

RADIOWORLD

Your guide to radio technology

radioworld.com | February 2 2022 | \$5.00

Campaign aims for global CAP adoption

"CAP makes public alerting faster, easier, less error-prone and more understandable."



It's NotaBotYet

A wife-and-husband team offer solutions for common tech problems.

Radio's Holy Grail?

Fred Baumgartner says NextGen TV is tapping us on the shoulder.

Workbench

Using an Octopus to check components.



#BXNNTQJ *****AUTO**3-DIGIT 922
#0009751 9# RDWA 0009751 E2111
DAVID GLEASON
CONSULTANT & MUSIC SPECIALIST
116-1SDL
80960 BELLEVIEW
UNIVISION RADIO
LA QUINTA CA 92253-5647
P0002
000003918



DAD RADIO AUTOMATION

DAD is the trusted audio automation system for stations across the nation.

See what DAD can do for you at www.ENCO.com/demo.



IP...NOW is the time



DMX The Wheatstone IP bargain!
YES – With an Engine full of Studio I/O & EQ/Dynamics too!

AES67INSIDE

audioarts.com/dmx-rw20B

CONTENT

Managing Director, Content & Editor in Chief Paul J. McLane,
paul.mclane@futurenet.com, 845-414-6105

Technical Advisors Thomas R. McGinley, Doug Irwin

Technical Editor, RW Engineering Extra W.C. "Cris" Alexander

Contributors: Susan Ashworth, David Bialik, John Bisset, Edwin Bukont, James Careless, Ken Deutsch, Mark Durenberger, Charles Fitch, Donna Halper, Alan Jurison, Paul Kaminski, John Kean, Larry Langford, Mark Lapidus, Michael LeClair, Jim Peck, Mark Persons, Stephen M. Poole, James O'Neal, John Schneider, Dan Sientz, Randy Stone, Tom Vernon, Jennifer Waits, Steve Walker, Chris Wygal

Production Manager Nicole Schilling

Managing Design Director Nicole Cobban

Senior Design Directors Lisa McIntosh and Will Shum

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 1051, Lowell, MA 01853.

Licensing/Reprints/Permissions

Radio World is available for licensing. Contact the Licensing team to discuss partnership opportunities.

Head of Print Licensing Rachel Shaw licensing@futurenet.com

MANAGEMENT

Senior Vice President, B2B Rick Stamberger

Vice President, Sales & Publishing, B2B Aaron Kern

Vice President, B2B Tech Group Carmel King

Vice President, Sales, B2B Tech Group Adam Goldstein

Head of Production US & UK Mark Constance

Head of Design Rodney Dive

FUTURE US, INC.

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



All contents ©Future US, Inc. or published under licence. All rights reserved. No part of this magazine may be used, stored, transmitted or reproduced in any way without the prior written permission of the publisher. Future Publishing Limited (company number 02008885) is registered in England and Wales. Registered office: Quay House, The Ambury, Bath BA1 1UA. All information contained in this publication is for information only and is, as far as we are aware, correct at the time of going to press. Future cannot accept any responsibility for errors or inaccuracies in such information. You are advised to contact manufacturers and retailers directly with regard to the price of products/services referred to in this publication. Apps and websites mentioned in this publication are not under our control. We are not responsible for their contents or any other changes or updates to them. This magazine is fully independent and not affiliated in any way with the companies mentioned herein.

If you submit material to us, you warrant that you own the material and/or have the necessary rights/permissions to supply the material and you automatically grant Future and its licensees a licence to publish your submission in whole or in part in any/all issues and/or editions of publications, in any format published worldwide and on associated websites, social media channels and associated products. Any material you submit is sent at your own risk and, although every care is taken, neither Future nor its employees, agents, subcontractors or licensees shall be liable for loss or damage. We assume all unsolicited material is for publication unless otherwise stated, and reserve the right to edit, amend, adapt all submissions.

Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by Future US, Inc., 130 West 42nd Street, 7th Floor, New York, NY 10036. Phone: (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, PO Box 1051, Lowell, MA 01853.



Future plc is a public company quoted on the London Stock Exchange (symbol: FUTR)
www.futureplc.com
Chief executive Zillah Byng-Thorne
Non-executive chairman Richard Huntingford
Chief financial officer Penny Leddin-Brand
Tel +44 (0)1225 442 244

Recycle Please recycle. We are committed to only using magazine paper which is derived from responsibly managed, certified forestry and chlorine-free manufacture. The paper in this magazine was sourced and produced from sustainable managed forests, conforming to strict environmental and socioeconomic standards. The manufacturing paper mill and printer hold full FSC and PEFC certification and accreditation.

Audio streaming metadata is in the spotlight

NRSC working group plans a guideline document



Paul McLane
Editor in chief

There's a new effort afoot to develop a guideline for the use of metadata that accompanies audio streamed by radio stations.

The National Radio Systems Committee is a technical standards-setting body co-sponsored by the National Association of Broadcasters, representing the transmission side of the radio broadcast industry, and the Consumer Technology Association, representing

the reception side.

The NRSC's Metadata and Streaming Work Group, or MSWG, has a new chair, consultant David Bialik of David K. Bialik & Associates, succeeding Alan Jurison. That working group is part of a larger Data Services and Metadata Subcommittee, or DSM, chaired by Steve Shultis, CTO of New York Public Radio.

Bialik, whose articles about streaming and AES standards are familiar to Radio World readers, will be responsible for leading development of NRSC-G304, a guideline for streaming audio metadata.

"David's expertise in the area of streaming for broadcast audio will be put to good use as the new chair," Shultis said in the announcement. "Radio broadcasters rely increasingly upon their audio streams and the NRSC is eager to help develop better standards in this area."

The planned document is a guideline for radio broadcasters describing how to use metadata on the streaming audio versions of radio broadcast programs, Bialik told me.

"It focuses on the HTTP live streaming (HLS) method of audio streaming as this has become a de facto standard within the radio broadcasting industry."

People who are interested in participating in this work should email David Layer at dlayer@nab.org.

THIS ISSUE

NEWS

3 From the Editor

4 Newswatch

5 FCC raises broader questions about EAS

FEATURES

12 Workbench: Use an Octopus to check components

18 Dan Houg leaves with a job well done

22 Campaign aims for global CAP adoption

GM JOURNAL

24 Radio, influencing the future for good

STUDIO SESSIONS

26 NotaBotYet has SolutionsForYou!

OPINION

29 NextGen TV is tapping us on the shoulder



On the cover

Eruption of La Soufrière Volcano on St. Vincent, April 21, 2021. See story, page 22. (Photo: Kingsley Roberts/AFP via Getty Images)



No More Filings in CDBS

With only a day or so of notice, the FCC's Media Bureau in January announced that its Consolidated Database System online filing system, launched in 2000, would no longer accept filings.

It announced new and apparently transitional procedures for several types of filings that until then were still being submitted in CDBS, ones that cannot yet be entered in the newer LMS.

The move was necessary due to what the FCC called "pressing technical issues that prevent effective use of CDBS going forward and to facilitate the ongoing transition of all filings to the Licensing and Management System."

The new procedures are apparently transitional, but the Media Bureau emphasized that it expects this to be "a permanent sunset of the use of CDBS for Media Bureau filing."

Until further notice, broadcasters need to submit those FCC forms not currently accepted in LMS as an attachment in an email in PDF format, and the FCC staff will enter them manually into its system.

Here's a sample of filings that now must be submitted by email: special temporary authority engineering requests; change in official mailing address; FM digital notification; silent STA; and several types of AM applications.

The majority of broadcast filings had already migrated off CDBS, including FM and FM NCE applications for CPs.

For the full list and for emailing instructions, see www.fcc.gov/document/media-bureau-announces-new-filing-procedures. 



Translator Growth Spurt Continues

The latest station totals from the FCC showed a continuing boom in the number of FM translators and boosters.

As of Dec. 31, 2021, there were 8,866 licenses in that category, an increase of 446 from a year earlier.

Ten years ago, the number was 6,099; it has grown 45 percent since then, helped in part by the FCC's AM revitalization initiative, HD Radio multicast rebroadcasts and other spectrum strategies.

As of the end of 2021 there were 4,509 AM licenses, a slight decline from the year before. The number of AMs peaked at around 5,000 in the 1990s.

There were 6,676 commercial FMs and 4,204 FM educationals in the latest report, with only minor changes from the prior year. But the latter category will grow soon, given that the commission recently opened a window for new noncommercial educational FM construction permits and received almost 1,300 applications.

The number of low-power FMs is 2,069, down by 67 from the end of 2020. 



REMOTE CONTROL READY TO GO

BURK
TECHNOLOGY

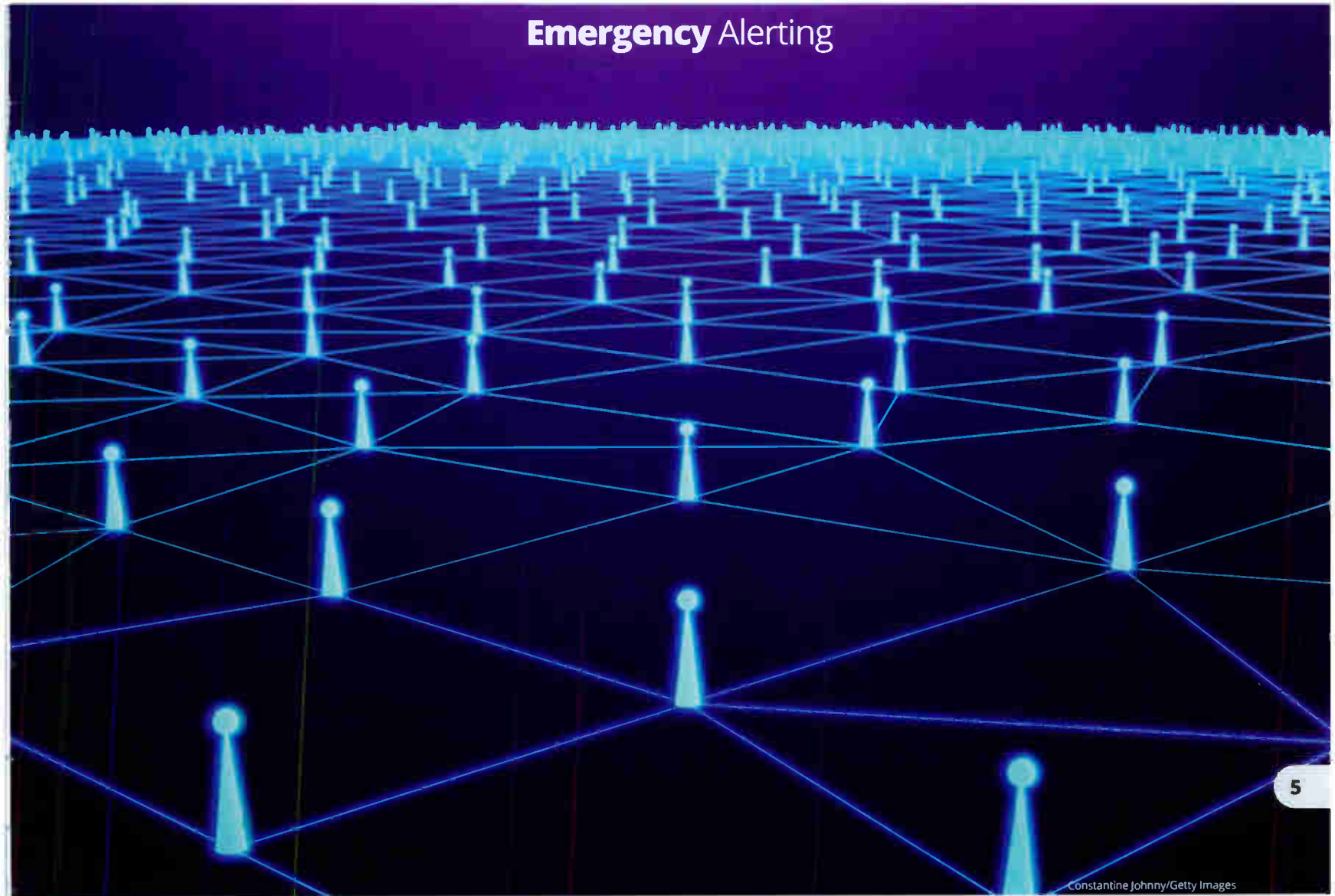
Preconfigured systems mean reduced deployment time and lower cost. Let the experts at Burk customize your system to meet your unique requirements. Your new ARC Plus or ARC Solo will arrive ready to run with monitoring and control channels, Jet™ Active Flowcharts and AutoPilot® custom views created specifically for your site.

ARC NOW



Burk helps you stay on the air 24/7/365.
Call us at **866-903-2157** or visit www.burk.com

 **MADE IN THE USA**



Constantine Johnny/Getty Images

Writer



Randy J. Stine

Radio World's lead news contributor interviewed Commissioner Nathan Simington in the Jan. 19 issue

FCC raises broader questions about EAS

In proposing to improve visual alerts, it also raises larger issues

The FCC clearly has been giving a lot of thought to the state of the Emergency Alert System. The commission spent much of 2021 reviewing EAS for ways to tweak it, as mandated by Congress; and it has taken some steps, such as requiring State Emergency Communications Committees to meet at least annually and to submit plans for FCC approval. It is exploring other ideas such as internet alerting, as we've reported.

Another Notice of Proposed Rulemaking, opened at the FCC's December meeting, deals mainly with video accessibility but has some radio implications. And a

companion Notice of Inquiry asks about further changes that could affect EAS and radio much more broadly.

Better crawls

The EAS system consists of both the legacy broadcast infrastructure as well as an internet-based Common Alerting Protocol structure, which has better visual messaging capabilities.

In its NPRM, the FCC proposes first to clarify the visual crawl for legacy-based nationwide EAS tests — like the National Periodic test last August — by requiring TV stations and other video service EAS participants to use scripted text as opposed to constructing the visual crawl from the header code.

The crawl text would be “This is a nationwide test of the Emergency Alert System issued by the Federal Emergency Management Agency covering the United States from [time] to [time]. This is only a test. No action is required by the public.”

In its notice the FCC asks a series of questions about that proposal, including whether for reasons of consistency it should also apply to CAP-based nationwide EAS tests, or whether doing so would limit the flexibility of CAP alerts.

The commission then also proposes to change the terminology for the nationwide test event code or NPT from “National Periodic Test” to “Nationwide Test of the Emergency Alert System.” The NPT code itself would stay the same but the name seen by the public would be clearer.

The commission pointed out that FEMA separately has recommended a change in terminology for the PEP originator code from “Primary Entry Point system” to “National Authority.”

If both of these changes were adopted, the FCC said, the minimum required information in a CAP-based nationwide test visual crawl would change from “The Primary Entry Point system has issued a National Periodic Test for the United States beginning at [time] and ending at [time]” to “The National Authority has issued a Nationwide Test of the Emergency Alert System for the United States beginning at [time] and ending at [time].”

It wants to know, among other things, if these changes will make the visual message for CAP-based nationwide EAS tests more understandable and informative, or if other language would be clearer.

Polling IPAWS

All of the above is aimed at video service providers but sets the stage for consideration of additional changes with more relevance to radio.

The second major proposed step in the NPRM is to require EAS participants, including radio stations, to “poll” IPAWS, the Integrated Public Alert and Warning System, when they receive a legacy-based state or local area EAS alert, to confirm whether there was a CAP



Terminology

CAP is an open, interoperable, XML-based standard that can be used to convey a variety of information.

CAP messages contain standardized fields that facilitate interoperability between devices.

CAP also is backward-compatible with the EAS Protocol in that it can be used to relay the same data. EAS Participants must be capable of converting CAP EAS alert messages into EAS Protocol-compliant messages for distribution over legacy EAS.

version available, and to process that alert instead. National Weather Service alerts would be included in this requirement. (NWS alerts are not currently sent on the IPAWS EAS feed.)

The goal is to promote the use of CAP and its capacity to provide matching visual and audio messages.

The FCC noted that EAS participants typically receive legacy and CAP versions of an alert at different times, and the rules don't specify which version gets delivered. The rules do allow participants to check for CAP versions of state and local legacy EAS alerts but they don't require it. Unless a station has programmed its equipment to check for a CAP version when it gets a legacy version, the equipment will process whichever is received first.

But CAP allows alert originators to relay enhanced text that can transcribe full audio messages, allowing visual messages that can match longer audio messages. And the FCC believes that any encouragement of the use of CAP versions is beneficial, because those alerts have more information, potentially including visual and audio messages that match.

The commission asks for feedback on that proposal, including whether it could be achieved via a software update and whether there are other ways to facilitate the use of CAP by alert originators with enhanced text that transcribes the verbiage in the audio message.

The FCC isn't proposing to extend this proposed CAP prioritization mandate to nationwide EAS tests, which often are used to test performance in distributing a presidential EAN message under circumstances where only legacy EAS is available. But it did ask for comment on whether it should do so.

It also asks whether EAS participants should be allowed some minimum timeframe when polling IPAWS before determining that no CAP version is available. And it asked if its CAP prioritization proposal should include required monthly and weekly tests.

Longer view

Along with the NPRM proposals described above, the FCC issued a notice of inquiry, asking for comment on more steps that could improve the accessibility and utility of EAS.

6

“ [A]re there other aspects of CAP we should explore or enable to increase the utility of the EAS to alert originators and the public, and in particular, persons with disabilities? ”

Team Work makes the

DREAM WORK

with ViA & Gateway 4 IP Audio Codecs



Team Up with Tieline for Your Next Remote

Dream of remote broadcast possibilities when you combine the award-winning ingenuity, flexibility, and redundancy delivered by ViA and Gateway 4 codecs. With unrivalled network connectivity options, flexible multi-stream connections, and full remote control – the world is at your fingertips.

- The ViA delivers 7 IP interface options and supports mono, stereo, double mono, triple mono, or stereo plus mono.
- The Gateway 4 provides two stereo connections, or one stereo and two mono connections, or up to 4 mono connections.



Americas: +1-317-845-8000
sales@tieline.com
tieline.com

Tieline 
The Codec Company

International: +61-8-9413-2000
info@tieline.com
tieline.com

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

The commission uses NOIs as a way to create a dialogue about longer-term questions and possibilities that are not immediately on the table.

Again, much of the NOI's discussion was about video yet it overlaps with radio interests.

The FCC points out that EAS is an audio-based system and that the legacy portion of the infrastructure was not designed with visual display of text in mind.

In legacy-based alerts, originators currently can generate an audio message that verbalizes the header code elements used to generate the visual message, so that the visual and audio messages match. But this approach may leave unused some of the two-minute allotment for the audio message. That extra time could be used to convey important information. But fully using the two minutes could mean that the visual information will not match the audio portion of the alert.

So in the NOI, the commission asks whether legacy EAS should be modified to enable the distribution of enough text to transcribe the entirety of a two-minute audio message. This raises a technical question.

It notes that the legacy EAS uses AFSK modulation to convert data into audible tones, a process considered cumbersome. Using it to relay sufficient text to match the verbiage in a two-minute audio message theoretically would result in a tone that is roughly 30 seconds in length.

8 EAS participants have feared that longer alert tones could send listeners searching for the "off" button, or perhaps moving over to streaming providers, where there are no alerts (at least at present).

So the FCC asks: Would the public — not to mention radio and TV stations and other EAS participants — tolerate such a tone? Is there a better compression or modulation scheme that would deliver the necessary information, functioning across all EAS participant services and delivering live audio and maybe video? Is there a role for digital transmission standards such as ATSC 3.0 or HD Radio to improve EAS capabilities?

And last, the commission really goes broad.

It asks: Rather than focusing on ways to modify legacy EAS to relay text or CAP, would it make sense to use legacy EAS only for the Emergency Action Notification (EAN) and NPT, but require use of CAP for all other alerts?

And if legacy EAS can't be reasonably modified to allow alert originators to distribute text to transcribe a two-minute audio message, should the legacy EAS architecture be redesigned altogether?

The commission noted that in 2012, when it adopted CAP EAS rules, it kept the legacy EAS because of its resiliency in the face of a national emergency and because there was no fully CAP-centric system in place to replace it. It now asks whether those factors "remain as true and relevant today," and whether EAS could be redesigned to keep



Read the Proposal

We've posted the NPRM and NOI at <https://tinyurl.com/rw-eas-4>.

the resiliency and automation of legacy EAS but with the functionalities of CAP.

First thoughts

We asked some EAS observers for reaction to all of the above.

Harold Price, president of manufacturer Sage Alerting Systems, said requiring stations to poll the IPAWS server as described in the NPRM is an "automatic seek-and-fetch of the CAP message when the broadcast EAS version is received first." He said it raises the possibility of delays, including timeouts of alerts and message duplication errors.

"It is possible the legacy message will be generated and transmitted via a state relay system before it is sent to or processed by IPAWS."

However, he continued, the requirement could result in better audio quality.

On the question of whether the legacy EAS might be

“Can the EAS architecture be redesigned to achieve the resiliency and automation provided by the legacy EAS ... but with the functionalities provided by CAP ...?”

redesigned to enable distribution of text sufficient to transcribe a two-minute audio message, Price and some others expressed doubt.

"There is little chance of improving EAS by stuffing long multilingual text strings down a 65-character-per-second pipe," he said.

Ed Czarnecki, vice president of global and government affairs for manufacturer Digital Alerting Systems, said, "The existing protocol enables us to create that short standard EAS message. The question is whether and how EAS can support more text. I think it's safe to say that nobody desires a solution that results in overly long tone bursts over the airwaves to carry all that text."

Czarnecki also noted the proposed change of the PEP originator code to "National Authority" instead of "Primary Entry Point."

SR

THE POWER OF SIMPLICITY.



 **QUASAR**

When power and control collide, content creation elevates.
Mix in simplicity, and you've got intuitive, revolutionized workflows.
Introducing Axia® Quasar™ SR AoIP console. Advanced utility and beauty
with a streamlined surface design allow any user from a seasoned pro
to a guest operator to create with ease.

TelosAlliance.com/QuasarSR

 **Telos
Alliance®**

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

World Radio History



How to File

Submit comments to the FCC, or read what others have said, at www.fcc.gov/ecfs. Enter 15-94 in the "Specify Proceeding" field.

"A software update for all EAS devices could handle this. If adopted, I'd hope that this proposal will provide enough time to allow for such a change to be slid into a minor software update."

Czarnecki said the NPRM asks several questions that may pose issues for the radio industry. "For example, they ask whether it makes sense to only use legacy EAS for the EAN and NPT and rely on internet CAP for all other alerts, which could signal a less relevant position for radio broadcasting in general."

He also noted that the FCC didn't exempt radio stations from the proposal that EAS participants poll IPAWS.

"I think there is some good logic behind this. One benefit would be giving radio stations access to first-generation CAP audio, when available, compared to second- or even third-generation audio from a conventional EAS message," he said.

"Another indirect benefit for radio stations with newsrooms is that the expanded CAP text may also provide more detail

allows CAP-only monitoring without radio-based EAS at least as a backup."

He said EAS manufacturers also have reservations about the FCC's question about whether the legacy EAS architecture should be redesigned altogether.

"Triggered CAP Polling adequately addresses this question. The full text can be contained in a CAP message. If EAS is received first, that triggers the EAS device to poll IPAWS for CAP, and uses that message instead. If CAP or the internet is not available in an extreme situation, then at least the basic EAS message can be issued."

Manufacturers believe there may be ways that EAS can be improved without a costly architecture redesign. However, the feeling is that discussion within industry might be more appropriate at this stage.

Czarnecki said, "The questions posed in the NOI are appreciated in that they are far-reaching. We're hoping to confer with other EAS manufacturers about various technical issues that these questions raise." 🗣️

10

The reliability of our public warning architecture could be dangerously compromised if the FCC allows CAP-only monitoring without radio-based EAS at least as a backup.

and a fuller 'story' than conventional EAS messages."

He said the company's DASDEC equipment already has the capability, which it calls Triggered Cap Polling.

"Another use case for the FCC's proposal comes to mind: multilingual," he said. "If a multilingual CAP message is available, the use of Triggered CAP Polling would prompt a station to seek out that CAP message and use its contents instead. That content could include optional additional languages, in the case of a Spanish radio broadcaster, or any other provided language."

Czarnecki does not agree with the idea to use legacy EAS only for the Emergency Action Notification (EAN) and NPT and require use of CAP for all other alerts.

"We've noted many times, including in our own filings with the FCC, that legacy EAS provides a resilient backup system when CAP over internet is unavailable for any reason."

He cautions, "The reliability of our public warning architecture could be dangerously compromised if the FCC



Spectacular Radio Studios

Learn about the products and design choices that your radio colleagues have made in their latest studio projects in Radio World's latest free ebook. Find it at radioworld.com/ebooks.

(Shown: CFRAX(FM), University of Sherbrooke in Quebec, Canada.)



TRUE INTEGRATION

Zetta

Automation

GSelector

Music Scheduling

Revma

Streaming

Aquira

Traffic

RCSCloud

Peace-of-Mind

RCS2GO

Mobile





John Bisset

CPBE

With more than 50 years in broadcasting, the author is in his 31st year writing Workbench. He handles western U.S. radio sales for the Telos Alliance and is a past recipient of the SBE's Educator of the Year Award.



Weigh in

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

Use an Octopus to check components

Also, consider 3M Cold Shrink for your next tower cable run

You probably have a junk box of components, but can you identify all of them? And do you know whether they all work?

I came across a neat video prepared by amateur radio operator W2AEW, a 10-minute tutorial on checking components. The video gives an example of performing simple component testing using a curve tracer or "Circuit Octopus" and an oscilloscope.

It describes the Octopus, then delves into how to check resistors, diodes, transistors and even capacitors. When feeding an oscilloscope with the test fixture, you can identify open or shorted components. Here's the link for the video: <https://youtu.be/Gwo3pEH7hUE>. Or at YouTube, search "#49: Simple Component Tester using Oscilloscope."

There are hundreds of schematics for building your own Octopus. Stephen M. Powell's design, shown above, is one of the simplest. The circuit is simple but if you need more information, you can find his post by Googling "Octopus Oscilloscope Test Adapters" (including the quote marks) and it should be the first result.

Old law, new take

Over the years consultant Frank Hertel has contributed many useful ideas for readers of this column. Frank's brother, Johnny, likes to delve a little deeper into electronics.

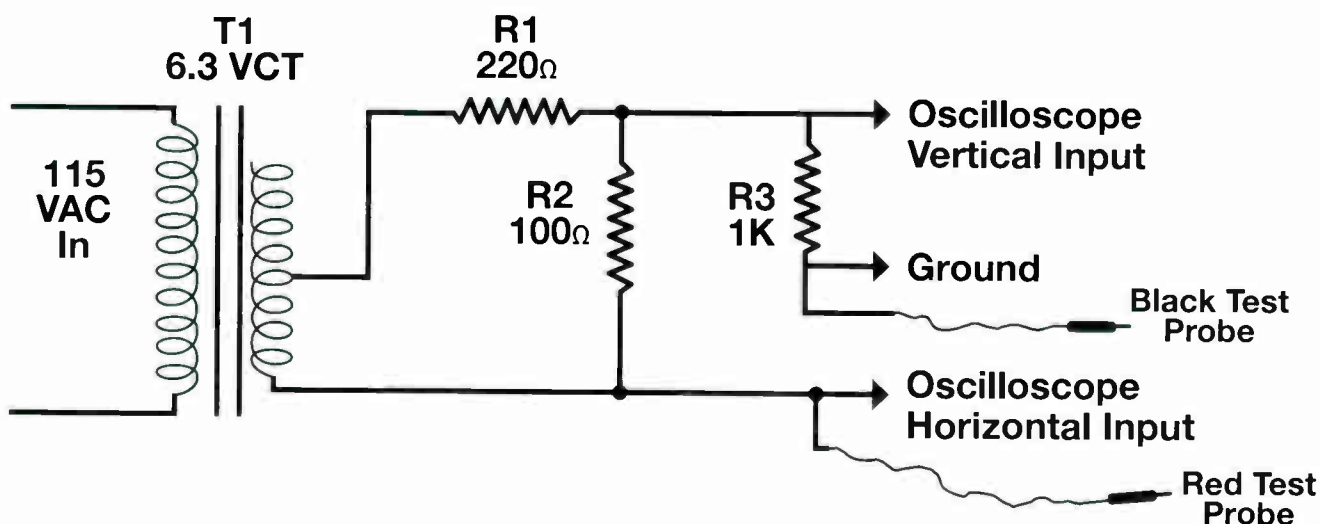
He writes that he recently came across a list of electricity definitions. Most were familiar, but three jumped out at him:

The first is 1 Ohm, which was defined as the resistance of a column of mercury (at the temperature of melting ice) of a uniform cross section of 1 square millimeter and a length of 106.30 centimeters.

One Volt is the electromotive force that produces a current of 1 Ampere when steadily applied to a conductor with the resistance of 1 Ohm.

One Ampere is the unit of current strength. It is the current which, when passed through a solution of nitrate of silver in water (in accordance with certain specifications), deposits silver at the rate of 0.00118 of a gram per second.

Classic Octopus Circuit Tester



Above
A schematic for
an oscilloscope
"Octopus"

NEW

MODEL 551

HD Radio Mod. Monitor

ADVANCED FM & HD RADIO SIGNAL MONITORING



MODEL 551 - HD Radio Modulation Monitor



ADVANCED FEATURES:

- ▶ Monitor off-air analog FM and HD Radio signals (HD1-HD8) on the Front Panel Touch Display and via the Web from anywhere in the world. The 3U package features a 9-inch hi-res graphic touch screen display, wide-range LED level meters with rear-panel tallies.
- ▶ The 551 collects histograms of signal parameters and displays HD Radio™ album artwork, station logos and similar visuals on the front panel display and remote Web interface.
- ▶ Front-panel alarms and/or rear-panel 'tallies' indicate Audio Loss, Low Signal, RDS Errors, HD Loss, HD Power, FM/HD1 Alignment, HD Artist Experience, and many others.
- ▶ Spectrum graphs include RF Baseband, MPX and Left/Right Audio. O-Scope views for MPX, Pilot, RDS and all Audio Channels.
- ▶ Measures real-time audio diversity delay between the FM and HD1 broadcast.
- ▶ Fulltime off-air program audio is available simultaneously as L/R-analog, AES3-digital and Dante®-based AES67 AoIP streaming, all with adjustable levels, plus a multi-listener Internet IP stream and front-panel headphone jack.

ALSO AVAILABLE

MODEL 552

FOR REMOTELY OPERATED SITES



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

WHY INOVONICS?

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



Right
An image from the 3M website showing installation of Cold Shrink for an underground cable run.

Below
3M Cold Shrink pre-stretched tubes effectively seal coax connectors from weather.



The flow of electrical current is measured in Amperes or Amps, using an Ammeter.

Kind of relates Ohm's Law in a new way, doesn't it?

You need a Shrink

A number of years ago, 3M developed a product called Cold Shrink as a weather seal for cabling. Broadcast engineer and frequent contributor Dan Slentz called this line of cable joints and terminations to my attention and wondered why he hadn't heard of it before now.

When it was released, I recall that each Cold Shrink tube was pretty expensive, much more costly than other forms of connector weather-sealing. Apparently as the product has evolved, its cost has gotten more reasonable.



“As the plastic core is released, the expanded rubber begins to shrink, forming a constant radial pressure seal around the connector and cable.”

So what is Cold Shrink tubing? It's an expanded tubular rubber sleeve, and 3M found a way to stretch the diameter of the tubing so it will fit over an RF connector.

The sleeve is kept in its expanded state with a wound plastic core. After the sleeve is positioned over the connector to be weatherproofed, you unwind the plastic core. As the plastic core is removed, the expanded rubber begins to shrink, forming a constant radial pressure seal around the connector and cable.

Originally designed for the power industry, Cold Shrink tubes are ideal for outside RF connections in the broadcast industry. Plus, in addition to protecting connectors, Cold Shrink tubes conform to the water seal requirements of ANSI C119.1.

See the video Dan found at the website of Thorne & Derrick International at www.powerandcables.com/cold-shrink-tubes/.

3M itself has a useful info page that we've linked at <https://tinyurl.com/rw-coldshrink>.

Can you imagine trying to use a torch to heat shrink a standard weatherproofing boot up on a tower? Keep this product in mind for your next tower cable run. 📺



We planned ahead, so you don't have to. All of our Consoles, AoIP and Automation are in stock.

With global shortages on IC's and other parts, we made it a priority to prepare ahead so you don't have to. Simply buy the hardware when you need it.

ARC-5

5 Channel - 1 Stereo Output Bus
\$699

ARC-8

8 Channel - 1 Stereo Output Bus
ARC-8: \$949 | ARC-8-Blue: \$1,199

ARC-Talk-Blue

8 Channel - 1 Stereo Output Bus
\$1,199



ARC-10 Series

10 Channel - 2 Stereo Output Buses
ARC-10U: \$1,849
ARC-10UP: \$2,249
ARC-10BP: \$2,799
Add Bluetooth for \$300

ARC-15 Series

15 Channel - 2 Stereo Output Buses
ARC-15BP: \$4,099 | ARC-15BP-Blue: \$4,399

MARC Series

15 Channel - 3 Stereo Output Buses
Modular analog, up to 30 (A/B) inputs.
MARC-15-8: \$5,825 | MARC-15-12: \$6,349
MARC-15-15: \$7,375



DARC Series

4 to 16 Channels
AoIP, Dante enabled.

DARC Virtual: \$1,000 | DARC Surface 8: \$3,600
DARC Surface 12: \$5,100



APEX Automation

Powerful & dynamic radio automation software and hardware.

APEX HD: \$100/mo or \$2,699 | APEX Pro: \$125/mo or \$5,999





LXE: Software Configured



ConsoleBuilder Customize your buttons, knobs & motorized faders

ScreenBuilder Create custom touchscreens

Layers Set up and run multiple layered input sets simultaneously

Automix & Live Presets Enjoy coffee while LXE does the work

wheatstone.com/lxe-rw21a



**BLADE-4
COMPATIBLE**

IT'S ALL IN WHEATNET-IP



THE INTELLIGENT NETWORK

GSX: Ready To Go



- Cost Effective** The power of LXE, trimmed down, ready to go
- Turnkey** Preconfigured buttons, knobs & faders
- Options** Add ScreenBuilder, ConsoleBuilder, Layers, Automix, & more

wheatstone.com/gsx-rw21a



**BLADE-4
COMPATIBLE**

Writer
Paul
McLane



**Talk
to Dan**

Dan Houg
invites hearing
from readers
by email to
thefixitworkshop@gmail.com.

Dan Houg leaves with a job well done

“My wife knows all too well the 2 a.m. voice of the Sine Systems and Davicom remotes”

Dan Houg made an unusual entry into the field of radio engineering in 2004. He was in his mid-40s, having never even been in a radio facility before.

That did not prevent him from working successfully on several major projects, nor from becoming president of the Association of Public Radio Engineers. But after 18 years he has moved on to a different venture.

Radio World asked him about that and about his tenure as chief engineer of Northern Community Radio in Minnesota, a two-station network consisting of KAXE(FM) in Grand Rapids and KBXE(FM) in Bagley, near Bemidji.

RW Dan you posted on PubTech that you were about to “cease to be a broadcast engineer and become a semi-normal human being.” How does it feel to have made that big decision?

Dan Houg: I knew about a year ago that I wanted to wrap up my 18 years in broadcast and work on restoration projects of vintage electronics, motorcycles and vehicles at home.

However, KAXE had a construction permit for increasing tower height that was expiring soon. I had always intended to see that project through to completion, but funding delays kept pushing construction back until last April, when I could finally start purchasing.

In May, I made the decision to leave at the end of October, hoping the project would be done but needing to set a date for myself to leave.

The tower crew finished up Friday afternoon, Oct. 29. I turned the new plant on at 3 p.m. and drove home for the very last time at 6 p.m. after a 13-hour day.

It feels incredible to finish this project that started over three years ago, get it on the air and be able to retire the day it is operational. It is exactly the right time to leave.

so I need to hide for a while to shed some stress. My wife knows all too well the 2 a.m. voice of the Sine Systems and Davicom remotes.

Financially, I still need to bring in some income, so I call this “leaving radio” more than retirement. When I’m in my home shop I’m in my “happy zone” and will earn a few dollars fixing things.

RW What is the Fixit Workshop?

Houg: The Fixit Workshop (thefixitworkshop.com) is my new venture to switch gears away from broadcast.

As with so many of us engineers, I’m good at fixing things whether it is diagnosing a fire-breathing 25 kW tube transmitter, setting up a microwave link or repairing the HVAC system. Now I’ll turn to restoration of vintage guitar

“ I turned the new plant on at 3 p.m. and drove home for the very last time at 6 p.m. after a 13-hour day. ”

amps, I have a pallet of 1960s European tabletop tube radios that need refurbishing, and I enjoy working on the big Sansui, Fisher and Marantz solid-state receivers from the 1970s.

I have two VW Westfalia camper vans to restore, getting ready to sell one of them, and all sorts of projects have come my way from putting a new engine on a log splitter, welding up a maple syrup stove and sap evaporator to repair of an old slot machine. I have a particular fondness for 1980s Mercedes-Benz diesels and am always on the hunt another one.

Our service as “do it all” engineers really reflects a skill set that is apparently in short supply in a small community.

RW What are your plans?

Houg: Well, I joke with staff that I need to be like the 17-year cicada and go underground and not be seen nor heard from. Being a small shop, I’ve been in 24/7/365 contact for the last 18 years, literally not having my phone off for close to two decades,



I nostalgically like to think of myself as Luis, the Fixit Shop owner on the children's television series "Sesame Street." Working on well-made appliances like the Sunbeam T20 Automatic Radiant Control Toaster, an incredible piece of American engineering, is so rewarding for me.

RW Is it true you'd never been in a radio station when you started your KAXE job in 2004?

Houg: Yes. My friend, Maggie Montgomery, was the general manager of Northern Community Radio, and the previous engineer had left. I decided to leave a very nice government job that was sucking the soul out of me and try my hand being KAXE's engineer. Straight up learning curve. I have so much respect and admiration for the folks that have been in radio their entire lives and have such a good grasp on the technology. I'm just getting to the point where I feel like I have a handle on some things!

RW And here you were doing a buildout of a 100 kW FM.

Houg: This last project was a complete replacement of our tower, transmitter plant-plus-shelter, and microwave link.

KAXE went on air in 1974, but the original tower went down in 1984 when a truck was putting a load of Class V on our tower road, and the raised gravel box snagged the lowest guy spanning over the road and brought the tower down.

When it was replaced, I don't think the management at the time communicated to Pirod that in addition to our 100 kW 12-bay antenna with radomes, there would be *another* 100 kW tenant with a 10-bay with radomes, all interleaved in the top 100 feet of the tower.

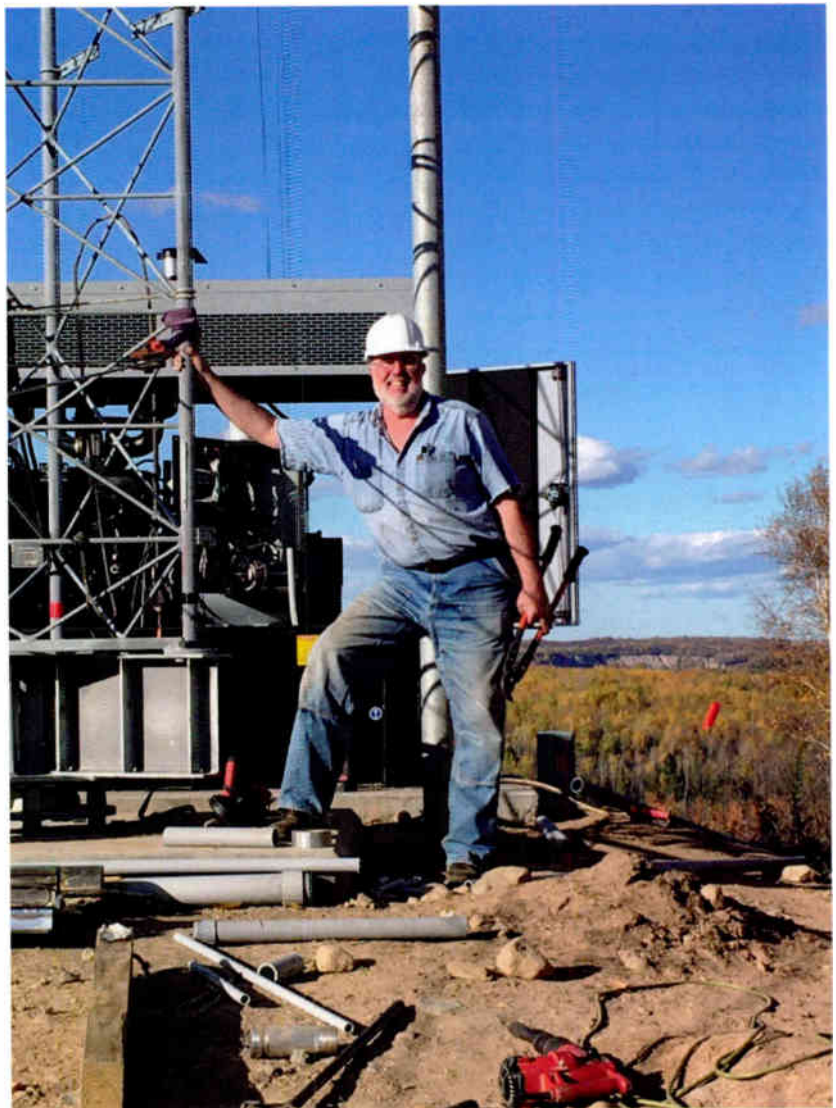
We had a tower analysis performed a few years back, because every tower maintenance crew that came out would say "Man, that tower looks overloaded." The engineering report stated the tower was in danger of failing, even if bare with no antennas, and that it did not pass current standards for a 40 mph wind!

So as part of a long-term infrastructure improvement project, we knew it had to be replaced. We got a construction permit to go from 315 to 499 feet, and got to work raising money.

The new tower is on the same site as the old tower, 15 feet away, and the new tower was used to destack the old tower.

Now we have an ERI guyed tower that meets current standards and I sleep much better. I worried every night with high winds that the old one would come crashing down.

We have a Nautel NV30LT-N transmitter being supplied program material using a GatesAir IP Link 200 with dual IP paths of land fiber and a licensed 11GHz link, an Orban 8700i processor and a gorgeous Tunwall switch controller for the Dielectric 6000 series switch that eliminates an old



Above
Dan Houg at the
KAXE job site.

patch bay (which was mounted at the perfect height that every generation of engineer has bonked his head on).

I reused our old Electro-Impulse 25 kW dummy load, having cleaned it, replaced the power cord and fixed the air flow switch. It works great except it smells like mice when it gets hot.

RW What other accomplishments are you proud of from the past 17 or 18 years?

Houg: Through the financial genius of our former general manager, we've built new studios at KAXE in 2005, and added the new station KBXE in 2012 with full studios at 50 kW with a new ERI 499-foot tower.

I've done three towers and two studios now. My first tower, a 90-foot self-standing, taught me the importance of soil borings I'd neglected to obtain; it became the "STL tower from hell" after they found 6 feet of muck below the surface that required much excavation and foundation support.

Then with the KBXE 499-foot tower I learned that every large project takes a serpentine path, despite laying out the process linearly. It nearly killed me with stress with twists and turns in everything from siting, property acquisition and construction.

This last tower project I knew there'd be twists and turns. When an obstacle would come up I tried to say "Okay, let's figure this out."

There's an old adage that every engineer should return to the first studio they built and apologize. So true with KAXE. There's things that I was able to do much better on my second studio for KBXE including my own plan for sound isolation that a very highly paid architect did so poorly at the KAXE studio.

RW Briefly tell us about your career before you came to this job.

Houg: Well, I started working running carnival rides, so don't disparage those folks!

I worked for the Minnesota Department of Health for 17 years doing health care facility inspections, food and lodging inspections, and ended up in water quality doing testing and providing technical assistance for public water supplies.

I have a degree in social work, one career in health and another in broadcast; and I've just now figured out what I want to do in retirement!

RW You mentioned a couple of people in your post as having been helpful in the radio part of your career.

Houg: Having zero radio background when I started, I needed a lot of help building a new studio within eight months of starting employment. I was in over my head.

A former engineer of KAXE, Shane Toven, now with Educational Media Foundation, was a font of information for the studio build and programming of our Logitek and ENCO systems. Many know how brilliant Shane is, and he



Above
Dan Houg, right, jokes around with Jobie Sprinkle during a break at the 2016 Public Radio Engineering Conference. Both are past presidents of APRE.

had installed KAXE's first satellite system, an SOSS, at age 14 as a nerdy kid looking for a place to hang out after school.

As projects kept coming and I was buying equipment, I ended up with a career-long relationship with SCMS salesman Jim Peck. Jim steered me to good equipment decisions and helped me think through projects to account for all the pieces. Having the ability to talk to a knowledgeable sales rep versus scrolling through web pages was so crucial in making the right decisions.

And I'd met Gray Haertig of Haertig and Associates at my first Public Radio Engineering Conference. I noticed this loud man in an Aloha shirt in the front row brilliantly interacting with speakers, who then got up and gave a stunning presentation himself.

I've used Gray for our RF engineering and FCC filing since that time and am indebted to his generosity and knowledge as well as

friendship. Shane, Jim and Gray have told me to breathe when needed, gotten me out of jams and given great advice, some of which I've taken and foolishly disregarded the rest. They are great friends.

RW You've been active in the Association of Public Radio Engineers. How is the organization holding up, through the many months of the pandemic?

Houg: The APRE Board comprises station staff, industry reps and organization members, all of whom saw their workload and workflow drastically change over the last two years.

The APRE has two very important strengths that keeps it thriving. First, the board members themselves are incredibly committed radio professionals who are task-oriented and work together as a cohesive group. It has been my great pleasure to be part of this organization with such highly functional people, including our current Board President Victoria St. John as well Jobie Sprinkle and Paxton Durham.

The second strength is that being a volunteer organization, unlike a manufacturer or vendor, the APRE doesn't *have* to make money or put on conferences to stay afloat. As they negotiate conference postponements and cancellations due to the pandemic, the assets and resources are not depleted.

The APRE is meeting actively all through the pandemic and is ready to bring the Public Radio Engineering Conference back in full.

RW What else should we know?

Houg: If I could impart any passing wisdom to engineers, it would be to feel free to ask the stupid questions. Seek help, ask advice and admit you don't know something, as there are brilliant people willing to help you. **R**

“ There’s an old adage that every engineer should return to the first studio they built and apologize. ”

SEE THE WHOLE ECOSYSTEM.

CREATE.

ALL THINGS PRE-PRODUCTION
TO POST.

CONNECT.

ALL THINGS DISTRIBUTION
AND DELIVERY.

CAPITALIZE.

ALL THINGS REACH
AND ROI.

The 2022 NAB Show is an entirely reimagined experience where everything you could possibly imagine — and then some — is brought to life. We're talking the entire content lifecycle. And we're introducing INTELLIGENT CONTENT, where you'll find industry-wide transformation enabling customized, immersive content. Come along to the most highly anticipated broadcast, media and entertainment industry event...we promise you'll be in for a surprise!

**IF YOU ARE IN THE BUSINESS OF STORYTELLING,
THEN YOU BELONG HERE.**

NABSHOW[®]
Where Content Comes to Life

APRIL 23 - 27, 2022

LAS VEGAS CONVENTION CENTER

NABSHOW.COM | #NABSHOW

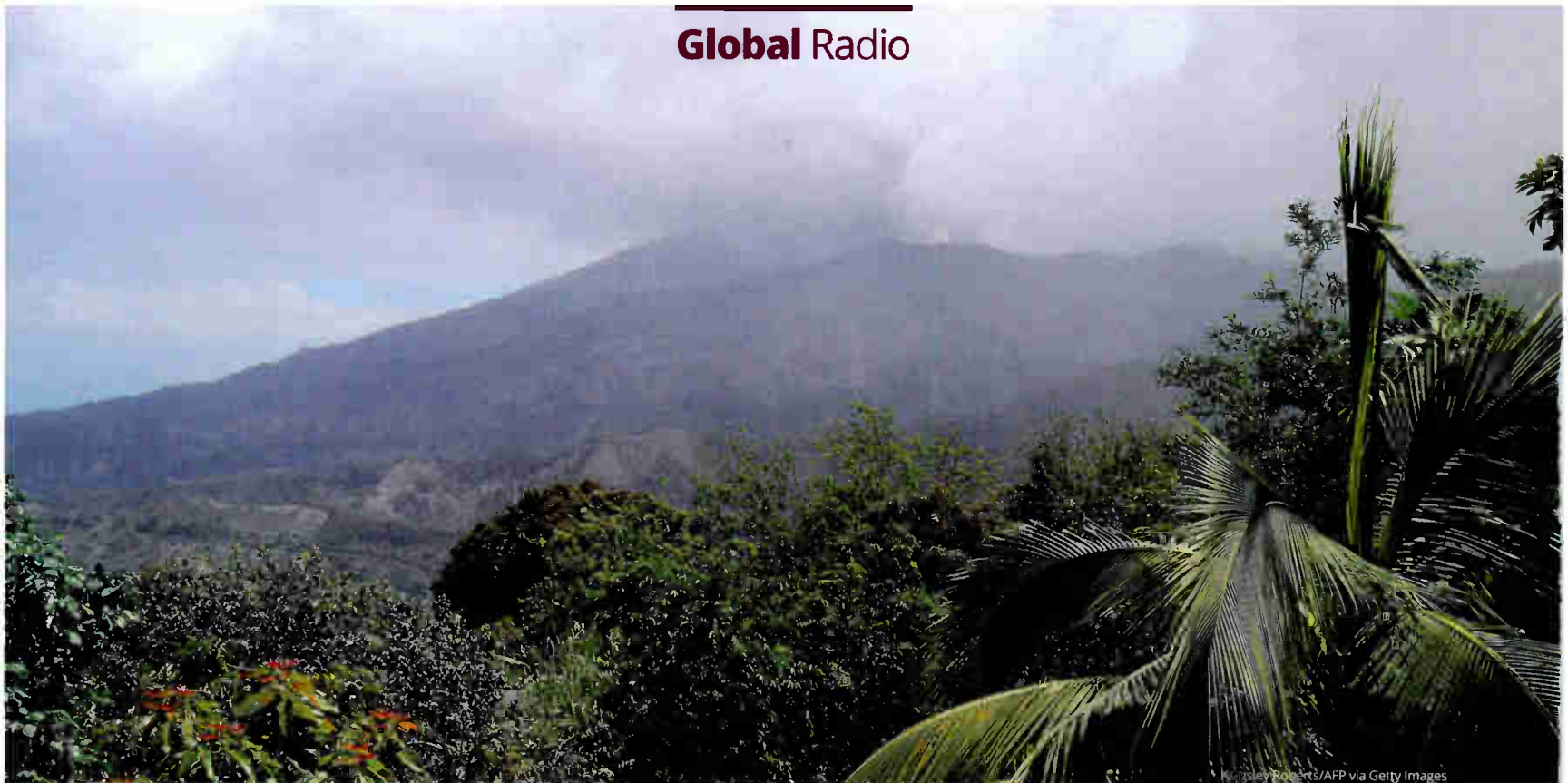


**IMAGINED BY NAB SHOW,
POWERED BY YOU.**

Access exclusive curated content on NAB Amplify – an interactive digital hub that connects you to the world of media and entertainment. Sign-up is easy and free!

**SIGN UP TODAY ON
NABAMPLIFY.COM**

NAB **AMPLIFY**[™]



Wesley Roberts/AFP via Getty Images

Writer
James
Careless

A campaign for global CAP

ITU, Google and Vint Cerf are among those endorsing the effort

22



More info

Access the document "Call to Action on Emergency Alerting" at <https://cap-uptake.s3.amazonaws.com/call-to-action.html>.

A global public awareness campaign hopes to convince the world's nations to implement the Common Alerting Protocol.

Already in use in most of the developed world, CAP is an international standard for alerting systems that ensures the delivery of accurate, detailed and consistent alerts across all media in emergency situations.

As outlined in an online document "Call to Action on Emergency Alerting," the campaign's goal is "to ensure that by 2025 all countries have the capability for effective, authoritative emergency alerting that leverages the CAP suitable for all media and all hazards."

According to the U.S. Federal Emergency Management Agency, a single CAP emergency message "can trigger a variety of public warning systems, increasing the likelihood that people receive the alert by one or more communication pathways."

Heavy hitters

Support for this push is being provided by some big names in the international community. Endorsements have come from the likes of the International Federation of Red Cross and Red Crescent Societies, the International Telecommunication Union, the United Nations Office for Disaster Risk Reduction and Google.

AccuWeather and the World Meteorological Organization are onboard, as are the Asia-Pacific Broadcasting Union and the World Broadcasting Unions.

"Broadcasters play an essential role in communicating the key facts of an emergency, mindful that everyone in harm's way must understand what is happening and what actions to take," said Michael McEwen, head of the WBU Secretariat.

"This is why broadcasters embrace the CAP standard ... CAP makes public alerting faster, easier, less error-prone and more understandable. CAP helps a broadcaster be certain that an alert is authentic and authoritative, and to cross-check alerts from diverse sources. CAP alerts can also be compiled on a map to show how different aspects of the emergency are evolving."

Proven in action

The effectiveness of CAP system was demonstrated in April 2021 when the La Soufrière volcano erupted explosively on the Caribbean island of Saint Vincent. Thanks to widespread and timely CAP alerts across all media, residents in the "red zone" were told to evacuate to safer areas.

The result: According to the Associated Press, "There were no immediate reports of casualties or injuries."

Dionne John, general manager of the National Broadcasting Corporation SVG, said, "The CAP alert system was very effective during and after the eruptions. It proved

Above
Another view of the eruption of La Soufrière Volcano on St. Vincent in 2021, seen on the cover of this issue.

to be particularly useful in alerting persons who were heading back to the red zone, whether to clean their homes or otherwise, about whether it was safe to do so because of lahars and other elements. The media in turn was able to disseminate this information in a timely manner. I am positive that this may have contributed significantly to no lives being lost."

CAP also helps keep residents informed of emergency events such as forest fires, flooding and severe storms in Canada's remote and rugged Far North.

"Standardized delivery of unattended alerts makes communities safer while making radio more relevant as a reliable last-mile delivery mechanism, especially when there are breakdowns with online media and smart phone outages," said "Radio Rob" Hopkins, a radio engineer in Canada's Yukon territory.

His company, OpenBroadcaster, manufactures open-source CAP broadcast appliances for the Indigenous community radio sector. "Although most agencies don't know, authorized issuers of emergency messages have the ability to notify residents in Indigenous dialects," Hopkins said.

Filling the gaps

For people in the developed world, widespread adoption of CAP is a fact of life. In the United States, for example, the federal CAP system "is an aggregation of more than 1,600 city,

county and state level feeds across the country," said Eliot Christian, CEO of Alert-Hub.org CIC, an NGO committed to taking CAP global.

In fact, "Seventy percent of the world's population lives in a country that already has a national-level CAP system. Another 15%, based on population, live in countries that are actively working on deploying CAP right now."

It is the remaining 15% — in some of the world's poorest countries — who lack access to CAP systems. Those are the governments the 2025 CAP awareness campaign is trying to sway. "These are the countries that are most affected by disasters because they don't have a lot of built-in resilience," Christian told Radio World. "For instance, their people could lose their entire livelihoods in a single hurricane.

"So yes, it is the most vulnerable countries that are unfortunately the ones that have the least developed alerting systems," he continued. "And yet it's so easy to create a CAP alerting system, which is why the agencies supporting this campaign agreed that it was time to issue a Call to Action and to set a deadline, to raise awareness and try to cover that remaining 15%."

To learn more about CAP and how to deploy it in your region, visit <https://alert-hub.org/home.html>.

CARCAP

Explosive Eruption

Effective 9th April 2021 9:05 am
Expires 9th April 2021 11:05 am

Description
 La Soufriere Volcano has erupted explosively. Ash fall seen up to Argyle International Airport.

Instructions
 Persons in the Red Zone must leave immediately!

Contact 4562978

Affected areas

Map Satellite

St Vincent and the Grenadines

Windward : This zone covers Fenny, Orla, Sandy Bay, Waterloo, Georgetown, Chester Cottage, Colonaire, Bridgetown, North Union and South Union, Blakou, Argyle, Brighton and Mesopotamia, Kingstown : This zone covers Callique, Belmont, Marique, Arnie Vale, Belair, Kingstown, Camden Park, Quetelles and Green Hill, Leeward : This zone covers Layou, Pembroke, Buccament, Vermont, Barrouillie, Chateaubelair, Spring Village, Cumberland, Rose Bank, Rose Hall, Dark View and Troumace., Southern

Above
 Here's how the prime minister's evacuation order appeared on smartphones via CAP alert in St. Vincent.



World Radio History

IT'S ALL IN WHEATNET IP  THE INTELLIGENT NETWORK

SET UP A HOME STUDIO IN MINUTES

Our software (and hardware) solutions provide intuitive tools to let you work from home seamlessly, with minimal setup.



REMOTE SOLUTIONS

Learn more: wheatstone.com/remote-solutions-rw21a

Wheatstone
 BROADCAST AUDIO PERFECTIONISTS®

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



Mark Lapidus

is a veteran multi-platform media and marketing executive.

Above
Taos Communications station KTAO in New Mexico has been using solar power since 1991.

Radio, influencing the future for good

The argument for making climate change an element of your programming

Before we get too much further into 2022, I'm hoping we can focus this year on making it a better world for ourselves and our listeners in as many ways as possible.

When you read the many summaries of the headlines of 2021, you couldn't help but notice that climate was one of the top stories. From extremely cold temperatures in Texas and record highs on the Pacific Coast to hurricanes and enormous forest fires, weather effects dominated the news.

Yet as I listen to commercial stations around the United States, I rarely hear the terms "climate change"

or "global warming" mentioned other than news radio coverage. The exception is conservative talk radio, where the seriousness of climate change is still rejected as a left-wing scare tactic.

"Pluralistic ignorance" is a useful phenomenon to understand if our industry wants to help improve conditions we face with climate change, COVID and the economy.

Pluralistic ignorance happens when people misjudge beliefs and actions of others and then act accordingly, even when it goes against what they actually believe.

A prime example of pluralistic ignorance comes from a 2019 survey conducted by the Yale Program on Climate Change Communication. It discovered that the American public underestimates how many people in our country believe that global warming is real.

It might be surprising to you to learn that Americans on average think that only 54% of others believe that global warming is occurring, when actually 69% of Americans surveyed at that time really did believe it was happening. And the latest survey from September indicates that this belief about global warming has grown to



NM-250 MKII - Newsroom Mixer

Features:

- Built In Talkback System with 2 Send and Receives
- 1 Unbalanced Input /Output for computer Sound Card
- 1 Unbalanced Stereo Front Panel Jack Input
- 1 Balanced Mono Line Input for Telephone Hybrid
- 2 Balanced +4 dBm Stereo Line Inputs
- 2 Balanced Mono Mic Inputs
- Monitor Select (Mixer Output or Off Air)
- LED Meter Display
- Phantom Power Built In (48v)
- Built In Cue System with Dimming



76% of the American public believing that “global warming is happening,” an all-time high since the program began its surveys in 2008.

While I understand talk radio has an audience to serve, these stats make me wonder if its programmers are doing enough research to make sure that the once-sacred cow of poo-pooing climate change should be reassessed, even for their listeners.

After all, it is common for Americans of radically different political stripes to want the same thing. The crux of conflict is how it should be done.

Regarding policy proposals, an April 2021 Pew Research survey reports that among specifically conservative-leaning Republicans, 86% favor planting about a trillion trees around the world to absorb carbon emissions, 69% support tax credit for businesses to develop carbon-capture and storage technology, and nearly half support tougher restrictions on power plant carbon emissions. Those results are not what common wisdom might predict.

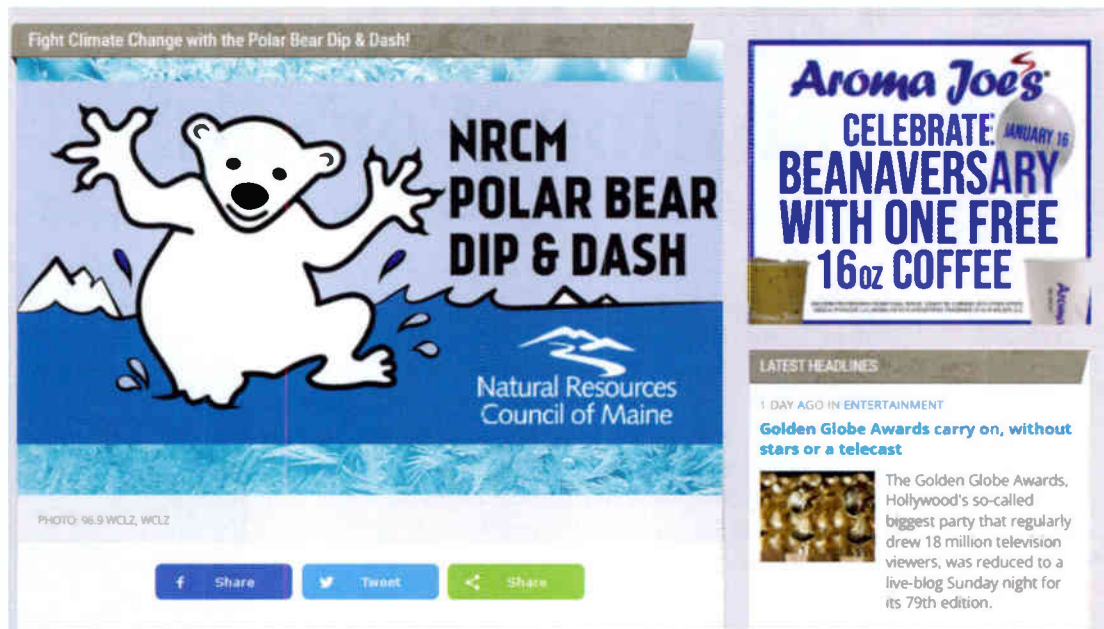
And if you take a look at the comparison maps of the Yale Program’s 2018 survey of Democratic and Republican views of climate change, you will see that most Republicans *at least* “somewhat agree” that global warming should be taught in our schools — and an astounding number *at least* “somewhat support” the funding of research into “renewable energy sources, such as solar and wind power.”

That’s a far cry from the notion that politically conservative Americans couldn’t care less about climate change.

Broaden the conversation

For most of the listening universe in America, it’s past time that stations started openly supporting climate change initiatives, or at least letting the conversation take place.

Where to start? There’s a 90-second piece called “Climate Connections,” produced five times a week by The Yale Center for Environmental Communication that’s on many public radio stations; it could use more support from commercial radio. If you’re interested, email editor@yaleclimateconnections.org. If not, Yale’s climate change focused websites <https://yaleclimateconnections.org/> and <https://climatecommunication.yale.edu/> offer many ideas for how you can incorporate messaging into your programming.



Above
Saga Communications station WCLZ(FM) in South Portland, Maine, promoted the 14th Polar Bear Dip & Dash to benefit the Natural Resources Council of Maine and its efforts to fight climate change.

There are even studies showing how the public views specific topics you may consider addressing.

Along with addressing the topic regularly, stations can help support local and national initiatives and execute promotions, events and concerts with the proceeds benefiting organizations working to fight climate change.

Taking political affiliation into consideration, it’s easy to find resources that support different climate change initiatives. Google “climate change solutions” or “climate change education” and you’ll find everything from Greenpeace to the Brookings Institution and the Senate Bipartisan Climate Caucus.

Is it possible to run all or part of your radio station using solar energy? KTAO in Taos, N.M., famously has been using solar since 1991. If you’ve got to “get it in the budget” for next year, there’s no better time to plan for the future than now.

With seven in 10 Americans being at least “somewhat worried” about global warming, it’s time to broaden the conversation about this crucial aspect of the future that we all share. 🌍

“ It is common for Americans of radically different political stripes to want the same thing. ”

Writer



Dan Slentz

Chief video engineer for the Cleveland Orchestra and a veteran radio and TV engineer. He wrote about the Elgato Stream Deck in January.



More Info

The website is www.notabotyet.com. A list of its U.S. and international dealers is on the website.

NotaBotYet has SolutionsForYou!

Thresa and Michael Gay offer a growing line of problem-solvers

Every now and then we are fortunate in our industry that a startup emerges to bring us some really cool problem-solvers. Some of these firms come and go. Some products are acquired by other companies (the old Dannager Audio Works Plan B silence sensor comes to mind). Some suppliers become industry stalwarts.

We have longstanding manufacturers like Henry Engineering and RDL that have built special widgets for years. Relative newcomer Angry Audio has a growing variety of solutions.

Now a company called NotaBotYet is on the scene with its own line of creative products for radio broadcasters. The startup was founded by wife-and-husband team Thresa and Michael Gay.

Early glimmers came while Michael was helping his daughter build her first robot, named the C-Bot, and trying to come up with a cute name to put on the circuit board. Because this was just the foundations of the project, he wrote "NotaBotYet" on the board.

Fast forward about six months to a studio build when one of Michael's engineering colleagues spent days, literally, days, soldering 15-pin connectors for an Axia node. Michael thought, "There has to be a better way." So he worked out some circuit board designs, and put the "NotaBotYet" name on them again.

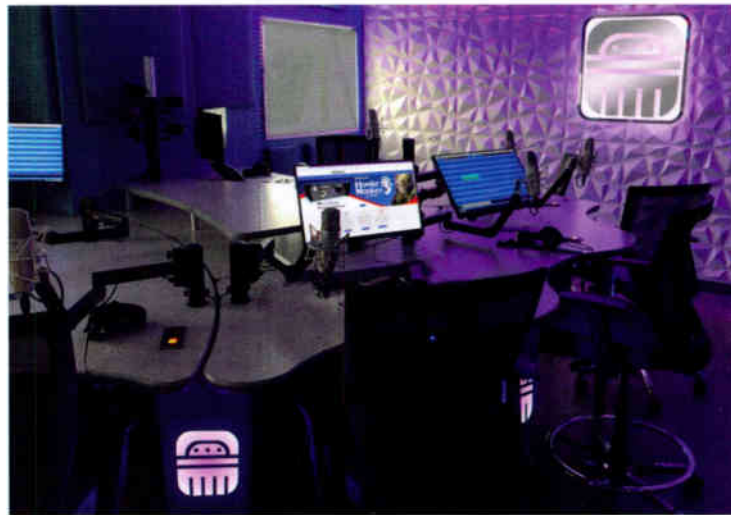
That little breakout board was noticed by Dave Kerstin of distributor Broadcasters General Store, who said, "Hey I could probably sell a lot of those! Think you can make more?"

Thus in 2015, NotaBotYet was born.

Thresa is president of the family firm. "My degree is in education. I'm a mom, which qualifies for doing just about any job on the fly. For our company, I was in a position that I could balance starting a company — finances, sales, management — with home life — finances, sales, management."

Michael's day job is vice president of engineering for Cumulus Media, but in his spare time he is the product designer for NotaBotYet. And their teenage daughters Tesla and Cianna help out.

Tesla, the 16-year-old, loves technology and has built her own gaming computer. ("Yes, she was named after Nikola Tesla," said Thresa Gay. "I did marry a radio engineer. She was named Tesla before Tesla was cool.")



Sample work

NotaBotYet makes a bunch of cost-effective solutions to resolve radio installation quandaries. They include the NotaBotYet Axia Relay, Axia GPIO Breakout, Six-Channel WheatNet Logic or Axia Livewire GPIO Relay, Yellowtec LITT Signaling Device Interface, Easy Relay, On-Air 85, Tally Helper 100 & 500, the Howler Monkey Precision Studio Headphone Amp and the Studio Jam and Expansion Jam.

They've also built clever mounts for installing video cameras in radio studios.

Consider the Howler Monkey Headphone Amp system. It is designed to mount around the studio at guest locations; it uses standard RJ45 connectors and Ethernet cables. (And why is it called "Howler Monkey"? Because the howler

Top right
Thresa and Michael Gay

Right
A room with lighting controlled by Studio Jam. The NotaBotYet graphics have been Photoshopped in.

HD MULTICAST+
Combined Importer/Exporter
with optional Orban audio cards
HD Radio nautel.com/HD nautel

monkeys of Central and South America are among the loudest creatures on land.)

It's so well built and designed, I had to open the case to check out the construction. These headphone amp boxes have both 1/4-inch stereo and mini headphone jack, so no adapters to hunt down. You can daisy chain five of these (so you don't need five "wall wart" power supplies all over) and you can chain the audio via Cat-5 from one to the next, or feed them individually from your analog DA, Blade or Node. Retail price is \$320.

Then there's the Studio Jam, a fun device that can be used to create cool lighting effects in the studio based on GPIO connections from your audio board or AoIP gear.

These days, with studios "on camera" via social media and video streaming, an "ugly studio" won't do. So NotaBotYet created this box to help add multicolor accent lighting around the studio in an inexpensive and creative way. Use it to cause lighting in the room to change color, depending on a GPIO trigger. Maybe the highlights glow red during an EAS! Or as various guest mics open, maybe the room — or even just the boom arms — might change color. Retail price is \$340.

Another slick device worth mentioning is the On-Air 85, a universal 12V On-Air light that can be controlled by the Axia, Wheatstone or generic GPIO system.


Unlike more traditional on-air notification systems, this very small device provides the power to your 12V on-air light. It simplifies

“ The company makes a bunch of cost-effective solutions to resolve radio installation quandaries. ”

Below
Studio Jam help add multicolor accent lighting around the studio in an inexpensive and creative way.

the wiring and connection to an output of the GPIO to the On-Air 85, and the On-Air 85 to the light. Simple and safe, avoiding any 120V AC wiring, and using easy low-voltage wiring.

Besides the "Steady On" mode, there are 14 flashing patterns you can choose, so this device can certainly be used as the interface for a "phone" GPIO, "door" GPIO, or even "Coffee is READY!" GPIO. Retail price is \$140.

Keep your eye on NotaBotYet for more creative ideas. Check out what they have, and if there is something you need, tell them. They're open to helping you meet that need for the tough-to-solve problem. 



BROADCAST EQUIPMENT EXCHANGE



Orban legacy Parts & Service
BY: Orban Research Lab., Inc.
 920 Edison Ave. Benton, AR 72015
(501)794-6994

New Product Dealer Sales: Jay Brentlinger
 5500i / 5700i / 8600si / 8700iLT / 9300
(480)747-5330
 Sales@Orbanlegacy.com

Service for All Older Models: Robert Leembruggen
 8100 / 8200 / 8300 / 8400 / 8500
 9100 / 9200 / 6200 / 9300
(501)650-8453
 Robert@Orbanlegacy.com

TUNWALL RADIO

SWITCH AND TRANSMITTER CONTROLLERS



AM/FM/MULTI-SWITCH AND CUSTOM DESIGNS

330.995.9642 www.tunwallradio.com

BROADCAST EQUIPMENT EXCHANGE



**Rebuilt Power Tubes
1/2 the cost of New!**

Se Habla Español

ECONCO

Se Habla Español

Tel: 800-532-6626 Web: www.econco.com
Intl +1-530-662-7553 Fax: +1-530-666-7760



28



Keeping you on the
air since 1934

ISO 9001 Certified

NEW POWER TUBES

Triodes
Tetrodes
Pentodes

**NEW SOCKETS &
REPLACEMENT PARTS**

Worldwide Availability

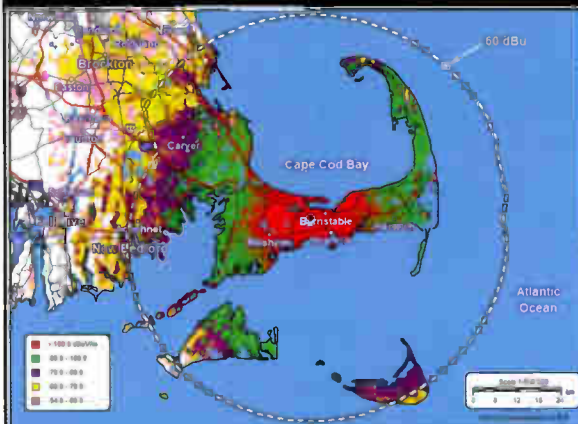
Made in the U.S.A.

Call (800) 414-8823
Int'l (650) 846-2800
Fax (650) 856-0705

Visit our Website at
www.cpii.com/eimac

CPI
Communications
& Power Industries

Professional Broadcast Engineering Software



Probe 5™ Longley-Rice coverage map with FCC's style 60 dBu coverage contour.

www.V-Soft.com

V-Soft Communications®

(800) 743-3684

- Create stunning "real-world" coverage maps, interference studies, and population reports with Probe 5™
- Find STL broadcast auxiliary and Part 101 microwave frequencies and generate PCN letters with Microwave Pro™
- AM Pro 2™, used daily by FCC engineers, performs skywave and groundwave allocation studies and AM coverage mapping
- Map FM stations and discover upgrade possibilities using FCC minimum separations and contour-to-contour methods with FMCommander™

VSoft
COMMUNICATIONS®
R.F. Communications Software
and Engineering Consulting

**CORNELL-DUBILIER
MICA CAPACITORS**

FROM STOCK

**VACUUM
CAPACITORS**

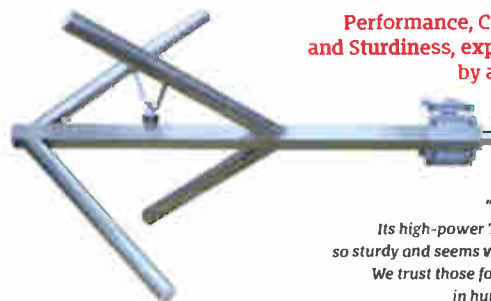
FROM STOCK

**HIGH ENERGY CERAMIC
CAPACITORS**

**SURCOM
ASSOCIATES**

5674 El Camino Real, Suite K
Carlsbad, California 92008
(760) 438-4420 Fax: (760) 438-4759
e-mail: link@surcom.com web: www.surcom.com

Why do broadcasters love Bext antennas?



**Performance, Customer Service
and Sturdiness, explained this way
by a Bext customer:**

"I love Bext Antennas.
Its high-power TFC2K* model is built
so sturdy and seems virtually unbreakable.
We trust those for our stations located
in hurricane-prone areas".
DAVID HOXENG, ADX Communications, Pensacola, Florida

* TFC2K arrays can be rated up to 75 kW power handling.

bext.com

888 239 8462

BEXT

NextGen TV is tapping us on the shoulder

The author says ATSC 3.0 is a radio content provider's Holy Grail

I would like to see AM radio begin simulcasting on ATSC 3.0 signals. A single ATSC 3.0 transmitter could carry all of the AM signals in a market, in addition to TV programs."

That was Dave Hershberger, quoted in a Radio World profile after his much-deserved receipt of the NAB Radio Engineering Achievement Award.

I think his proposition is worth considering.

In my opinion, the ultimate broadcast engineering experience is still an AM directional antenna array. That said, I smile politely when I hear talk of "AM revitalization." At this point I think a deliberate, clear-eyed look at our much-loved industry leads us to reinvention over repair.

Medium-wave spectrum is far from "beachfront property." For reasons that have been well documented — poor building penetration, increasing noise, dwindling receivers, aging demographics — the most likely future for AM spectrum is that it will continue to lose value to the point where launching something completely new, like high-power all-digital, makes sense.

FM's low-VHF spectrum is closer to "beachfront property," but even high-VHF is considerably better. Note that originally, FM was promoted as a *replacement* for AM, it was not promoted as an *additional* service.

Broadcasters also distribute their linear content via unlicensed and unlimited internet. This is all IP, so there's no limitation on *what* can be broadcast, how it is packaged or how much bandwidth it takes.

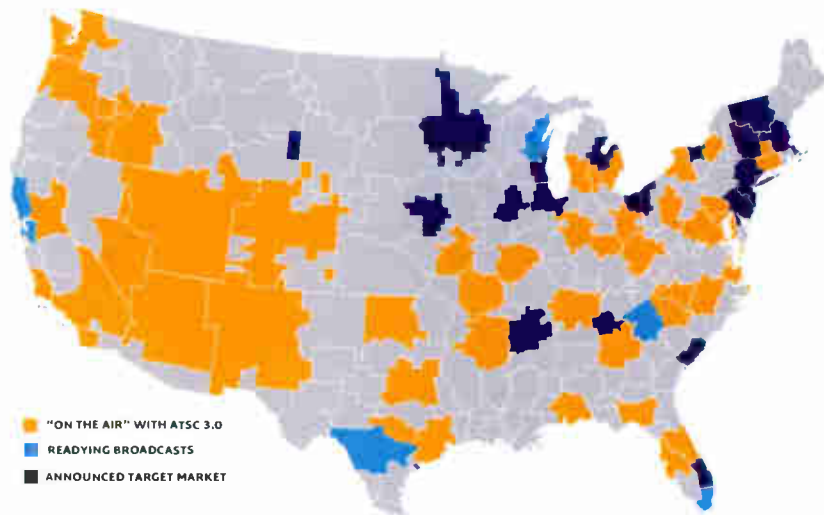
While OTA broadcast covers unpopulated areas well, streaming is now available in virtually every populated area, building, tunnel, venue, etc., and there are few limits to how big the "coverage area," can be, up to and including the entire planet.

Besides 5G, tiny IP satellites are coming fast, covering the earth's surface.

The single most important data point for broadcasters is ascertaining the audience. Our product is "eyes and ears," a.k.a. "attention," and we are not alone seeking and selling it.

When it comes to quantifying and qualifying the audience, OTA falls short of the internet. Interactivity, targeted advertising, non-linear and rich media are all impracticable within the current ecosystem.

That's not trivial. Radio really can't compete well with delivery that tells our customers exactly who is listening and can target advertising, alerts and other content.



Writer
Fred Baumgartner

The retired broadcast engineer has been involved with advancing radio and television throughout his career, including for Qualcomm/MediaFLO, Harris, Nautel, and ONEMedia LLC/Sinclair.

Above
The state of deployment of ATSC 3.0 by Nielsen TV market, from the Advanced Television Systems Committee. Areas in orange have at least one ATSC 3.0 station on the air, though most have more than one. In light blue areas, service is planned soon; those in dark blue are expected later in the year, at which point NextGen TV will reach 75% of the viewing public.

Radio's traditional exclusive sweet spot had been mobile. But streaming to smartphones, cars and portable "radios" with the present-day "carrier" access networks, even without 5G, is better in most ways than OTA.

FM chips in phones were never a viable option. But patrons expect that smartphone FM radio will work in any location — basement, elevator, office — where cell phones do but OTA FM cannot reach.

Selling points

So why should radio broadcasters be interested in ATSC 3.0?

First, NextGen Broadcast — and that's what it is — is not just TV. Because it is IP-based, it can carry anything: linear radio and any data service, album art, or whatever ... along with TV.

Second, OFDM on UHF runs circles around AM or FM in terms of coverage and penetration. Critical to this, is that like the HD/OFDM part of HD Radio FM, single-frequency networks composed of multiple transmitters can push coverage into places otherwise unreachable by any other means other than the cellular carriers.

NextGen Broadcast on UHF is beachfront spectrum. No one is lining up to re-farm MW and VHF spectrum. There will be no auctions of radio spectrum.

Moving radio to NextGen Broadcast changes the ground rules.

For my entire career, it has been clear that the Venn diagram of radio and TV has two spheres that are destined to converge. The move to IP does exactly that.

In American radio, broadcasters ordinarily own and operate their own single-service transmitter (HD2, HD3 aside) and maybe some translators and streaming servers. NextGen Broadcast is a multiplex of services, radio, TV and data.

Some NextGen pioneers plan to aggregate their spectrum to move content between transmission systems; adjusting modulation/coding to maximize coverage, reach and capacity as appropriate for the individual services.

ATSC 3.0 can do that. Radio services could have a lease or other arrangement for access to a slice of NextGen multiplexes.

Currently, an FCC license is for 6 MHz of spectrum traditionally held by one entity. In NextGen broadcast, that license typically houses multiple "broadcasters."

While one might not have to worry about tower lights or transmitter maintenance, "radio stations" likely would not be limited to those with a license and call letters. Regulations probably need to be updated, if for no other reason than rules enforcement reaches the spectrum holder and not the occupants.

There are other regulatory opportunities. For example, being IP, emergency alerting can be done once, collectively, for the whole multiplex.

NextGen has momentum

The current DTV transmission ecosystem is shifting to ATSC 3.0, with the first wave approaching completion with about 75% of the population covered by at least one NextGen Broadcast signal. According to some estimates, 2 million 3.0-capable TV sets will be in homes by Christmas of 2022.

If you think radio has challenges, look at TV. Current DTV is stuck with an ancient inefficient codec that can't handle what today's TVs can display and a modulation scheme (8-VSB) that can't handle motion or support single-frequency network boosters.

It's hard to imagine that in a decade, OTA TV will still be ATSC 1.0 in any sustainable way. Manufacturers are heavily invested in selling NextGen Broadcast throughout the world because that sells bigger, better TVs. They just have to be contemplating better "radios" too.

So how does that get NextGen Broadcast receiver chips into cars and smartphones?

For that, we have to look at the symbiotic relationship between ATSC 3.0 and 5G.

While most of the world's connectivity traffic is unicast, the bulky part is broadcast. While the obvious 3.0 use case

is the 700-pound gorilla of live linear radio and TV, there is also the anticipated distribution of data for self-driving cars and certainly things yet undreamed.

One can speculate that as the NextGen Broadcast infrastructure expands, discounted distribution and low-cost storage will be attractive for delivering more than the obvious popular movies and podcasts.

When it comes to the intersection of technology, regulation and business, anything can happen anywhere. However, NextGen Broadcast is designed to replace the world's aging and imperfect OTA distribution. All of it.

This isn't an incremental improvement.

As NextGen Broadcast transmission is lighting up, what is being distributed is, with few notable early exceptions, simulcasts of existing TV and radio content. That is not a typo. Audio services, including simulcasts of legacy radio stations, are being conveyed by NextGen Broadcast on the air now.

What's next is the consumer side of the ecosystem.

Clearly the first multi-millions of NextGen reception devices will be about simply making pictures and sound.

We radio broadcasters have "asks" that we might not have thought we could dream of. Dynamic (targeted) advertising and listener intelligence will need the devices to run apps that are built in or placed on the device by broadcasters. First-run NextGen TVs do some of that. Radio should be next.

Real opportunity

In a nutshell: After 20-plus years, and millions if not billions of dollars of development by hundreds

of entities, NextGen Broadcast is authorized and on the air. Whether incumbent "radio" broadcasters take advantage of its capabilities and opportunities is an individual choice.

Some will stay the course, but others will enter a converged media world that is free of the major impairments and limitations we've been "improving" and "revitalizing" our way out of with limited success.

The combination of near-perfect distribution and the unlimited capabilities of OTA IP is a radio content provider's Holy Grail. It might start with NextGen Broadcast simulcasts, but as a believer in radio, I think it goes much further. While we've been running toward revitalization, NextGen Broadcast has just tapped us on the shoulder. This is a tipping point that might take some of us by surprise.

Someday, I'd like to listen to radio in a hotel room again. 📻

“NextGen Broadcast is designed to replace the world's aging and imperfect OTA distribution. All of it.”

”



REACHING OVER ONE BILLION EARS EVERY DAY
OPTIMOD FM Audio Processors
with RDS/UECP

OPTIMOD 5500i - 5700i - 8600Si



Follow us on LinkedIn (Orban Europe GmbH) & Facebook (OrbanLabs) - Visit our website www.orban.com
and register for our email newsletter!



Make Your Streams Stand Out

Stream up to eight programs at once, each with four outputs for a total of 32 streams.

Full suite of stream-specific audio processing tools. Optimize performance of audio content.

AAC, MP3 and Opus encoders. Reaching a broad range of end user devices and players.

Metadata agnostic. Lua transformation filters adapt metadata input from any automation system into any required output format.

Cloud-ready for the future, yet compatible with standard CDN and streaming platforms now. Supports HLS, Icecast, RTMP, and RTP streams.

All-inclusive Linux and AoIP appliance. No Windows® drivers, updates or PC needed.

Add Streamblade to any audio network via WheatNet-IP, analog, AES3, or AES67 inputs or add Wheatstream to any existing WheatNet-IP or AES67 compatible networks.



STREAMBLADE & WHEATSTREAM STREAMING AUDIO PROCESSORS

wheatstone.com/stream-rw21a

