benefit to the local staff, not to mention being able to view everything from a higher level so firmware versions etc. can be viewed and planned for future upgrades or replacement.

***RW:** What role does the console play today when planning a new radio broadcast studio?*
Simspon: The console is one of the top, if not the top, deciding factor — what features does it have and how can I leverage those features, not just in the studio, but from afar.

***RW:** What functions and features are being offered nowadays on new models that engineers who haven't bought a console in a while should know about?*
Simpson: Being able to program unlabeled buttons to be able to interface with other equipment in the facility, such as delay units, codecs, even to have a hot button to switch between stations or studios in the event of a failure. Also, the ability to save configurations for different shows, such as morning drive versus middays versus afternoon drive. Also, being able to press a button and take the console out of the air chain to voice track or go into a satellite show.

If you also have a AoIP mic processor, you can change presets on each mic based on a macro that is controlled by pressing a soft button on the console.

***RW:** How have AoIP technology developments been reflected in the look and function of surfaces?*
Simpson: It depends on the physical surface you buy.

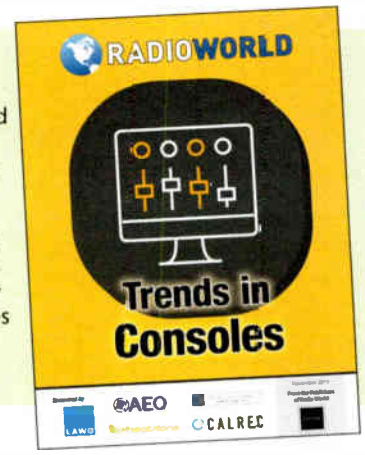
If you buy what looks like a normal

THIS ISSUE

DECEMBER 18, 2019

Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by Future US, Inc., 11 West 42nd Street, 15th Floor, New York, NY 10036-8002. Phone: (703) 852-4600, Fax: (703) 852-4583. Periodicals postage rates are paid at New York, NY and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 282, Lowell, MA 01853.

This article is from Radio World's ebook "Trends in Consoles." We've now published more than 50 ebooks on a wide range of topics that are of interest to the broadcast technologist or manager including AoIP, next-gen codecs, cloud technology, digital radio, RDS, DRM, translators and more. All are free to read. Find recent issues by clicking the ebooks section under the Resources tab at *radioworld.com*.



console, but every fader can be routed, that is one thing; but if you are using a console that has a touch surface of some sort, whether it is a standalone touchscreen using a PC, or a "console" that has a touch surface, you will see many more items that AoIP can do. Changing the colors of the screen, faders, buttons, how the buttons react if routed to external devices like a delay unit. These are all items that we had to buy and wire up in the past.

***RW:** What will the console of the future look like, if we use one at all?*

Simpson: I think we will always use a console. I say that more from an IT security standpoint. If we went with an app on an iPad or other tablet, we would have to make sure we can instantly shut down an individual's ability to control the air chain.

***RW:** What does the next generation of user interface look like?*

Simpson: I think some of the current manufacturers are basically there, but just need a few tweaks. This can only be done by taking input from the end user. Engineers and IT personnel can help get the backend of the system to where it needs to be, but the end user, the on-air talent are the ones that have to use the console day in and day out.

Some of those people are younger and used to a touchscreen, and others, like myself, have been around long enough to want to "feel" the fader as well as buttons. Sort of like how you can adjust or completely turn off the "feeling" on your iPhone, I think that is the next step for the touch surface.

***RW:** What do virtualization and cloud technology mean for console users and studio designers?*

Simpson: From my personal opinion, this means an ultimate form of backup to the studio audio chain.

If you are syndicating a show to a lot of your own stations, it could help manage the show content and local ad insertion.

Being able to communicate with a cloud technology or some sort of virtualization can aid in rapid recovery of a catastrophic failure, such as a backhoe outage, LNB failure for satellite shows, etc.

***RW:** How vibrant is the marketplace for analog consoles?*

Simpson: I think the analog console market still has some value but it is getting harder to justify the time spent wiring, limited abilities and cost versus capabilities.

***RW:** So how long do you think manufacturers of analog consoles will support them?*

Simpson: Hopefully as long as the consoles are in service or parts are available. We are already seeing those issues and having to work around it.

***RW:** What options are available to support brands that are no longer manufactured?*

Simpson: We typically will keep modules and parts from a converted market and send them to markets that still utilize legacy consoles. Other than that, we try to find parts that are similar from other parts resellers.

***RW:** Any common misconceptions about consoles you would like the industry to be aware of?*

Simpson: The people using the consoles are adapting, they are not all set in their ways. If you can build it, we can teach them to use it.

Also, consoles are not necessarily like computers where they need to be rebooted or even have firmware upgraded constantly. If you find a firmware version that works for your installation, and it continues to work with periph-

(continued on page 6)

WALDEN

(continued from page 1)

It shows on my soldering iron-burned hands. I grew up in broadcasting and it's a great industry."

Walden, 62, will leave Congress in January 2021. He came to the Hill in 1998 and most recently has been the top Republican on the House Energy and Commerce Committee, which maintains principal responsibility for legislative oversight relating to telecommunications. That means Walden is intimately aware of the issues facing the broadcast industry.

NAB released a statement regarding Walden's retirement from Smith, a former U.S. senator: "I was lucky to have served with Greg Walden in both the Oregon legislature and in Congress, and can honestly say he is one of the finest public servants I've ever known. Greg's career has been defined by success — as a committed local broadcaster, as a bipartisan political bridge builder and as a brilliant legislator," he said.

"Congress is a better place because of Greg Walden, and I'm certain he will make a positive difference in whatever path his future may hold."

Walden and his wife Mylene owned and operated a group of radio stations for more than two decades in Hood River, Ore., until 1998. The town is in the Columbia River Gorge. Earlier, Walden worked at stations his parents owned. His duties included working on air, doing traffic and even a little engineering. Walden also is a licensed amateur radio operator (W7EQI).

In his role on the House Energy and Commerce Committee, Walden worked to "pass legislation to grow American jobs by expanding access to wireless broadband, spur new U.S. technology and innovation and protect the Internet from government control," according to his official bio.

Speaking with Radio World, Walden reflected on his time in Washington and the current regulatory environment. Some replies have been edited for length and clarity.

Radio World: *How did your radio background give you unique perspective on items that came before the House Energy and Commerce Committee?*

Rep. Greg Walden: As a community broadcaster who owned radio stations for 20 years and who grew up in a family of broadcasters. In fact my father was a broadcaster going back to the 1930s, so you really learn about listening and learning about people in your community. It's about localism. All of those things that broadcasters do so well. Those principles and the engrained institutionalized service to community really served me well when I came to Washington.

As a broadcaster I did sales calls. I wrote ads. I did news. All of those things helped me because it taught me how to be in touch with the community. That helped me politically. And did give me an insight into the issues broadcasters still face today.

RW: What are your views on the state of government regulation in the lives of broadcasters?

Walden: There is a place for regulation. We don't want pirate radio stations crashing on top of licensed radio stations. I think under this FCC and the leadership of (Chairman) Ajit Pai and (Commissioner) Mike O'Rielly, they have really recognized the need to get rid of unnecessary regulation.

I've talked to Chairman Pai about our experience as broadcasters and the things we needed to do and the unnecessary parts. We had a public file that no one looked at except for the occasional FCC inspector. It's important that we get to the things that matter, and not burden local broadcasters with things that no one cares about in today's age.

RW: What is your position on performance royalties? Should radio be paying artists to play their songs?

Walden: I think artists benefit terrifically by broadcasters getting their music out to listeners. We already — and I say "we" because I still talk in the broadcaster's vein — we are already paying a lot of money to the record companies. My preference is to have them figure it out amongst themselves.

RW: NAB is on record as saying they would prefer the Department of Justice defer to Congress to determine any material changes needed to the music licensing structure. Could that happen?

Walden: I can't say. I know the pressure seems to have grown on radio broadcasters since online music services began paying performance royalties. Right now it's in the DOJ's hands.

RW: What do you think about the pending deregulation proposals before the FCC?

Walden: I watched what happened after the 1996 Communications Act and I think it really helped provide the market share that was necessary to allow for stations to group up. That happened in our case. We went from two, then three and finally five radio stations. The ones we purchased were not doing that well. And by the time we were done we had a synergy to allow for a more competitive group.

We have a hugely competitive marketplace these days, and I want broadcasting to be able to grow and flourish and serve their local communities. There has been a lot of debate about national caps and such. So there is much to be discussed, but we have to make sure we maintain the viability of broadcasting. We don't want to go the way of newspapers. It's important there is competition and not have monopolies, but we want competition designed in this era and not the 1940s and 1950s era.

RW: You've said you've been watching spectrum issues and especially the battle over dividing up the C-Band. Are you worried about the damage that could be done to established downlinks for broadcast?

Walden: Yes, absolutely. In fact we have had subcommittee hearings over which way to go and how much to divide up. We are having a vibrant debate about which direction to go and how much spectrum should be freed up. We need to stay ahead of the 5G rollout in this country to make sure it works.

I think there is a way to accommodate that and still make sure broadcasters using the mid-band spectrum can continue to get the programming they need without interference. There are different options to make that happen.

I met with the head of the Congressional Budget Office recently on this very topic. They are looking at whether an auction performs better for taxpayers or a private sale. *[FCC Chairman Ajit Pai subsequently signaled that he plans to seek a public auction of C-band spectrum. — Ed.]*

We are working our way through it. I'm still in the information-gathering mode. I know I don't want rural areas

(continued on page 8)

Walden at work. "It's important there is competition and not have monopolies, but we want competition designed in this era and not the 1940s and 1950s era."

SIMPSON

(continued from page 5)

eral devices, leave well enough alone. Don't create more work for yourself.

RW: Any suggested best practices for someone shopping?

Simpson: Make sure your existing infrastructure can handle the technology.

Specifically, you should be using Cat-6 cable or better. Cat-5 will definitely not work. and even Cat-5e is iffy, if you are installing a large enough network.

Budget for good Cisco switches and make sure you budget for plenty of ports. Just about everything has a network connection these days.

Buy outlet strips that have network capabilities that will allow you to remotely reboot a specific device, again, another Ethernet port.

Isolate your various networks based on the critical nature of their job function.

There is not a "one size or type fits all." Do your homework and get what you want and need.

Don't be afraid to talk to the manufacturers and ask for a feature to be added. If you can't get that done locally, take it up your chain of command. That is what we are here for.

Remember, the console is part of the revenue generator!

RW: What other questions should we in the industry be asking about this issue?

Simpson: When will all manufacturers start playing well together on the AES67 front? This is long overdue.

ACCESS NX

A sleek portable IP audio codec designed with the user in mind

Unparalleled reliability for remote broadcasts!

THE AES67 COMPATIBLE CODEC

A new rackmount IP audio codec for the modern studio

ACCESS NX·RACK

NOW SHIPPING

5 CODEC INSTANCES IN 1 BOX

ACCESS MultiRack

USA

Contact Us Today to Learn More

1-800-237-1776 | www.comrex.com

COMREX

WALDEN

(continued from page 6)

of America to go under-served all of a sudden because you don't have the bandwidth anymore. I don't want interference. Some of it could be replaced by fiber but not all of it. I represent some very rural areas where fiber just wouldn't work for broadcasters to continue receiving programming.

***RW:** You've been critical of the FCC in the past when it was under different leadership, saying it was not transparent enough. Has that aspect of FCC operations under Chairman Pai improved?*

Walden: Oh yes. There were periods under previous leadership when the FCC was antagonistic and almost hostile toward broadcasters. I think that has changed greatly. That's very encouraging. True, the FCC is the cop on the beat, and if you are a licensee you have certain obligations that have to be met. But my experience as a former broadcaster and as former president of the Oregon Broadcasters Association years ago, I think this commission recognizes the amount of community service radio provides.

***RW:** Another FCC question. They have been criticized by some as being slow to move on AM revitalization. Is the FCC doing enough to help AM radio?*

Walden: I was the owner of two AM stations. One was a former daytime that we were eventually allowed to drop to about 13 watts to remain on the air 24/7. Another was a 1,000 kW AM. I want to see AM survive and thrive. It's especially important for new entrants into broadcasting, the diversity of programming.

It certainly has been slow-moving, but it has been an initiative of Chairman Pai to get it done. It is one of those things on my bucket list to try and get it into a better place.

***RW:** What do you hear from the White House? And what is their view on broadcast industry priorities?*

Walden: I think it is pretty positive. I have several former staffers in the White House working on communication issues. They understand the importance of having a vibrant broadcast community. We are all looking at what is next. They are aware of the C-band spectrum issues.

As for radio, this is an administration and a president that is a big fan of broadcast in general.

***RW:** You were chair of the House Energy and Commerce Committee when Republicans held the majority in the House. Can you reflect on issues broadcast you tackled?*

Walden: I think we had a good run of it. On the TV side, the digital transition, we were able to go back and get another $1 billion to help cover the transition costs. We really dug in to make sure that with changes in the tax laws that we didn't lose the deductibility of advertising. That was a big threat to broadcast and other industries that depend on advertising.

I think I've been helpful in efforts to enact good public policy that has been a positive for the broadcast industry.

***RW:** You were a vocal supporter of getting FM chips into cell phones. Could you have pushed any harder on that, short of a mandate?*

Walden: Well, that was the nuclear weapon, mandating something, especially a new technology. We haven't done that in other areas. When you begin putting in federal mandates, especially on technology, it can create a whole bunch of unintended consequences and legacies. And I don't think we could have passed that through Congress anyway.

I did use my bully pulpit the best I could to nudge these companies into adopting the FM chip. Even with my limited engineering experience, I was able to push back on their weak arguments. We made some progress. It's just unfortunate we didn't get it into the iPhone. I never understood why (Apple) didn't go down that path.

***RW:** You're 62 years old. What will you do next when your term expires early 2021?*

Walden: I've enjoyed the 30 years of public service, counting my time in the state legislature in Oregon. But my wife and I, while we have enjoyed it, we are ready to close the chapter on public life. I'd like to do something else, but I don't know what that will be. I'm ready to take on a new challenge.

***RW:** And there is nothing to the NAB rumors?*

Walden: Gordon Smith is a dear friend. He's a fellow Oregonian. We served together in the state legislature and in Washington. His contract runs through I think 2023, so he has a long time to serve yet in that role.

***RW:** Will you remain in the Washington area or live year round in Oregon?*

Walden: Oregon is home. We still live in Hood River in the same house we bought in 1987, about five blocks from the radio stations we owned. It's a great home. I don't know the career path that is out there, but Oregon will always be home.

***RW:** Any thoughts about a return to broadcasting once you walk away from public service?*

Walden: You know, I was speaking with Jeff Smulyan [founder and CEO of Emmis Communications] recently, and I asked him if there was an overnight shift somewhere, where I could work the board. He told me I could have a shift on the hip-hop station in New York City. I don't see that happening!

Photo by Chip Somodevilla/Getty Images

In 2017, as chairman of the House Energy and Commerce Committee, Walden joined other committee chairs to discuss the American Health Care Act with President Trump at the White House. The proposed legislation was a Republican effort to repeal and replace Obamacare.

SAVVY AND SERIOUS

Much of the media coverage of Walden's decision focused on the outlook for the GOP in next year's elections.

Politico put it this way in late October: "The Oregon congressman is the 19th House Republican to announce they are retiring at the end of this Congress, a sign of how difficult it will be for the GOP to win back the majority in what's already shaping up as a tough 2020 election. Having President Donald Trump's name at the top of the ticket will ensure turnout among his supporters, yet it's also expected to bring Democrats out in huge numbers as well."

Politico characterized Rep. Walden as "well-respected by colleagues from both sides of the aisle, who describe him as both a savvy politician and serious legislator who likes to dig into the nitty-gritty policy details." It noted that he is a former chief of the House GOP's campaign arm who "earned a reputation for party loyalty over his past two decades in Congress" but said he "has been quietly picking and choosing his battles with Trump this year, fueling speculation he might be eyeing the exits."

Specifically, it reported, Walden "rebuked the president over the hugely controversial border wall project, backed Russia sanctions over Trump's objection, voted with Democrats to end the historic 35-day government shutdown and has been vocal about addressing climate change. But Walden also has stood by Trump throughout the Ukraine scandal and fallen in line on other key issues."

Photo by Ron Sachs-Pool/Getty Images

Rep. Greg Walden and wife Mylene arrive for a formal dinner at the State Department, honoring recipients of the Kennedy Center Honors in 2018.

ViA
The Remote Codec of Choice...

The ViA now supports 7 IP interfaces:

- Internal module supports 2 SIM cards for Telco diversity (coming soon)
- Supports built-in Wi-Fi (no USB modem required)
- Connect 2 air cards and 2 Ethernet connections
- Rock solid IP connections with primary and redundant streams using SmartStream PLUS.
- Control remotely from anywhere with the new Cloud Codec Controller (sold separately). Watch the video.

https://youtu.be/S1WZ6TacYDI

((ViA))

Wi-Fi
Built-in

Tieline®
The Codec Company

317-845-8000 | sales@tieline.com | tieline.com

How NOT to Repair Tower Fencing

Also, another EAS antenna using PVC tubing!

Damage to your tower fencing is a serious concern — and tower sections do not correct the safety violation.

WORKBENCH

by John Bisset

Email Workbench tips to johnpbisset@gmail.com

So when a vandal cuts through your tower fence, Fig. 1 is an example of how *not* to prevent further break-ins or correct the safety issue.

Yep, those are tower sections placed along the cut fencing. No names here, to protect the contract engineer who found this; it was not his work.

The FCC takes a harsh view on safety violations like this. An unsecured fence is certainly a safety issue. This is a good reminder to inspect all your station towers and fencing periodically.

Brian Urban was in the audience for a recent episode of Kirk Harnack's "This Week In Radio Tech" (TWIRT). I was a guest on the program, in which Kirk and I related a number of neat tips for engineers.

One of the tips was to use an aluminum muffin tin to hold small parts as you disassemble equipment. The depressions in the tin keeps parts organized, so they all get reinstalled in the proper order.

Brian, who is the coordinator for the Television Studio Lab at Austin Community College, had another suggestion: Grab your phone and take pictures as you disassemble things. Those pictures can be invaluable in showing how a complex assembly goes back together.

Don't have a muffin tin available? Before you raid your kitchen, treat your staff to some of those grocery store-prepared muffins or mini-cupcakes (Fig. 2). They are sold in flexible plastic containers, usually with a hinged lid. Store the parts in the indentations in the plastic as shown in Fig. 3 and save the muffin tin for baking.

Plastic muffin or mini-cupcake holders are useful in the shop.

The small indentations hold parts; the hinged top keeps everything secure. (Co-workers also will enjoy the baked goods that come with the plastic container.)

We so depend on the eagle-eyed readers of this column!

An example is California's Robert Lilley, who pointed out that in our discussion about Windows 7 "not genuine" in November, the correct address is *www.itechfever.com* (the letter "i" was missing!) However, Googling "How to Fix Windows 7 not genuine error" will get you to the itech site, along with hundreds of others. Bob notes that this obviously is a popular subject!

Robert is still a consultant but these days he consults for radio-navigation systems. Still, he has collected a pretty good toolbox over the years, and it helps him keep the dishwasher running!

Robert has put together a couple of pages showcasing his on-air career in the late 1950s in West Virginia. We've bookmarked them for you at *https://tinyurl.com/rw-lilley* and *https://tinyurl.com/rw-lilley2*. You'll enjoy the sites, especially if you like pictures of vintage studios and equipment.

Lance Jackson is a technology engineer in the Communications Department of Southern Utah University in Cedar City, Utah. Lance enjoyed reading Ken Beckwith's "how to" article on constructing a PVC EAS Receive Antenna in our Workbench column in late September.

Lance writes that he built something similar, pictured in Fig. 4, for the university's station KSUU. In Lance's

(continued on page 13)

INOmini

CELEBRATES ITS 10TH ANNIVERSARY

Small in size, but packed with MONITORING MUSCLE

SAVE MORE CALL TODAY

Contact your preferred Inovonics dealer today for a special offer on a customized RackPack solution. Choose from a growing family of INOminis and other small form factor products to create your own RackPack monitoring solution.

MODEL 223

Multimode Audio Processor

MODEL 676

NEW NOAA Weather Receiver

Remote Off-Air Monitoring with Web-Enabled SiteStreamers™

MODEL 637

AM SiteStreamer™

MODEL 635

FM/RDS SiteStreamer™

MODEL 638

HD/FM/RDS SiteStreamer™

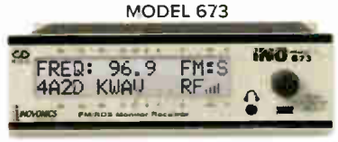
MODEL 662

DAB+ SiteStreamer™

MODEL 674

NEW AM Monitor Receiver

MODEL 673



NEW FM/RDS Monitor Receiver

MODEL 679

NEW FM/HD Monitor Receiver

MODEL 661

NEW DAB+ Monitor Receiver

MODEL 514

FM Multiplex Decoder

MODEL 300

AES Distribution Amp *Plus!*

MODEL 703

RDS Encoder

MODEL 402

RDS Sign Driver

Powerful Remote Monitoring / Web-Enabled

NEW THE ELITE

SOFIA 568 FM/HD SiteStreamer+™

Displays HD Radio Artist Experience, Streaming to 10 listeners, Adjustable Outputs, Dante AoIP

INOVONICS BROADCAST

www.inovonicsbroadcast.com

sales@inovonicsbroadcast.com | 831-458-0552

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

When Turkeys Fly

Fundraisers benefit needy college students, food banks and children with critical illnesses

RADIO DOING GOOD

BY MARK LAPIDUS

Radio Doing Good covers how broadcasters contribute to their communities and is a regular feature in Radio World.

Les Nessman's legacy lives on in Beantown! For those of you unfamiliar with the TV show "WKRP in Cincinnati," the most famous episode involved a station promotion with turkeys tossed from a helicopter. Les covered the event and later the station manager exclaimed, "As G-d is my witness, I swear I thought turkeys could fly!" Notwithstanding the fact that the tossing of a live Thanksgiving turkey from an airplane or building used to be die-hard tradition in many towns, for KRP fans it was just a TV show and we'll always remember falling on the floor laughing. And for many years now, the humane version rules.

Everett High School won the Turkey Toss in Somerville, Mass., led by KISS 108 and the "Matty in the Morning" show. From left: DeShawn Weston of Everett High, host Matty Siegel, Davi Pereira of Everett High, co-host Billy Costa, long-time sports reporter Mike Lynch, former NFL player Joe Andruzzi and co-host Lisa Donovan

KISS 108's "Matty in The Morning" does a stellar job of it, holding Boston's 2019 annual Turkey Toss at Assembly Row in Somerville, where a powerful high school student hurls a frozen turkey backwards, into the arms of a talented catcher. Many schools competed and when the turkeys stopped flying, Everett High School was declared the winner. Matty Siegel was joined by Billy Costa, Lisa Donovan, WCVB's Mike Lynch (for play-by-play) and former New England Patriot presented a meaty check to the Greater Boston Food Bank. And all of the action was streamed live. Check it out at *https://tinyurl.com/rw-kiss-turkey*.

THE BREAKFAST CLUB

iHeartMedia's The Breakfast Club, syndicated nationally on Hip-Hop and R&B stations, raised over $670,000 to benefit the newly created The Breakfast Club HBCU Scholarship, which will be awarded via the Thurgood Marshall College Fund. The need-based scholarship will grant $5,000 to recipients for the 2020–2021 academic year.

MAC & CHEESE FEED

The Stansbury Show on Akron-Canton's Rock 106.9 created a new event called "Mac & Cheese Feed," benefiting the local food bank. The annual cheesy challenge is to build a mountain of macaroni and cheese with food donations from event attendees. Imagine seven feet of mac and cheese! With 98.1 KDD, their radiothon is generating hundreds of thousands of meals for the eight-county service area.

MAKE-A-WISH RADIOTHON

WGRF/97 Rock in Buffalo hit a new record by raising over $300,000 for the Make-A-Wish Foundation of Western New York, which grants wishes to children with critical illnesses. The 28-hour radiothon was held live from Eastern Hills Mall in Williamsville, N.Y. News 4 Buffalo joined up and provided additional media support for this 25th Annual event.

RESTOCK THE CUPBOARD

Tulsa's Mix 96.5 gathered a record-breaking quantity of food — over 65,000 meals — during its annual Restock the Cupboard fundraiser for the Community Food Bank of Eastern Oklahoma. "As Thanksgiving approaches and we count our blessings, it's hard not to think about our neighbors who may be struggling to put food on the table," says Cathy Gunther, Market Vice President, Cox Media Group-Tulsa.

CLEAN WATER

College radio is making a difference too. Newark, N.J., has been having big issues with lead-contaminated water drinking water, so Seton Hall University station WSOU 89.5 held a water drive. "While problems with residential water filters were recently addressed, pregnant women and children under six years of age are still being advised to avoid drinking city water, even if it has been filtered, and to use bottled water instead," the station announced, pointing out that that the city, home to 285,000 residents, had only two distribution centers for free bottled water for children and pregnant women, and that even those people were limited to two cases of water every two weeks regardless of household size. The cases of water collected were distributed to residents through the Women and Children's Center at St. John's Soup Kitchen.

If you have a Radio Doing Good story you'd like to share, send it to *radioworld@futurenet.com*.

WORKBENCH

(continued from page 10)

iteration, he used 3/4-inch PVC pipe to form a simple square, two feet on each side. Like Ken, he used Cat-5e cable for the wire, looping it through the PVC pipe three or four turns. Since Cat-5e has four pairs of wires, fewer turns were required. Plus, since the Cat-5e cable pairs are already jacketed, you don't have the problem of trying to snake multiple individual cables through the PVC tubing.

The wires were soldered the same way Ken did, and the antenna has been in service for 2 1/2 years now and works very well. Lance is one of many engineers who wrote and called, saying how useful these technical how-to articles are. We plan to bring you more (and we want your good ideas)!

See how easy it is to help other engineers? Where else can you earn recertification credit when you share a tip published in Workbench? Thank you for sharing your tips and high-resolution photos by sending them to johnpbisset@gmail.com.

John Bisset has spent 50 years in the broadcasting industry and is still learning. He handles western U.S. radio sales for the Telos Alliance. He holds CPBE certification with the Society of Broadcast Engineers and is a past recipient of the SBE's Educator of the Year Award.

Another example of an EAS receive loop antenna, using PVC tubing.

PEOPLE NEWS

Stacy Kaskon
Promoted to director of business development at Neutrik USA

Sergei Berenson
Named director of engineering at Play MPE

Graham Lay
Joins as regional sales manager for MEA at GatesAir

Send People News to *radioworld@futurenet.com.*

C. Crane Offers Up a Premium Portable

CC Radio-EP PRO AM/FM portable makes listening fun again

RADIO LISTENING

BY JAMES CARELESS

In the history of affordable AM/FM portable radios, there have been few that combine sensitivity (the ability to reliably receive distant stations) with selectivity (the ability to separate them for clear, intelligible listening). Even fewer AM/FM portables have combined those characteristics with great sound, the most notable being the legendary GE Superadio/Superadio II series of the 1980s and early 1990s. (Many used Superadios are selling above their original list prices on eBay today.)

The new $89.99 CCRadio-EP PRO belongs to this exclusive club. Created by Bob Crane, long-time radio innovator/retailer and owner of the C. Crane Co., the CCRadio-EP PRO combines AM/FM sensitivity, selectivity and great sound in a large, analog-style radio receiver, complete with a large illuminated "slide rule" tuning dial.

Although the CCRadio-EP PRO looks like old-tech analog, it is anything but. Inside this 20th century-style case is the brain of a very 21st century digital radio.

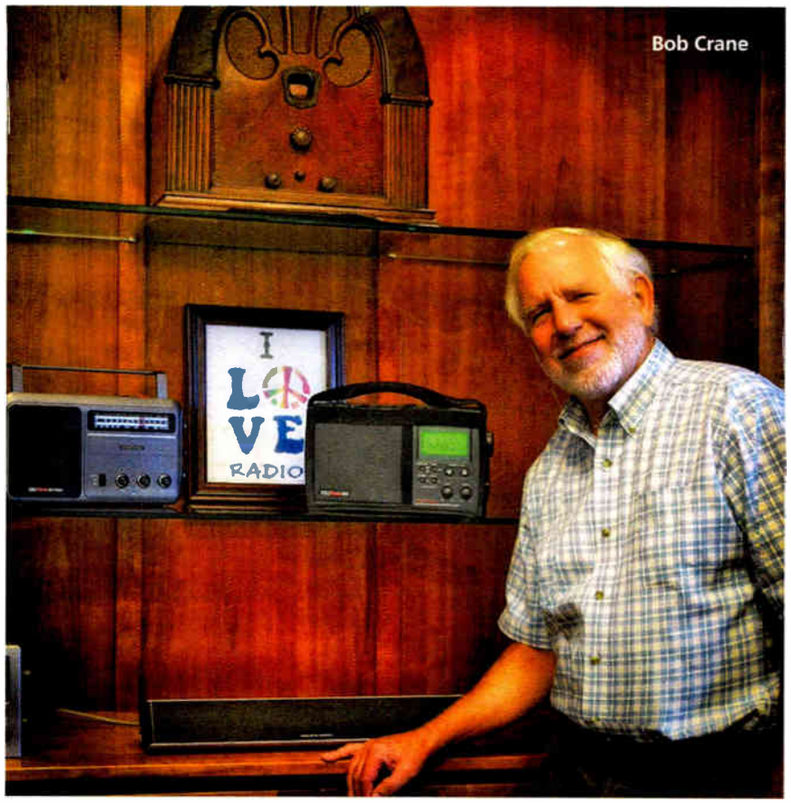
A DECEPTIVE SIMPLICITY

At first glance, the CCRadio-EP PRO doesn't look like a premium AM/FM portable. There's a lot of unused space on its main front panel, like the blank dashboard of a economy car whose owner wouldn't spring for an AM radio.

This uncluttered simplicity is misleading because the CCRadio-EP PRO is a sophisticated receiver. The deceptive appearance was a deliberate choice, driven by Crane's core market for this radio: "It is somewhat embarrassing, but the original CCRadio-EP was made for my mother," he said. "She painted with watercolors and drove until she was 90, but a digital radio was one thing she did not want to invest her valuable time in to learn."

Now one mother is not enough to base a product launch on. However, when it came to the CCRadio-EP PRO, "We presumed there were a modest amount of radio listeners in the same boat," Crane said.

"This radio was designed as a gift to radio lovers who want radio listening to be easy or uncomplicated or simple," he added. In this way, "it has a similar position in the market as the older models of the GE Superadio."



THE NITTY-GRITTY

Built as an enhanced version of C. Crane's CCRadio-EP analog AM/FM radio, the CCRadio-EP PRO is contained inside a grey plastic case (with black trim) measuring 11.4 inches wide by 7.3 high and 2.75 wide. It comes with a 5-inch speaker and high-fidelity amplifier. Sound can be heard in mono through the front speaker, or stereo (for FM only) through earbuds or headsets.

Because he prefers analog technology, Bob Crane didn't want to go digital with this new mode. But he had no choice.

"The analog chipset we used in the first model was not available anymore," Crane told Radio World. "Analog chips are generally not manufactured anymore. We also lost our ferrite antenna manufacturer at same time. Changing chipsets is sometimes challenging but finding a new ferrite manufacturer was positively chilling."

The top of the CCRadio-EP PRO has an extendable FM whip antenna plus power and display light buttons. (Being able to turn off the display light saves battery power and keeps from disturbing others at night.) There is also a flip-up handle that locks in place for easy carrying. The CCRadio-EP PRO is powered by an included 6V AC adaptor, or four D batteries.

The CCRadio-EP PRO's speaker is on the left side of the front panel; the audio controls on the lower right side. These controls are the FM stereo/FM/AM switch for selecting bands, bass and treble knobs for adjusting audio quality and the wide/narrow bandwidth switch for the AM band. (This last switch is central to the CCRadio-EP PRO's outstanding AM sensitivity. The narrow setting filters out adjacent AM stations to improve selectivity.) The large horizontal tuning display is at the top right side of the front panel.

On the right side end of the CCRadio-EP PRO is the large tuning knob, the AM Fine Tuning knob (for directionally tweaking the built-in C. Crane-patented Twin Coil Ferrite AM Antenna) and the volume knob.

"We actually have a total of five coils on the ferrite devoted to AM reception," said Crane. "Four coils take advantage of the magnetic north/south axis of ferrite for a 3 dB boost over a typical AM antenna with one coil. The fifth coil is for the external AM antenna interface."

On the left side end are located a headphone jack, a line input jack that allows the CCRadio-EP PRO to serve as an amplified speaker for a connected music player/smartphone, and the AC adaptor power jack.

Finally, the back panel of the CCRadio-EP PRO contains ports to attach a two-wire AM and/or coaxial-style FM external antenna, an Internal/external antenna switch, a 9 kHz/10 kHz tuning step switch (for using this radio in countries with 9 kHz spacing between AM stations rather than the 10 kHz gaps of the United States), and the battery compartment door.

The company estimates that the CCRadio-EP PRO will run for up to 300 hours on D cell batteries, if the display light is kept off.

AM TV-STYLE PERFORMANCE

Back in 2010, I measured the crowded nighttime AM radio landscape in my hometown of Ottawa, Canada, using the stock AM/FM receiver inside my 2006 Mazda MPV minivan (which is still on the road today). Available on the Radio World website at *https://tinyurl.com/rw-am-dx*, the test showed that U.S. AM stations such as WSB-750 Atlanta (935 miles away) can be received in Ottawa at night, when AM signals propagate over the horizon due to bouncing off the ionosphere.

I certainly expected the CCRadio-EP PRO to be even more sensitive than the Mazda's AM radio, and it did not disappoint. The AM band on the CCRadio-EP PRO was jammed at night. But thanks to this radio's wide/narrow filter set to the narrow setting (you lose a bit of audio range using the Narrow filter in exchange for eliminating adjacent channel overlap), the CCRadio-EP PRO

(continued on page 16)

The CCRadio-EP PRO retails for $89.99.

THE TELOS ALLIANCE®

Control Your AoIP Universe

QUASAR

by AXIA®

Application-specific controls. Customizable Source profiles. Metering where you need it. User-assignable buttons. All cosmically connecting with networked sources near and far.

Finally, you have the power to create the most brilliant content in the AoIP universe. Harness It.

To experience limitless production possibilities, contact us today.

SHAPING THE FUTURE OF AUDIO

THE TELOS ALLIANCE®

TelosAlliance.com | inquiry@telosalliance.com | +1.216.241.7225

C. CRANE

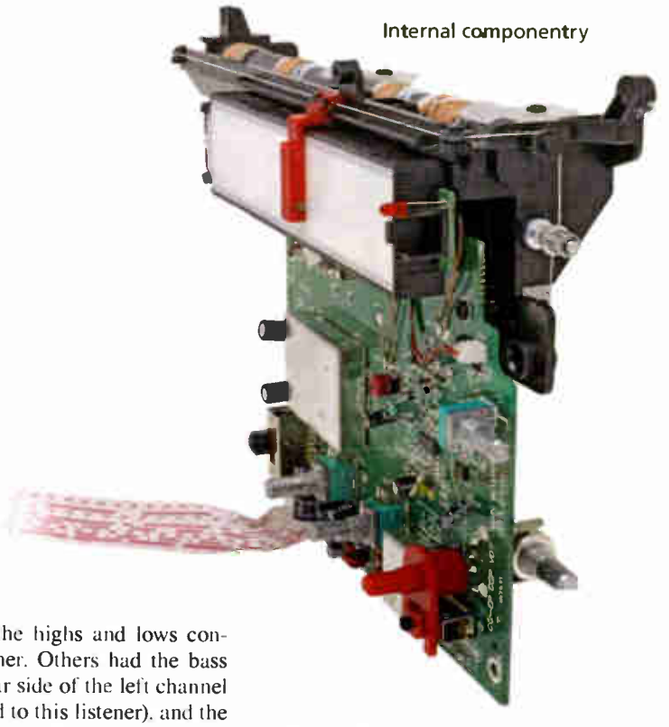
(continued from page 14)

was never overloaded. Scanning across the AM band in narrow mode was like flipping channels on a television set. The selectivity was that good.

Meanwhile, the AM fine tuning knob allowed me to boost a selected AM station's power and clarity (as did rotating the radio on its horizontal axis to improve directional reception). In cases where two radio stations were on the same channel, I was able to tune one out in favor of the other. (Granted, AM signals did fade in and out, which is due to the nature of AM propagation at night.)

The most impressive proof of the CCRadio-EP PRO's selectivity was its ability to separate New York's WCBS(AM) on 880 from Chicago's WLS(AM) on 890. WCBS is a powerhouse in Ottawa at night, even coming in occasionally during the day if the atmospheric conditions are right. On other radios, WLS would be drowned out by WCBS. On the CCRadio-EP PRO, WLS punched through.

This knob allows for directionally tweaking the Twin Coil Ferrite AM Antenna. "We actually have a total of five coils on the ferrite devoted to AM reception," said Bob Crane.



Internal componentry

FM STEREO SURPRISE

I assumed that the CCRadio-EP PRO's FM performance would be excellent, and again this radio did not disappoint. It received and separated lots of FM stations effortlessly, even without the whip antenna extended.

The big surprise was how different each FM music station sounded on the ear buds. Depending on the era that the song was recorded in, the frequency separations varied widely. Some songs in stereo had the highs and lows congregated together. Others had the bass guitar on the far side of the left channel (or so it seemed to this listener), and the drums far on the right.

The CCRadio-EP PRO is what it promises to be, and more. For $89.99, C. Crane Co. has created a top-of-the-line AM/FM receiver that makes radio listening fun again, all driven by Bob Crane's undying love for this medium, and for his mother.

Comment on this or any story to radioworld@futurenet.com.

NOSTALGIA

EVOLUTION OF THE BUZZARD

WMMS' Cleveland Buzzard hatched 45 years ago, the product of a rebrand idea from Program Director John Gorman and Music Director Denny Sanders, executed by artist David Helton.

Helton hadn't planned on creating this "rock star" for WMMS — he had originally sent in a complaint about the station's programming —, in the form of a cartoon. The move caught John Gorman's attention, and the rest is history.

The Buzzard was introduced in the alternative weekly, Zeppelin (pictured, upper left), in April 1974. The public embraced him, and the popularity of the rock radio station skyrocketed, with the Buzzard at the helm. Over the years, the Buzzard appeared on all manner of swag, large and small: bumper stickers, shirts, glassware, mugs, and even vehicles. He represented WMMS in print and TV ads, billboards, parade floats and murals. He also had his own publication — The Buzzard News — an internal comic that tracked what was happening at the station in the 1970s.

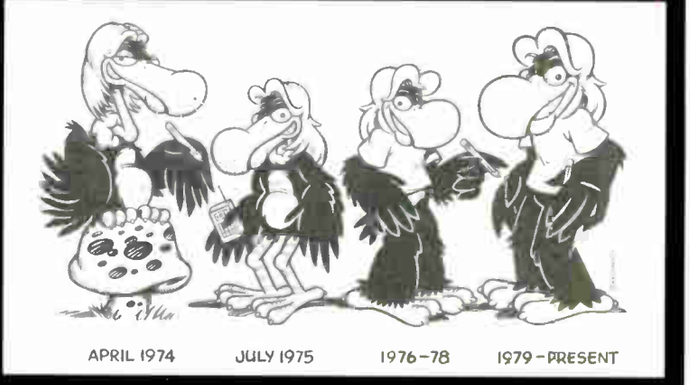
The Buzzard is still a WMMS, and Cleveland, icon even as the station celebrated its 50th birthday in 2018. The station is currently owned by iHeartMedia.

Helton hasn't been an employee of Malrite Communications, then owner of WMMS, since 1989, but he didn't have to dig too deep to draw a special illustration for a feature story in the Cleveland Scene (left). The Buzzard may be older, but he's not forgotten.

For Buzzard fans who want to get a little nostalgic, Helton is selling some of his vintage swag online. Visit *www.davidheltonillustration.com.*

— Karen Lee

Images Courtesy David Helton



References:

www.clevescene.com/scene-and-heard/archives/2018/08/16/a-brief-history-of-the-wmms-buzzard

www.chattanoogapulse.com/buzzard-luck/

https://buzzardbook.wordpress.com/

ADVANCED PROCESSING: BEHIND THE SCREENS

X5 is the most advanced, finest sounding broadcast audio processor ever designed. It's loaded with inventive technology that dramatically improves your sound AND delivery all while letting you be counted by every PPM out there.

PPMport INSERT LOOP FOR PEOPLE METERS

An insert loop to interface your ratings encoder AFTER the processing delivers a signal with greatly reduced audible artifacts, which ensures you'll be moving all those meters out there.

FM/HD LEVEL CP FM/HD SIGNAL SYNC

Integrated HD and FM analog signal alignment keeps listeners tuned in to your station even during extreme blending conditions. No more "dip and skip" in reception that can cause tune out, affecting TSL.

UP UNIFIED PROCESSING®

Each X5 function in the chain interacts closely with other functions to deliver just the right amount and type of processing needed, creating a sound that's as close to the original as possible.

LIVE LOGGER LIKE THE NSA FOR YOUR X5

Live Logger keeps track of everything happening on your X5. Preset takes? Remote login? Audio failover? Every event is date and time stamped so you can review it.

LIMITLESS CLIPPER INTELLIGENCE KNOWS ITS PLACE

Proprietary high-frequency distortion canceling technology passes the highs, but not the overshoot. No more "spitty" highs or pops from clipping; no IM distortion whatsoever. Takes all the highs you can give it and never gives you back IMD.

MPX SYNCLINK STUDIO-TRANSMITTER LINK

Extends HD/FM alignment from your studio to your transmitter site. Keeps the HD and FM packets in sync so time alignment done at the studio goes straight to the receiver.

BETTER SOUND MORE LISTENERS X5

wheatstone.com/X5-rw

Wheatstone
BROADCAST AUDIO PERFECTIONISTS®

1.252.638-7000 | wheatstone.com | sales@wheatstone.com

KJR

(continued from page 1)

fact preceded KDKA.

One reason for the controversy has been disagreement on the criteria that should determine who was "first." Additionally, we must distinguish between the "oldest" and "first" station. Evidence of rudimentary broadcasting exists as far back as far as 1912, but all these activities came to a halt during World War I when all non-government broadcast stations were ordered off the air. After the order was finally lifted by the Navy on April 15, 1919, broadcasting gradually resumed in several cities, but these operations were sparse and sporadic until the big "radio boom" of 1922 when hundreds of new stations debuted almost overnight. Most of these early broadcasters did not survive radio's first decade.

Additionally, it took some time for the Department of Commerce, which regulated radio activity in those days, to recognize broadcasting as a separate class of station and create a specific license for it. It wasn't until Dec. 1, 1921 that regulations were created to define broadcasting as a distinct class of radio station, and by that time there were already dozens of stations on the air. Those first pioneer broadcasters operated under several classes of license: Amateur, Experimental or Limited Commercial. (The first station to receive an actual "Broadcast License" was WBZ in Boston late in 1921). Nonetheless, most of these early stations were broadcasting in the true sense of the word, as they were sending out voice programs of information and entertainment on a regular schedule to a public audience.

Another factor that has made it difficult to clearly identify who was first is that, although some well-known pioneer broadcasters such as KDKA and WWJ had clearly defined "start dates," there were others that began as amateur or experimental stations with irregular schedules and then gradually transitioned into serious broadcasting activities.

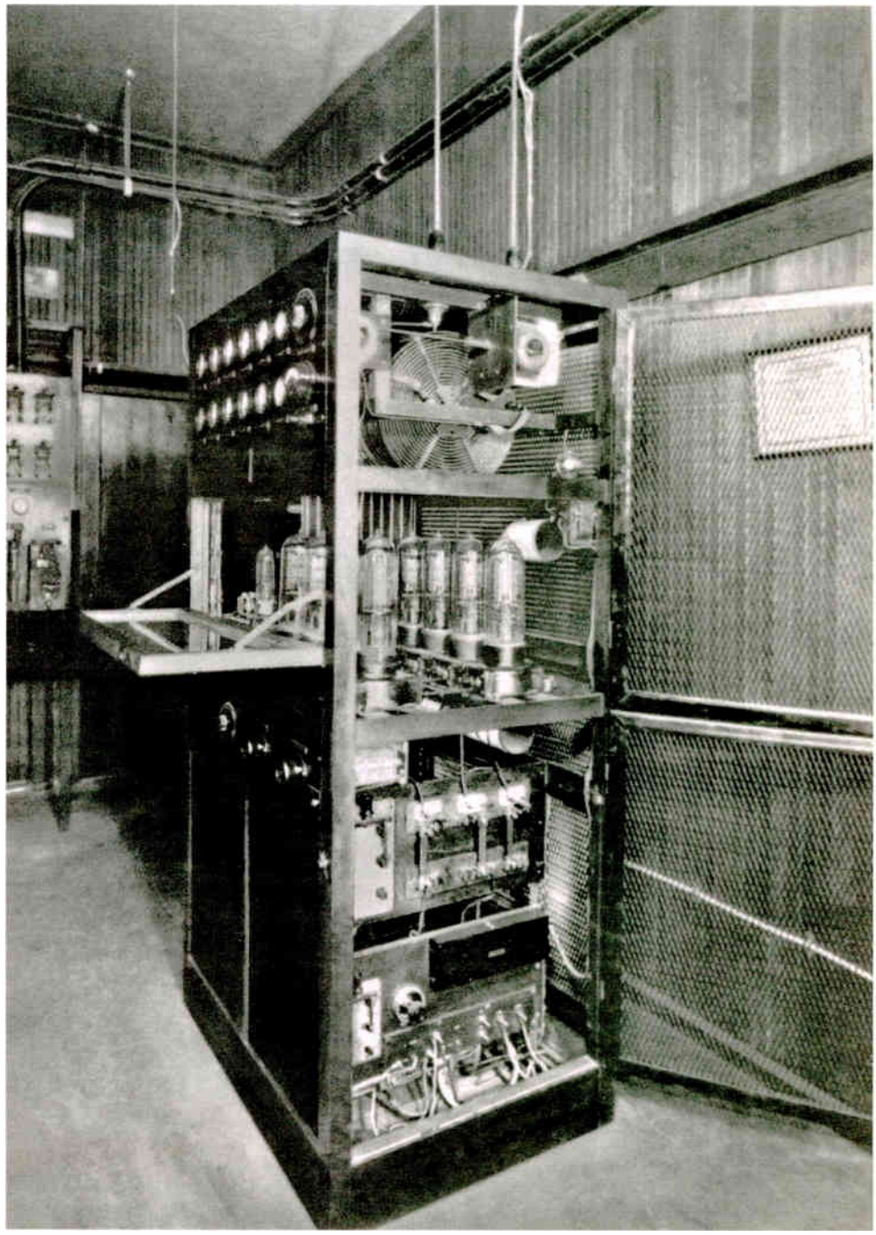
Such is the case of KJR in Seattle. Its exact starting date in 1919 is not recorded, and it appears to have made a gradual transition from a personal hobby station to a serious broadcast operation over the course of a two-year period.

7XC

The first entry for KJR in the Department of Commerce records is dated April 1, 1922: "KJR, Commercial Land Station, 360 and 485 meters, Vincent I. Kraft." Although we can

(continued on page 20)

KJR began broadcasting as 7XC from this modest home in Seattle's Ravenna neighborhood in 1919. Kraft broadcast phonograph concerts for 45 minutes each evening from his 10-watt transmitter.



KJR's 1,000 watt transmitter is shown in the Terminal Sales Building in 1924. The transmitter was custom built by Kraft's Northwest Radio Service Company.

NEWS DESK IN UNDER 1 SQ FT

With ScreenBuilder™ 2.0, YOU decide what to put behind your glass. Smart virtual tools. Buttons. Faders. Knobs. Meters. Clocks and timers. Salvos. Hardware control and interaction. Complete signal chains. YOU determine exactly how they function and interact via the Intelligent Network with a simple scripting wizard. Adapt as your needs change. Get the idea?

BUILT WITH SCREENBUILDER

wheatstone.com/glass-screenbuilder2-news-rw

Wheatstone
BROADCAST AUDIO PERFECTIONISTS®

1.252.638-7000 | wheatstone.com | sales@wheatstone.com

KJR

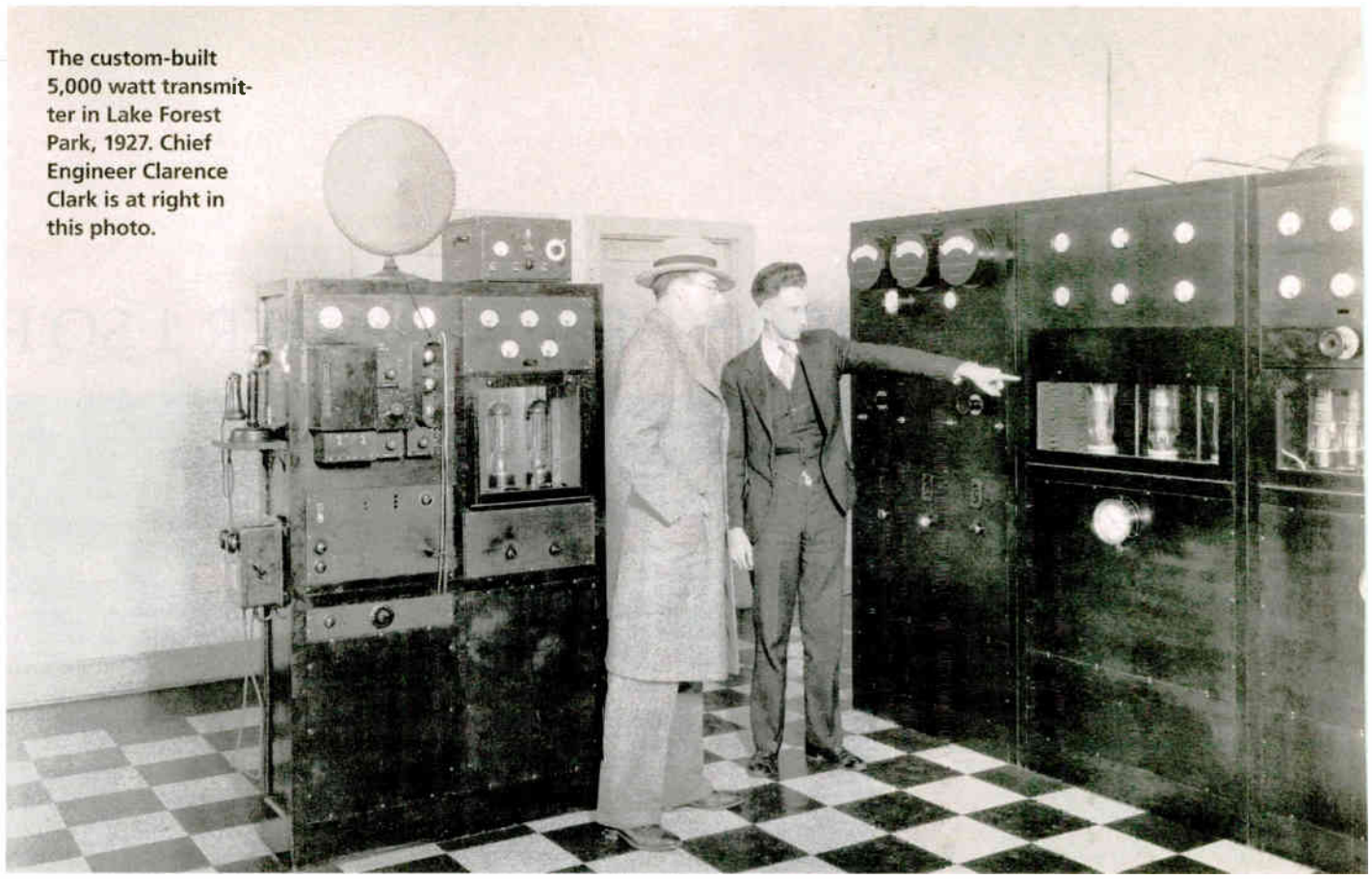
(continued from page 18)

consider this to be the official starting date for the station, the pre-history of KJR was documented in a letter written by station founder Vincent Kraft in 1962. He wrote:

Shortly after World War I, in late 1918 or early 1919, amateur stations closed during the war were allowed to re-open. These re-opened stations immediately reflected the advances made during the war, and installed equipment for transmitting voice and music, whereas prior to the war they had all been dot-and-dash code stations. Among these re-opened stations was my own, with the new call letters 7AC. There were several "wireless telephone" stations under amateur licenses. I received an experimental license with the call letters 7XC for developing this phone equipment. It was on the air with voice and music from 1919 on, as were several other amateur stations.

In 1921, the Department of Commerce, then the sole licensing authority for the government, created a new class of stations and named them "Broadcast Stations." I immediately applied for a new broadcast license for the equipment which had been operating for a couple of years under the call letters of 7XC. At the same time that these new broadcasting station licenses were created, a new regulation went into effect prohibiting amateur stations from transmitting music.

At first, Kraft's little 10-watt station broadcast from his home in the Ravenna District of Seattle, and later from his downtown radio parts store. But by 1924, KJR was broadcasting daily with 1,000 watts from the prestigious Terminal Sales Building in downtown Seattle. Kraft then built three other prominent West Coast stations — KEX in Portland, KGA in Spokane and KYA in San Francisco — and tied all four stations together with telephone lines to create one of the country's first radio networks. In 1928, he sold his interests in his four stations and network, but he went on to build KXA in Seattle and several stations in Alaska.



The custom-built 5,000 watt transmitter in Lake Forest Park, 1927. Chief Engineer Clarence Clark is at right in this photo.

THE CENTURY MARK

As for KJR, it went on to have a colorful history. The station's second owner built it into a huge operation before bankrupting the station and going to jail for embezzlement. It was then acquired by NBC, which later sold to the operators of KOMO, and the two stations operated together as the Seattle affiliates of the NBC Red and Blue networks until 1945.

The station again gained prominence in the 1950s as one of the country's premier top 40 stations, managed by Lester Smith with celebrity partners Danny Kaye and Frank Sinatra. Today, KJR is a 50 kW sport-formatted station operated on 950 kHz by iHeartMedia.

It wasn't until Dec. 1, 1921 that regulations were created to define broadcasting as a distinct class of radio station, and by that time there were already dozens of stations on the air.

Next year, Radio World will celebrate broadcasting's official centennial, recognizing the birth of WWJ, KDKA and other pioneer broadcast stations in 1920. Before then, during what can be considered to be broadcasting's "pre-history," there was a smattering of experimental activity in a few locations around the country.

It is well documented that Charles Herrold in San Jose was making weekly voice and music broadcasts as early as 1912. Lee de Forest was broadcasting over his station 2XG in New York City both before and after the war, and 1XE, the AMRAD station near Boston, was also experimenting with voice and music during those same years. 9XM in Madison, Wis., a predecessor to WHA, had been broadcasting weather and market reports in Morse code as early as 1916, although it didn't begin voice broadcasting until November, 1920.

So while KJR in Seattle was certainly not the first station to broadcast, it may be the oldest station to operate continuously from its amateur radio beginnings in 1919 up until the present day.

In future "Roots of Radio" articles, we plan to salute a number of pioneer broadcasters as each reaches its own centennial date. As has been often said: Stay tuned.

John Schneider is a lifetime radio historian, author of two books and dozens of articles on the subject, and is a Fellow of the California Historical Radio Society. Find more history articles by opening the Columns & Views tab at radioworld.com *and then choosing Roots of Radio on the pulldown menu.*

Best of Show Up Close: MaxxKonnect Wireless

"Best of Show Up Close" is a series about participants in Radio World's annual Best of Show at NAB Award program. MaxxKonnect nominated its wireless LTE internet link. President/CEO Josh Bohn says the service provides a reliable link for remote products and sites. Radio One recently signed a deal to deploy MaxxKonnect and MaxxPhone to their sites companywide.

This interview is excerpted; to read the full Q&A see https://tinyurl.com/rw-bohn.

***Radio World:** What is MaxxKonnect?*

Josh Bohn: A prioritized LTE internet service for broadcast applications. We work on the Verizon, AT&T and T-Mobile networks, which gives us flexibility to give customers the carrier that works better in their area. Each of our SIMs comes with priority on the carrier network, plus a true public static IP address, which is crucial for most broadcast applications.

***RW:** What inspired its creation?*

Bohn: In 2014, I had a group of stations I was taking care of. I had one out in the woods, about 14 miles from the nearest cell tower, and 2-1/2 hours from my house. The phone company couldn't even keep a landline into it. It would go off the air, someone would call me and say it was off and I'd call the remote. This call was answered by a "this line is currently out of service" message, followed by me cussing for a bit, then making the long drive out to the woods. I'd arrive, push Plate ON on the transmitter, cuss at is some more, then drive back. A five-hour round tripper to push a button. After about the umpteenth time, I said, "There has to be a better way."

We tried a regular LTE wireless modem and SIM into a Cradlepoint router, which is a fairly standard setup. This succeeded in getting an internet connection into the place, albeit with some external antennas. But it still wasn't very good. And since there wasn't a static IP — or even a public IP — we had to resort to a PC at the site and LogMeIn for any kind of site control or monitoring. This worked but was clunky. The PC would update and cause problems, or wouldn't reboot after a power fail. It was during this stage that I started negotiations with carriers for what would become MaxxKonnect.

Once I was able to negotiate our service with the carriers, we beta tested for over three years.

***RW:** How much does MaxxKonnect cost? Is there a service fee?*

Bohn: Yes. The monthly cost varies based on the amount of data you expect to need. We can do a 1 GB plan for as low as $56 and go all the way up to 100 GB plans. Our most popular plans are 10 GB. These range from $109 per month to $129 per month, depending on the carrier. Another awesome feature of the MaxxKonnect service is if you hit your "data cap," nothing happens to your data stream. We won't throttle you or turn you off. You just get billed for the overage. Broadcasters need reliability and known connectivity, not another headache of wondering if their station or broadcast is going to go off because they exceeded their data cap.

Also, if you purchase multiple plans on the same tier on the same carrier, their data pools together into on big "data bucket." For example, if you get six 10 GB plans on Verizon for your company or station, you don't have six individual 10 GB devices which are subject to overages after 10 GB. You've actually got 60 GB of total data that can be used across all of the devices. If one device uses 45 GB and the others each use 2 GB, you're still under your cap. It's a great way to maximize value for a large scale deployment across a company or group.

***RW:** What does MaxxKonnect consist of?*

Bohn: MaxxKonnect is a service primarily. You must get the MaxxKonnect SIM from Bohn Broadcast — you can't get this directly from the carriers. MaxxKonnect becomes your ISP. You need some type of compatible hardware — which can be provided by the customer or by us. And that's really it. It's very simple from a deployment standpoint.

***RW:** Is there a 5G version in the works?*

Bohn: Most likely, yes. We are currently able to achieve the reliability that we need using the existing 4G LTE technology. However, as 5G continues to roll out, our service will continue to evolve to utilize new technology to maintain our necessary level of reliability.

Running a Radio Station Inside a Tesla 3

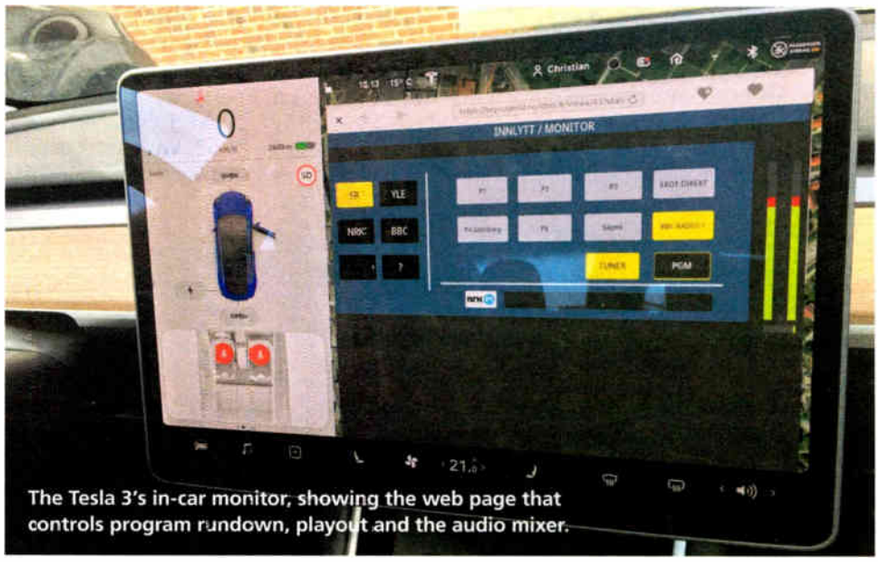
Soundware Norway conducted a unique "broadCARst" using the car's web browser

BY JAMES CARELESS

OSLO, NORWAY — On Sept. 11, Soundware Norway ran a live radio broadcast using the touchscreen monitor inside a Tesla 3 electric car.

Inside the Tesla parked outside Soundware Norway's Oslo headquarters, Soundware Sales Manager Ketil Morstøl managed a mock live broadcast using the Tesla 3's web browser, which accesses the web via the car's built-in LTE wireless modem. The browser was connected to a website hosting Soundware's DHD user interface that remotely controls a DHD-equipped radio production facility, and David Systems' TurboPlayer playout system.

Using the touchscreen display — which showed a standard radio music playlist in the center of the screen and standard on-air control buttons to switch/fade between audio sources and turn microphones on and off on the right side — Morstøl cycled through the functions as if he was doing a live radio broadcast.



The Tesla 3's in-car monitor, showing the web page that controls program rundown, playout and the audio mixer.

"As a proof that we have bidirectional audio, we can switch on the microphone and we will actually see the PPM meter showing the input signal," said Morstøl in a YouTube video entitled "Soundware Norway to Do BroadCARst as World First!" (available online at *www.youtube.com/watch?v=HCdg_qFahRU*). The microphone was sourced from Morstøl's own smartphone, which connected to the web browser by taking a photo of an onscreen QR code.

TAKING CONTROL

This "broadCARst" was staged to promote Soundware Norway's appearance at IBC2019. It sought to show that radio talent can take remote control of their station's live production facilities from any location and run the broadcast as if they were in studio themselves.

Soundware Norway was able to do this demo inside a Tesla 3 because this car has a built-in web browser on its touchscreen display. This same functionality can be accessed using a web-connected laptop, tablet or smartphone. Had he chosen to, Morstøl could have run this demo on a Samsung Family Hub refrigerator — because this fridge has a web-connected touchscreen display built in. "We have pictures of us on Linkedin.com, running a radio studio remotely inside a Boeing 747 at 30,000 feet," he said.

"You can do everything remotely using our DHD interface that you can do in the studio," Morstøl added. "This goes far beyond choosing songs and opening the microphones. You can actually access the mixing desk in the studio, and make and receive telephone calls. We have even integrated an audio codec into the system so that transporting audio data across the web to the studio is easily enabled."

MORE THAN A RADIO REMOTE

Of course, broadcasting radio programs from remote locations is nothing new. The first "radio remote" is believed to have taken place in 1924, when WHN (New York City) station manager Nils Granlund leased Western Union telegraph lines to connect his station to local jazz nightclubs.

Producing complex radio broadcasts from unusual locations is standard fare in the broadcasting industry, where fully mixed programs are relayed back to the studio for direct airing. So if

A closer view of the screen, showing the music playlist and mixer controls.

Soundware Norway's DHD system did nothing more than this — turning a Tesla 3 into a radio production studio on wheels — it would be impressive, but not ground-breaking.

However, Morstol said the Soundware demo showed that the Tesla 3 could serve as a web-based interface for complete remotely controlled radio production.

The demo seems to advance the argument that physical radio production facilities operated by broadcasters who have to be on-site are no longer necessary. Rather than building a 24/7 radio station whose production facilities are only used for live broadcasts at peak hours and otherwise left unused, Soundware's production model makes it possible to use an unmanned "production hub" whose equipment is accessed remotely as needed, and by multiple users/stations at different times of the day.

"Rather in a specific radio station investing in production hardware that is unused most of the day, you could share the costs of hardware across broadcasters and all use a common facility," said Morstol.

In his vision, to cope with the fact that radio broadcasters need production facilities for live morning shows, stations operating in different time zones around the world could do the sharing. As long as Station A is four hours (time zones) ahead of Station B, both could use the same remote production facility sequentially for their four hour-long morning shows.

This same function could be provided by third-party vendors. They could create cloud-based virtual production facilities that radio stations could access remotely, with the mixed radio feeds going directly to their transmitter sites via IP.

Should this come to pass, radio stations would no longer need physical radio production facilities. They could reduce their operations to sales/administration offices and transmitter/antenna sites, with engineering staff located there to handle the remaining physical aspects of radio broadcasting.

Comment on this or any story. Write to radioworld@futurenet.com.

The Soundware Norway production system also supports physical faders; as shown by Ketil Morstol.

KXLU(FM) Improves Signal With Dielectric

Signal strength and efficiency increased, mechanicals improved with reduced radiation exposure

USERREPORT

BY MAKI TAMURA
Chief Engineer
KXLU(FM)

LOS ANGELES — Situated on the campus of Loyola Marymount College, KXLU(FM) serves the Los Angeles region with diverse and commercial-free programming typical of a college radio station. The 3 kW station has been 100% student- and faculty-operated since coming onto the airwaves in 1957.

Operating a commercial-free station also requires wisdom when it comes to technology investments. The reliability and longevity of the equipment are as pertinent as the quality it provides for the audience. This requires careful evaluation of the equipment prior to the final selection, along with assurance that the manufacturer will provide the support and service needed at every stage.

We recently took a closer look at our entire RF transmission chain, and decided it was time to bring our transmission and antenna systems into the next generation. We chose Dielectric to meet our needs. Our previous antenna from another vendor, in operation since 1981, had been showing signs of age. Signal reception was weak to nonexistent in certain areas, and we hoped to improve coverage for these listeners. Our older antenna also had problems propagating RDS data within the transmitted signal, which was an ongoing quality concern.

There were also configuration attributes that had grown less desirable. For example, the original three-bay antenna was designed with full-wavelength spacing between the radiating elements, creating a significant RF field near the tower base. Since this is an on-campus, rooftop antenna in proximity to HVAC, security and cellular antenna systems, we wanted to reduce the RF field near the tower base with a half-wavelength-spaced antenna configuration. The half-wavelength configuration narrows the elevation beam width of the station's signal, and thus reduces the RF exposure to maintenance staff on the roof.

Since this is an on-campus, rooftop antenna in proximity to HVAC, security and cellular antenna systems, we wanted to reduce the RF field near the tower base with a half-wavelength-spaced antenna configuration.

Additionally, the radio signal would bleed into station audio equipment located just below the rooftop antenna tower. The signal was faint, yet distinctly audible. This issue became much more pronounced when, six years ago, KXLU's FM audio processing was transitioned from analog to digital, introducing approximately one second of latency delay before broadcast. This resulted in confusion and irritation to on-air talent and musical guests.

We quickly set our sights on Dielectric upon approval of our budget, choosing a DCR-H3 antenna model. While we were impressed with the engineering quality and general design of the antenna, the responsive customer service we received out of the gate cemented our choice. And with only 10 weeks to install the new antenna, Dielectric confirmed they could design, build and ship the circularly polarized antenna in plenty of time to meet our deadline.

We began by replacing our transmitter, transmission line and some corroded sections of our rooftop tower. The DCR-H3 antenna is about a half-foot wider in diameter than our previous antenna, yet lighter in weight. This lessened the impact on the installation crew and the tower structure, paving the way for a fairly straightforward installation.

Once the new antenna was on the air, we compared the signal strength and quality in locations throughout our broadcast area against the previous system's performance. We immediately noticed the positive impact. It was clear that the transition to Dielectric's half-wavelength configuration improved our signal penetration. In addition to reaching places we previously could not, the overall signal is more robust and coming in stronger, with less multipath, throughout our coverage area. A key reason for this improvement is the superior circularity of KXLU's signal generated by the DCR-H3.

The quality of our audio signal has also dramatically improved. The DCR-H3 provides a much lower VSWR and improved fidelity, especially noticeable at the higher frequencies of music. The audio response would drastically trail off around 15 kHz with our previous antenna. The DCR-H3 delivers a strong, flat response throughout the entire composite audio baseband to 70 kHz, supporting the L+R, stereo pilot, L–R and RDS signals. It was easy to hear the difference in audio and see how much more consistently the RDS delivered program information to listeners.

The DCR-H3 antenna has collectively achieved our goals of reduced rooftop RF exposure, broader signal coverage and improved audio quality. We are very pleased with the performance and the engineering quality of the Dielectric DCR-H3 antenna, which we believe will translate to reliability and longevity. We are also impressed with Dielectric service, and know that we can call on them anytime we have questions or concerns.

For information, contact Kim Savage at Dielectric in Maine at 1-800-341-9678 or visit www.dielectric.com.

TECHUPDATE

ISS "AMREADY" MAKES A LOW-COST AUXILIARY AFFORDABLE

Information Station Specialists offers "AMReady" products, designed to assist AM broadcasters in maintaining service affordably when circumstances become extraordinary such as tower failure, sudden site moves or maintenance of a temporary service (STA).

Solutions include antennas such as the company's new HPR.0990 High Performance AM Antenna (pictured), which can be connected directly to a station's main transmitter at up to 300 watts of output. It is a center-loaded, bottom-fed whip design — tapering from its 2.5-inch diameter base (to maximize wind-resistance and bandwidth) up to its capacitive hat, which optimizes efficiency. The antenna can be installed guyed or unguyed using a universal side-mounting format on a short (20-foot) pole or tower top. While a tuning network may be used, it is not required, as an optional matching transformer will suffice.

The multisection antenna is 32 feet long assembled, and weighs in at 30 pounds, making it inexpensive to ship. Assembly time is 30 minutes. Erected, its height above ground can be less than 50 feet, allowing it to duck under many local zoning ceilings. Manufactured by long-time antenna partner Morad Antenna Co. for Information Station Specialists, the HPR.0990 is a suitable candidate as an auxiliary AM antenna solution.

An AMReady package can include support poles or masts, cabinets and accessories such as transformers, lightning arrestors or cable, and quick-deploy ground planes in various sizes. Low-power (10 W) transmitters/antennas are available, if needed.

For information, contact Information Station Specialists in Michigan at 1-616-772-2300 (Ext. 102) or visit www.theradiosource.com.

TECHUPDATES

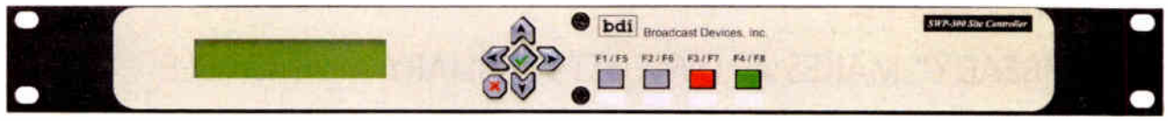
ALDENA EXPANDS HIGH-POWER ANTENNA RANGE

Aldena's range of FM antennas now includes three specific solutions for high-power applications (up to 12 kW per each antenna).

The ACF218 is a broadband FM double-crossed aluminum dipole antenna featuring omnidirectional patterns with preferred direction. The ASE 01022x0 is a broadband FM dipole antenna in welded aluminum or stainless steel, also with omnidirectional patterns with preferred direction, while the ASR0318 is a broadband-FM three-element yagi.

As for the firm's Band III DAB antennas, Aldena has added to its range of ADC wideband VHF Band III range with the new ADC0x04110. Particularly suited for DAB+ applications, the lightweight ADC omnidirectional series of antennas feature a gain of up to 6.5 dB and vertical polarization.

For information, contact Aldena Telecomunicazioni in Italy at +39-9039-0461 or visit www.aldena.it.



BROADCAST DEVICES ADDS ACCESSORIES TO SWP-300 REMOTE CONTROL LINE

The Broadcast Devices SWP-300 remote control is an SNMP web-based transmitter site remote control with direct interface for up to two motorized RF switches and direct connection to BDI DPS-100D series power meters where no separate RF switch controller is needed. BDI also offers premade and tested RF switch interface cables for all popular RF switches made.

It occupies only one rack unit. Other features include 16 onboard control outputs, eight status inputs and four analog inputs.

Now available is the 2RU IOX-24 expansion panel; it provides an additional 24 status inputs, control outputs and an additional eight analog inputs. The IOX-24 panel can be ordered with a new system or added later as requirements grow. It can placed anywhere in the transmitter plant with a Cat-5 connection utilizing BDI Bus.

Other accessories for the SWP-300 include the new TX I/O module kit, which provides essential connection of TX On/Off, external interlock input and TX On/Off status by Cat-5 cable runs. Install this board inside the transmitter and the command/status connections can be made with running additional cables.

The SWP-300 can act as a standalone remote control or interfaced to other SNMP remote control systems or SNMP software packages. The SWP-300 includes the BDI Stack Graphical User interface for remote monitor and control via Windows 7, 8 and 10 and Android operating systems.

For information, contact Broadcast Devices in New York at 1-914-737-5032 or visit www.broadcast-devices.com.

KINTRONIC OFFERS FM DUMMY LOADS AND NEW MOTORIZED COAXIAL SWITCHES

Dummy loads are used to facilitate the off-air full power testing of an FM transmitter in the event that the main transmitter or auxiliary transmitter fails and needs to be taken off the air for repair, servicing and eventual restoration to on air status.

Kintronic Labs offers a line of convection/forced air-cooled FM dummy loads having an input impedance of 50 + j0 ohms in the DC-110 MHz band.

These are available for indoor or outdoor use in weatherproof designs and rated for transmitter input powers of 5 kW; 7.5 kW; 10 kW; 25 kW; 50 kW or 75 kW.

Each Kintronic dummy load can handle Peak Envelope Power of up to twice the average power rating for FM + HD and HD Radio. FM dummy loads for pulse applications require custom design involving peak voltage and current, and peak energy levels.

In addition to FM dummy loads, Kintronic is introducing a motorized coaxial switch designed for FM and TV applications. They can be used as double-pole/double-throw (DPDT) (i.e. main transmitter to antenna and aux transmitter to dummy load) or just as single-pole/double-throw (SPDT). Several switches can be interconnected to allow complex switching configurations.

These have FM input powers of 500 W; 2 kW; 5 kW; 10 kW; 40 kW or 85 kW. Switch over time is 3 seconds. The coaxial switches can be operated manually in case of power outage. Isolation between inputs is >60 dB.

For information, contact Kintronic Labs in Tennessee at +1-423-878-3141 or visit www.kintronic.com.

SHIVELY BRANCHES OUT WITH COMBINER

Shively Labs says that its 2930 low-power branched combiner is an ideal solution for multiple stations.

The company can custom-engineer a client's system using either 2914 or 2916 bandpass filtering that will provide higher spectral purity, flat in-band frequency response and typical isolation values of 50 dB or higher — even for frequencies 0.8 MHz apart.

Each combined system is designed to provide high performance in the smallest space possible and are fully IBOC compliant, Shively says.

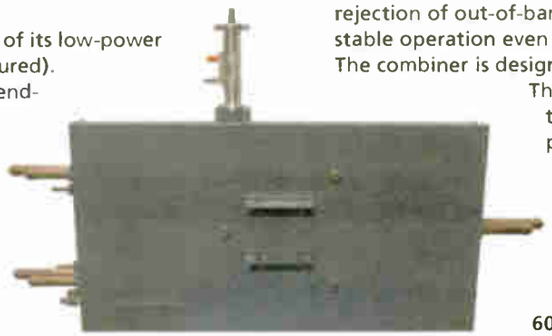
For information, contact Shively labs in Maine at 1-207-647-3327 or visit www.shively.com.

LOW-POWER INTEGRATED FM CHANNEL COMBINER FROM ERI

Electronics Research Inc. has updated the design of its low-power integrated FM channel combiner, Model FI136 (pictured).

This compact and easily installed combiner is intended for use with FM translators and low-power FM facilities. It combines any two FM channels, with a minimum spacing of 1.6 MHz, into a single output to be fed to a broadband FM antenna.

The FI136 has 7-16 DIN, female inputs, that are rated to handle 750 watts each for a combined output power handling capability of 1.5 kW. The FI136 is available with a 7/8-inch or 1-5/8-inch output and includes a single-port directional coupler at the combined output to allow for intermodulation product measurements.



The combiner is constructed from a lightweight aluminum housing with copper resonators. The design includes nonadjacent coupling, which increases rejection of out-of-band emissions, and features temperature compensation for stable operation even with varying ambient temperatures and at initial startup. The combiner is designed to allow for retuning with a minimum of disassembly.

The FI136 includes mounting tabs for attachment to the transmitter building wall or ceiling, with customer supplied hardware.

ERI also manufactures the FI836, a high-power integrated FM channel combiner that is available to combine any two FM channels, with a minimum spacing of 1.8 MHz, with power handling capability of up to 30 kW at each input, 60 kW at the combined output.

For information, contact ERI in Indiana at 1-812-925-6000 or visit www.eriinc.com.

SHOWCASE

PRODUCTS & SERVICES SHOWCASE

TECHUPDATES

BEXT IMPROVES ANTENNA LINE

Bext Corp., a supplier of broadcast antennas, RF combiners, RF filters and transmitters, said it has upgraded its stainless steel antennas.

Described as rugged and durable with good performance, its broadband models now also have improved flatness. Bext says the result is "near perfect" broadband response on the 88 to 108 MHz FM band.

Bext said it worked to refine details for the purpose of making sure that FM stations on any channel with any number of bays could rely on a good return loss and a very low VSWR with no tweaking required. It said this is particularly important in cases when two or more stations operating on widely spaced frequencies are combined into the same antenna system.

The company also offers a broad line of RF combiners for those kinds of projects.

Some of the company's popular models are the TFC2K, TFC2K-D (pictured) and the TFLBDI. Power ratings are up to 7 kW per bay. Radomes are available. Bext offers phone tech support with live persons to help anyone who has questions during or after installation of a Bext product.

For information, contact Bext in California at 1-888-239-8462 or visit www.bext.com.

NEW SINE CONTROL POWERCLAMP SERIES ARRIVING

Sine Control Technology, maker of PowerClamp Surge Protective Devices, soon will introduce Series 200 PowerClamp models. The company says this new series of power line surge suppressors will be suitable for use at broadcast station transmitter sites and other installations that require clean and reliable AC power.

The Series 200 units will be rated at 200,000 amps-per-phase of surge suppression capacity, and will be available for single-/split-phase and three-phase WYE electrical service in standard voltages. The Series 200 units will suppress short-term power line surges to within a few volts of the sine wave, thus protecting transmitters from AC spikes that cause serious damage and unreliable operation. The design features internal LEDs to indicate if a fuse needs replacement, and remote status monitoring that can be interfaced to any transmitter remote control system.

The company notes that solid-state transmitters with switching power supplies are especially vulnerable to power line spikes and surges. These AC power disturbances can cause irreparable damage to power supply components. It says the Series 200 PowerClamp surge suppressors will reduce the chances of damage significantly and keep the transmitter on the air.

Series 200 PowerClamp units are housed in a NEMA-rated enclosure with critical components hermetically sealed to prevent degradation. They are installed in parallel with the transmitter electrical service. Load-matching is not required, and power to the transmitter is not interrupted even if a PowerClamp fuse opens.

Series 200 PowerClamp units will be available in early 2020 from Sine Control/Henry Engineering dealers.

For information, contact Sine Control/Henry Engineering in California at 1-562-493-3589 or visit https://henryeng.com/powerclamp.

BROADCAST EQUIPMENT EXCHANGE

ANTENNAS/ TOWERS/CABLES

WANT TO SELL

CCA FM8000G Trans 107.9, great cond; 4-Bay Jampro antenna w/deicers; 3-bay Shively antenna FM. D Brockman, 606-965-3436.

AUDIO PROCESSING (INCLUDES ON-AIR)

WANT TO BUY

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST - 214 738-7873 or sixtiesradio@yahoo.com.

Wanted: real plate reverb. abgrun@gmail.com.

ANTENNAS

MICROPHONES/ HEADPHONES/ SPEAKERS/AMPS

WANT TO SELL

1934 RCA 77A double ribbon microphone, originally used by Arthur Godfrey at WFBR Baltimore. 100% perfect condition. Contact Bill Cook, 719-684-6010.

WANT TO BUY

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 214 738-7873 or sixtiesradio@yahoo.com.

MISCELLANEOUS

WANT TO SELL

UPGRADE consoles to international specs with world standard Weston 30B illuminated 4" vu meters. 4 in like-new condition. GramOphone@earthlink.net

I'm selling between 150 and 200 cassette tapes that consist of old-time radio shows, sports shows, some local New York radio talk shows, etc... Must take entire collection and the price is negotiable. Please call me for details and, my phone number is 925-284-5428.

Radio broadcasts of Major League Baseball, NFL, and some college football games that are on cassette tapes, approx 100 to 125 games, time period of entire collection os from the 1950's – 1970's, BO. Must purchase entire collection. Contact Ron, 925-284-5428 or ronwtamm@yahoo.com

WYBG 1050, Messina, NY, now off the air is selling: 250' tower w/building on 4 acres; 12' satellite dish on concrete base; prices drastically slashed or make offer. 315-287-1753 or 315-528-6040

WANT TO BUY

Collector wants to buy: old vintage pro gears, compressor/limiter, microphone, mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035 or ilg821@aol.com.

Wanted: ITC interconnect cables between ITC cart machine and record amp. Manual and idlers for Harris CB-1201 turntables. Don, k8drs1@gmail.com

Equipment Wanted: obsolete, or out of service broadcast and recording gear, amplifiers, processing, radio or mixing consoles, microphones, etc. Large lots preferred. Pickup or shipping can be discussed. 443-854-0725 or ajkivi@gmail.com.

MISCELLANEOUS

WANT TO BUY

2" plastic "spot" reels 6.5 or 8" diameter, as used for quad video. Wayne, Audio Village, 760-320-0728 or audiovlg@gte.net.

I'm looking for KFRC radio special of Elvis Presley which aired on January 8, 1978. I'd be willing to pay for a digital copy. Ron, 925-284-5428.

I'm looking for KTIM, AM,FM radio shows from 1971-1988. The stations were located in San Rafael, Ca. Ron, 925-284-5428.

I'm looking for the Ed Brady radio show in which he did a tribute to Duke Ellington, the station was KNBR, I'd be willing to pay for a digital copy. Ron, 925-284-5428.

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSFX, KOBY, KCBS, KQW, KRE, KTIM, KYA, etc, I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@yahoo.com.

Looking for a broadcast excerpt of a SanFrancisco Giant's taped off of KSFO radio from 1959, interviews with Willie Mays, Dusty Rhodes & some play by play excerpts, also features a homerun by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

Looking for KFRC signoff radio broadcast from 1930 Andy Potter, running time is 0:22 & also the KLX kitchen the program guest is Susanne Caygill, a discussion of women's affairs with a long promotion for Caygill's appearance at a local store. Anne Truax, Susanne Caygill, running time is 13:44. Ron, 925-284-5428 or email ronwtamm@yahoo.com.

Looking for K5FX radio shows, Disco 104 FM, 1975-1978. R Tamm, 925-284-5428.

Looking for KTIM FM radio shows from 1981-1984 if possible unscoped. R Tamm, 925-284-5428 or ronwtamm@yahoo.com.

RECEIVERS/ TRANSCEIVERS

WANT TO SELL

Johnson Electronic 5CA880 module, 67/92 Khz, 417-881-1846.

CONSULTANTS

WANT TO BUY

AM Stereo radio. Call 417-881-1846.

RECORDING & PLAYBACK HARDWARE

WANT TO BUY

1960s-vintage MacKenzie Repeater machines, magazines, spare parts and manuals, complete or "parts" machines considered, James, 870-777-4653.

Schnader telescriptions 16 mm musical films produced in the early 50s. Bill Cook, 719-684-6010.

Large or small collections of 16" transcriptions or 12" transcriptions, not commercial LPs. Bill Cook, 719-684-6010.

Standard Short-tune series. Bill Cook, 719-684-6010.

(2) LPFM radio stations for sale, located in the NW part of central Florida on the gulf coast, covers the county, get out of the cold weather, come to Florida, call or write for particulars, 352-613-2289 or email boceey@hotmail.com or Bob, PO Box 1121, Crystal River, FL 34423.

RF CONNECTORS

WANT TO SELL

RF CONNECTORS & GADGETS – Parts, Products & More! www.W5SWL.com

TAX DEDUCTIBLE EQUIPMENT

Donate your broadcast facility; IRS approved 501(c)(3) nonprofit charitable organization. Fair market value. License (AM/FM/FV), land, building, tower, equipment, etc. The Augustus Foundation, Inc., 2902 Main Street, La Marque, Texas 77568. (409) 359-3435. Contact Dr. M. Augustus

TRANSMITTERS/ EXCITERS/TRANSLATORS

WANT TO SELL

BE-25T 25KW FM transmitter 2007 frequency agile tube transmitter in good working condition on 90.7 (all its life) when pulled from service. Approx. 6 mos. on rebuilt tube and a newly rebuilt fan motor, also spare optical modules, manuals and maintenance logbook. $17,500/OBO. As-is, where-is: Hayward, CA, Jeff Cotton, 530-279-6262 or info@kdup.org.

BE 35kW FM, and QEI 3.5kW FM. Make an offer on either or both. All working when removed. Steve Tuzeneu 704-973-0438 (9 a.m. to 4 p.m., Monday-Friday) or stuzeneu@bbnmedia.org

EMPLOYMENT

POSITIONS WANTED

Are you a small market station needing a good nuts & bolts engineer in the Los Angeles area? I will make your station shine! CET, fully FCC Licensed. Available for Full/Part-time/Contract work. Available immediately. Mitchell Rakoff, 909-446-6820, mitchellrakoff@yahoo.com.

SITUATIONS WANTED

Manager-engineer with multiple decades of experience in many areas, seeks full-time executive level position (G.M.) or higher with CCM, modern Inspo, or G-rated family-friendly secular format(s). Prefer warm climates. Send complete details to: radiogm@hotmail.com

READER'S FORUM

DIGITAL RADIO

It's nice that the FCC wants to give stations the choice. AM's quality problems started long before HD started. It has only gotten worse.

However the sentiment that stands out is that "AM suffers from a lack of interest." Not mainly because of audio quality but mainly because of *content* quality. The name of this business is BROADcasting, and there are so few broadcasting stations on AM these days. Many are now so narrow that it's difficult to gather an audience.

There are of course the signal disparities, but mainly it's content. Most AM stations are also available on another receiver: a cell phone. Is their online presence helping them? If not the content should be looked at.

Radio has been saddled with putting an amazing amount of revenue to the bottom line at the expense of content. Any worthwhile broadcaster would think twice about eliminating more than 75% of its audience by going all-digital.

It's content that drives the medium. Imagine if Disney's business model was like radio. It would be out of business in about 10 minutes. Time to get to the heart of the problem if we really want it fixed. We do seem to be transfixed on going in the wrong direction time and time again.

This is just one man's opinion, but I think you'd be hard-pressed to find another underlying reason why AM is in such trouble. We have too many brilliant technicians in our industry who could fix the technical issues in a heartbeat. We've got to fix the content issue.

Dave Mason

YOU CAN'T FIX STUPID

Getty Images/Ponsulak Kunsub Eyetm

The article "Fires, Your Station and You" by Buc Fitch (*radioworld.com*, search "Fitch Fire") was a great reminder to take a look around and introduce some common sense into planning for something we hope never happens.

As the chief of a volunteer fire department, I see lots of foolish and sometimes even borderline criminal things. Our mantra, unfortunately, is "You can't fix stupid."

Here are a couple of quick items to add to the sensible suggestions in that article:

1. All of that wiring and plastic in your station gives off nasty gases when it burns; and though the smoke from plenum rated cable is supposed to be "less toxic," they stop short of calling it "non-toxic." Even if the smoke is not obscuring your vision, there's a good chance you are breathing stuff that your life insurance carrier would prefer you do not. If you can't knock down a fire quickly with a single extinguisher, consider backing out; and make sure you close the door to limit the oxygen supply to the fire. That last part is very important. As you plan your fire escape strategy with staff, make sure they understand that exiting the building and leaving every door wide open is a great way to provide all the oxygen that a fire needs to spread.

2. Call the fire department — not when your station is already on fire, but before anything happens. Most fire departments are happy to do a "pre-plan" walk-through with you, which may also buy you some good will when they point out that you have code violations. Keep in mind that should those violations be discovered after you have a fire and someone is seriously hurt, the consequences will be significantly more unpleasant than the embarrassment of discovering them as you walk through with the fire department.

   A pre-plan will not only be informative for you and management but will also give the fire department an opportunity to see the layout of your facility and identify any hazards that might lurk there when they do respond with your building full of smoke and time is of the essence.

3. Fire extinguishers need to be checked and recharged. Since you are going to pay someone to do so, consider having your staff practice with them as part of your ongoing maintenance cycle. The time to learn how to use one correctly is NOT when you actually need to use one.

4. While on the subject of not learning things when you need to use them, consider bringing in a CPR instructor to do a class for your staff. One of your fellow employees might save your life, and they will certainly be grateful if they save a family member using training you forced them to take.

Ron Rumetz N1WT
Director of Engineering
Broadcast Devices Inc.
Alburgh, VT

Write to RW
Email **radioworld@futurenet.com** with "Letter to the Editor" in the subject field. Please include issue date and story headline.

Open the door to *your* possibilities!

Powerful, state-of the-art automation with the flexibility to grow with you...

- The power of OPX in one stand-alone computer
- Easy to learn
- The power to handle the largest audio libraries
- Satellite and live programming
- Additional stations
- Remote voicetracking
- Remote control

OPX ONE

BSI

Call (888) 274-8721

(888) BSI-USA-1

or email us at sales@bsiusa.com

ELENOS®

World Broadcast Experience

*Valid until January 10th

CRAFTED WITH PRECISION

The product of **40+ years** of broadcast engineering experience

LIMITED TIME OFFER*

Made in Europe,
Designed in Italy,
supported from the USA

Two (2) 500W transmitters for only $3,999.99.
Or one for just $2,200.

High efficiency

Extremely low-power consumption and reduced operating costs.

Smart functions

Extraordinary performance through the use of powerful operating algorithms. These software allow the transmitter to adapt to environmental conditions allowing peak RF operation and superior audio quality.

Compact size

Two rack units in height, with a weight of less than 30.8 lbs, unmatched power versus volume and power versus weight ratio.

Exceptional stability

Repeatability, reliability and ease of maintenance through the use of planar technology within the entire RF section. This allows for the minimization of internal connections soldering and manual tuning, which increases the long term operation and performance of the equipment.

Controllable

Standard interface TC/TS (Telecontrol/Telesignal) for integration with traditional remote control and monitor systems

Choose BE,
part of the Elenos Group
with a combined 40,000 installations worldwide

elenos group

ELENOS BE itelco PRO TELEVISION

24/7 SERVICE AND SUPPORT
FROM BE IN QUINCY, IL - USA
+1-217-224-4700

BE Broadcast Electronics
Radio & TV Broadcast Equipment
and Solutions Worldwide

www.bdcast.com

BE 60th ANNIVERSARY

Broadcast Electronics