



# RADIO WORLD

MARCH 11, 2015 | The News Source for Radio Managers and Engineers | \$2.50 | RADIOWORLD.COM

## INSIDE

### HACKERS

- Modern broadcasters must protect themselves online, too. — Page 12



iStock photo/stock.com

### BUYER'S GUIDE

- We look at transmitters. — Page 23



### COMMENTARY

- Brian Wynne of AUVSI explains how drones could benefit broadcasters. — Page 29



## Media Groups Gain Approval for Drone Testing

Public-private partnerships to provide data to FAA

ESPN deployed a drone camera to cover the Winter X-Games in January.

Eddie Perlas/ESPN Images

BY CRAIG JOHNSTON

The Federal Aviation Administration has proposed rules governing the use of unmanned aerial systems, or UAS, in

American airspace. Some of the nation's largest media groups intend to test drones for newsgathering later this year.

The FAA, which is developing rules for the use of both private and commercial drones, gave clearance to CNN earlier this year to test the devices as part of an existing research partnership with the Georgia Tech Research Institute in Atlanta, which has been testing the unmanned aerial vehicles for a while.

Virginia Tech intends to enter into a partnership with 10 media groups to test drones to gather data for the FAA. Specifically, the project with the Mid-Atlantic Aviation Partnership — one of

six test sites established by Congress to collect data on the use of drones — includes the Associated Press, Advance Publications, Belo, Gannett Getty Images, NBCU, The New York Times Company, Scripps, Sinclair and The Washington Post. The test sites have been operational since August, according to the FAA. The trials are designed to conduct controlled safety testing of a series of real-life scenarios where the news media could use small UAV technology to gather the news.

In addition to television use, the drone activity has the potential to affect radio

(continued on page 6)

327-15DL 000004843  
 #BXNRTQJ \*\*\*\*\*AUVI0\*\*SCH 3-DIGIT 856  
 #0009383 1# RWMA 0009383 E1501  
 70M MILLER ASSISTANT CHIEF ENGINEER  
 ROHN  
 2033 S AUGUSTA PL  
 TUCSON AZ 85710-7905  
 P0002

## The Best of Both Worlds Reloaded!

### Millenium NETWORK Console

6 or 12 channels of local mic / line / digital inputs  
 6 channels of LIVEWIRE® inputs  
 for SIMULTANEOUS stand-alone and IP operation

Call your Radio Systems dealer today  
 856-467-8000 • sales@radiosystems.com  
 www.radiosystems.com

YOU LOVE RADIO. WE DO TOO. THAT'S WHY WE STRIVE TO MAKE THE VERY BEST TOOLS FOR YOU.



*designed & built*  
 IN THE USA  
**WHEATSTONE**  
 FINEST AUDIO FOR BROADCAST  
*Since 1970*

## BE YOUR BEST

CONTROL SURFACES/CONSOLES: LX-24 • L-12 • L-8 • E-SERIES • IP-12/16 • TALENT STATIONS

BLADE-3 NETWORK MODULES: I/O • MIX ENGINES • PROCESSING • LOGIC • MADI

ON-AIR AUDIO PROCESSORS: AIRAURA • FM-531HD • FM-55 • VP8-IP • AURA-8IP • SG-192

VOICE/MICROPHONE PROCESSORS: M-1 • M-2 • M4-IP

See Wheatstone at NAB 2015 • Booth C755


**Wheatstone**  
 BROADCAST AUDIO PERFECTIONISTS®

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

# e911FM Is Prepped for Launch

## Uses FM RDS/HD Radio data alert delivery

BY TOM VERNON

Social media and online services notwithstanding, local radio remains a vital source for emergency information. While the connected car and cloud-based services garner press notice, terrestrial radio usually provides the most redundancy, and its signal remains a constant, even during extreme environmental conditions.

Allen Hartle, president of Jump2Go, is set to launch e911FM, a preparedness initiative that delivers Emergency Alert System messages, National Oceanic and Atmospheric Administration National Weather Service reports and Amber Alerts to terrestrial radio and social media.

He believes the service provides a unique level of redundancy. He said e911FM applies "a dual-technology approach, using both cloud-based infrastructure and, most importantly, FM RDS/HD Radio data delivery. During an actual emergency, as cell phone service fails, the e911FM service continues to function via our FM radio data capability. Today's Web-based, connected car solutions cannot say the same."

### PUBLISH ONCE

Founded in 1992, Jump2Go is a Seattle-based datacasting company whose products enable radio stations to reach out to listeners through billboards, dashboards, mobile devices and, most recently, RDS and HD Radio tuners.

This is not Jump2Go's first venture into emergency broadcasting. In 2012, the Federal Emergency Management Agency's Integrated Public Alert and Warning System and NPR Labs hired the company to build an FM RDS

aggregation system forms one of the cornerstones for e911FM.

Development of the aggregation framework presents challenges. The FEMA system uses an XML markup language and is complex, but the overarching philosophy is to publish an event once and disseminate it to many



An HD Radio receiver displays an e911FM test message, broadcast by Seattle partner KIRO(FM).

Emergency Alert System to assist hard-of-hearing and deaf listeners. The project involved creating a custom RDS protocol and custom hardware. It was installed in 26 Gulf state radio stations in 2013, as Radio World has reported.

After the FEMA/NPR project was completed, Jump2Go expanded its cloud-based Alert Aggregation System. In addition to EAS emergency and weather alerts, the company received authorization from The National Center for Missing and Exploited Children to broadcast Amber Alerts. This expanded

platforms. Once alerts are received, they need to be stored in a database and checked for the expiration time.

The e911 data aggregation system is being developed in Java, due to the ease with which it works across platforms. When development is complete, it will be moved to a server environment on a Linux platform. Before the system goes online, it will be rolled out in stages and tested. The IPAWS and EAS parts will come first, followed by Amber Alerts. Each service will be tested end-to-end for correct operation. East and West coast servers are maintained, both for redundancy and load balancing purposes.

### SYSTEM OVERVIEW

While there are a number of moving parts in the e911FM system, the basic overview is simple. Participating stations have a JumpBox installed; it connects via an Internet connection between Jump2Go's data aggregation center and the station's RDS encoder, HD Radio Exporter and HD Radio Importer.

The aggregation server collects, sorts and indexes the incoming alert data. When an alert occurs, the aggregation system tells the JumpGate system that it has alert data in-play. Then the JumpGate platform server queries the aggregator, fetches the alert and forwards it onto the Shape Social Twitter process.

Alerts will be sent from Jump2Go's Data Aggregation Center to the various media outlets. On the broadcast side, e911FM will use an RDS Open Data

(continued on page 5)



**An emergency preparedness initiative showcasing the vital role terrestrial radio plays in public service.**

e911FM is a service provided by broadcasters to bring Emergency Alerts (EAS), Weather Alerts, and Amber Alerts to the dashboards of cars and to social media.




**Jump2Go President Allen Hartle is using these images to explain the e911 concept.**

Next Issue of RADIO WORLD March 25, 2015  
Next Issue of ENGINEERING EXTRA April 15, 2015

Website: www.radioworld.com

Email: radioworld@nbmedia.com | Telephone: (703) 852-4600  
Business Fax: (703) 852-4582 | Editorial Fax: (703) 852-4585

For address changes and subscription renewal, please visit radioworld.com and click on the "Subscription" button. To submit letters or story proposals, to request writer's guidelines, or for other editorial matters, email the editor at radioworld@nbmedia.com.

### EDITORIAL STAFF

EDITOR IN CHIEF, U.S. Paul J. McLane  
NEWS EDITOR/WASHINGTON BUREAU CHIEF Leslie Stimson  
GEAR & TECHNOLOGY EDITOR Brett Moss  
TECHNICAL ADVISER Thomas R. McGinley  
TECHNICAL EDITOR, RWEE Rich Rarey  
PRODUCTION EDITOR, RWEE Karen Lee  
CONTRIBUTING EDITOR John Bisset  
CONTRIBUTING EDITOR Emily Reigart  
INTERNATIONAL EDITOR IN CHIEF Marguerite Clark  
LATIN AMERICA EDITOR IN CHIEF Rogelio Ocampo

### EDITORIAL CONTRIBUTORS

W.C. Alexander, Barry Blesser, James Careless, Harry Cole, Ken Deutsch, Mark Durenberger, Charles Fitch, Christopher Friesen, Harold Hallikainen, Craig Johnston, Alan Jurison, Paul Kaminski, John Kean, Peter King, Mark Lapidus, Daniel Mansergh, John Meril, Laura Mir, Jim Peck, Mark Persons, Stephen M. Poole, Carl Lindemann, James O'Neal, Tom Osenkowsky, Rich Rarey, John Schneider, Randy Stone, Richard Strickland, James G. Withers, Tom Vernon

### ADMINISTRATION & PRODUCTION

PUBLISHER John Casey  
EDITORIAL DIRECTOR Paul J. McLane  
PRODUCTION DIRECTOR Davis White  
PRODUCTION PUBLICATION COORDINATOR Karen Lee  
ADVERTISING COORDINATOR Caroline Freeland

### CIRCULATION

GROUP DIRECTOR, AUDIENCE DEVELOPMENT Meg Estevez  
CIRCULATION MANAGER Kwentin Keenan  
ASSOCIATE CIRCULATION MANAGER Michele Fonville

### SUBSCRIPTIONS

Radio World, P.O. Box 282, Lowell, MA 01853  
TELEPHONE: 888-266-5828 (USA only 8:30 a.m.-5 p.m. EST)  
978-667-0352 (Outside the US) FAX: 978-671-0460  
WEBSITE: www.myRWNews.com  
EMAIL: newbay@computerfulfillment.com

### CORPORATE

NewBay Media LLC  
PRESIDENT AND CEO Steve Palm  
CHIEF FINANCIAL OFFICER Paul Mastronardi  
CONTROLLER Jack Liedke  
VICE PRESIDENT OF AUDIENCE DEVELOPMENT Denise Robbins  
VICE PRESIDENT OF DIGITAL MEDIA Robert Ames

### VIDEO/BROADCAST GROUP

EXECUTIVE VICE PRESIDENT Carmel King  
VICE PRESIDENT / SALES DIRECTOR Eric Trabb

### ADVERTISING SALES REPRESENTATIVES

US REGIONAL & CANADA: John Casey, jcasey@nbmedia.com  
T: 212-378-0400, ext. 512 | F: 330-247-1288  
US REGIONAL: Michele Inderrieden, minderrieden@nbmedia.com  
T: 212-378-0400, ext. 523 | F: 301-234-6303  
EUROPE, AFRICA & MIDDLE EAST:  
Raffaella Calabrese, rcalabrese@broadcast.it  
T: +39-32-0891-1938 | F: +39-02-7004-36999  
LATIN AMERICA: Susana Saibene, susana.saibene@gmail.com  
T: +34-607-31-40-71  
JAPAN: Eiji Yoshikawa, callme@world.odn.ne.jp  
T: +81-3-3327-5759 | F: +81-3-3322-7933  
ASIA-PACIFIC: Wengong Wang, wwg@imaschina.com  
T: +86-755-83862930/40/50 | F: +86-755-83862920  
CLASSIFIEDS: Michele Inderrieden, minderrieden@nbmedia.com  
T: 212-378-0400, ext. 523 | F: 301-234-6303  
LIST RENTAL: 914-925-2449, danny.grubert@lakegroupmedia.com

Radio World Founded by Stevan B. Dana

Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by NewBay Media, LLC, 28 East 28th Street, 12th Floor, New York, NY 10016. Phone: (703) 852-4600, Fax: (703) 852-4582. Periodicals postage rates are paid at New York, NY 10079 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 282, Lowell, MA 01853.

For custom reprints & eprints please contact our reprints coordinator at Wright's Media: 877-652-5295 or NewBay@wrightsmedia.com

Globe graphic ©iStockphoto.com / Edward Grajeda

Copyright 2015 by NewBay Media, LLC.  
All rights reserved.  
Printed in the USA



# New Broadcasters Are Fired Up

Read about five of the newest FM broadcasters in our latest eBook

In Radio World's latest free eBook, we focus on LPFM. The expansion of that service continues apace, bringing a fresh injection of signals to the band. Counting original and new LPFM stations, some 981 were on the air as of early March, according to the FCC database, and another 1,569 construction permits have been issued.

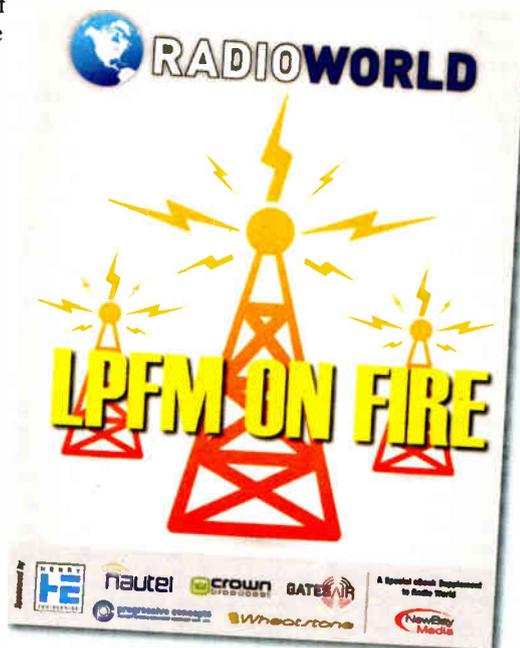
Such numbers are impressive but don't reveal the breadth of new content, program ideas and enthusiastic people behind the statistics. In the latest eBook, we hear from five of these new broadcasters.

In Killeen, Texas, a new radio signal will serve military veterans, families and their supporters. In top-10 market Philadelphia, a nonprofit community media center has found an FM frequency that covers half a million potential listeners.

A few miles down I-95, Radio Newark plans to bring its unique programming about astronomy, chemistry, engineering and other scientific topics to the dial. A local news organization in Haverhill, Mass., has found another outlet for its content. And Ronald Reagan's boyhood hometown in Illinois will be hearing its own Christian radio station with a strong signal in town.

Find these stories at [www.radioworld.com/ebooks](http://www.radioworld.com/ebooks), along with a dozen other eBooks on topics you'll want to explore.

It's exciting to see such strong interest from readers in Radio World's eBooks. Thousands of people have accessed this growing library of free content since we launched the series a little over two years ago.



FROM THE  
**EDITOR**



Paul McLane

The 4K Charity Fun Run is a 2.49-mile (4 km) race that will take place on Tuesday, April 14. The run will start at 7:30 a.m. and loop through Sunset Park, which borders McCarran International Airport, with transportation for runners provided free from NAB Show hotels.

The inaugural 4K run took place last September at the IBC Show in Amsterdam; organizers received positive feedback and decided to bring it to the industry's biggest annual show. The NAB event is co-founded by Elemental Technologies and Ericsson and co-sponsored by Akamai Technologies, Aspera, an IBM company, Dolby Laboratories and Verimatrix, with supporting sponsorship from ChyronHego, DTS and EVS. NewBay Media,



The inaugural 4K run was held in Amsterdam last year.

Remarkably, we are approaching convention time again. This will be my 27th or 28th spring NAB Show, so I've been doing it long enough to remember shows in Dallas and Atlanta as well as Las Vegas; but I still feel like a rank newbie sometimes when I chat with longtime attendees who recall attending in hotel venues in Washington or Chicago.

We start our preview coverage talking about management themes in this issue; look for technical sessions and exhibit lists in the next issue. Will you attend? What will you hope to accomplish at the show? Let me know at [radioworld@nbmedia.com](mailto:radioworld@nbmedia.com).

NewBay Media is accepting submissions for the second annual Best of Show Awards, intended to honor outstanding products and to give companies greater opportunity to promote them. I like to keep both manufacturers and readers aware of our process.

The first year was a success, with nearly 200 products submitted by con-



LTTV demons Isabel Manske, Kara Lane and Ryan Horacek visit the ENCO booth at the 2014 show. LTTV is hosted and supported by Lyons Township High School in LaGrange, Ill.

vention exhibitors, many of whom told us they liked the fact that the program allows vendors to tell our judges exactly which products they want to be considered and why, from among thousands on display at. You can review the 2014 post-show Program Guide at <http://tinyurl.com/newbaybestofshow>.

Awards will be given by Radio World as well as sister NewBay Media publications TV Technology, Digital Video, Video Edge, Radio magazine, Pro Sound News and Sound & Video Contractor. Companies may submit a product for consideration by

What will you hope to accomplish at the show?

one or more of those publications, and may submit multiple products.

Winners are selected by panels of professional users and editors based on descriptions provided by companies via an online nomination form as well as on judges' inspection at the convention. This program replaced several previous award programs from the NewBay publications listed above, including our "Cool Stuff" Awards.

The entry deadline is March 27. Companies can enter at <http://tinyurl.com/bestofshow2015>.

Television industry folks will likely talk about 4K at the convention; but many attendees will focus on a different kind of 4K, the kind you accomplish with running shoes.



**THIS ISSUE**

MARCH 11, 2015

**NEWS**

Media Groups Gain Approval for Drone Testing .....	1
e911FM Is Prepped for Launch .....	3
New Broadcasters Are Fired Up .....	4
News Roundup .....	5
AM, FM Chip Topics at NABA .....	8

**NAB SHOW MANAGEMENT PREVIEW**

WLEN: Community Service First .....	10
Protect Yourself From Cyberthugs .....	12
Karmazin to be Honored .....	11
Economize and Monetize Your Assets .....	12
Keep an Eye on .....	15

**FEATURES**

Inspect Trouble Spots With a Scope .....	18
Marketplace .....	20
Passion, Lifestyle Tie-Ins Drive Success .....	22

**BUYER'S GUIDE**

Nautel GV40 Does More With Less Power .....	23
GatesAir Balances Efficiency, Performance .....	24
Tech Updates .....	25-26

**OPINION**

UA5 Will Benefit Broadcasters and Engineers .....	29
Reader's Forum .....	29-30

**NEWS****E911FM***(continued from page 3)*

Application to embed alert information into the RDS data for presentation in the connected car. HD Radio "Active Alerts" are also planned. Stations will be able to control the frequency and amount of time that these alerts are active, according to Hartle.

On the social media side, Jump2Go partnered with Shape Social, which developed a Web service that integrates with Jump2Go's platform to take alerts and push them out into social media. "It is a perfect synergy to use social media like Twitter to have these alerts going viral," said Hartle. "Countless numbers of people are made aware of an alert that they may miss without e911." To receive alerts via social media, smart phone users need to be subscribed to the participating station's Twitter account.

The e911FM alert text is also inserted into artist and title fields in streaming and online services including iHeartRadio, TuneIn and NextRadio. For now, the service is text-based. Hartle said that in the future, graphics such as the Amber Alert logo may be added.

The initial test stations in Seattle and New Orleans have Jump2Go's JumpGate hardware installed and running. The JumpGate data processor is a compact network appliance that manages communications between broadcast systems and the company's Web-based information technology. Additional locations were selected based on emergency/extreme weather potential, and include locations in the Gulf States, eastern seaboard and Hawaii. Oklahoma and Texas were selected as the center of tornado alley, and Los Angeles was picked due to its potential for earthquakes. Cox, Greater Media, Beasley, Radio One, Entercom and Hubbard are scheduled to take part in the testing.

Hartle said one big task remains. "The Amber Alerts work with Zip codes for location. We're mapping FCC station call letters with zip code databases. On-air tests have been awaiting completion of the data aggregation part of the system. Hartle adds, "Alerts from the National Weather Service and FEMA IPAWS are now in the system, but Amber Alerts are still being added." He hoped to complete the data aggregation trials in early March, with on-air tests to follow.

The e911FM service will be made available free to Jump2Go's JumpGate customers who subscribe to data lookup services which are triggered by automation and station program events. Customers pay \$75-100 per month depending upon the services to which they subscribe. Single-station customers can purchase a JumpGate with a first year of service for \$700.

**NEWSROUNDUP**

**PODCASTING:** With the increasing popularity of podcasting, Triton Digital and Edison Research are joining efforts to measure that audience. The companies plan to deliver a measurement product called "Webcast Metrics on Demand" later this year. They believe the U.S. podcast market is potentially worth roughly \$100 million; but it's been hard to get advertiser attention without third-party data quantifying the listening. Some 46 million Americans age 12 and older have listened to at least one podcast in the past month.

**MT. WILSON:** A four-tower complex on RF-heavy Mt. Wilson above Los Angeles is for sale. The complex dates to 1952 when the late Los Angeles broadcaster John H. Poole developed the site. Poole Properties Inc. hired Media Services Group to explore the sale. MSG Spokesman Robert Heymann Jr. described this multi-tower site as "beachfront property" that could command \$5 million to \$10 million. The complex is home to towers serving iHeartMedia's KBIG(FM) and KYSR(FM), Grupo Radio Centro's KXOS(FM) as well as Fox affiliate KWHY(TV.)

**WMAL:** Cumulus has put land under its four-tower array serving Washington's WMAL(AM) on the block. The 75-acre tract in Bethesda, Md., is in a residential area and could be worth "hundreds of millions," according to broker CBRE Group. Cumulus Media took over the 90-year-old station in 2011 when it purchased Citadel Broadcasting for \$2.2 billion. CBRE is accepting developer offers for the WMAL site until March 12.

**Digital Audio Distribution Done Right**

# DDA212Network

List Price \$1,650

- Re-clocking Dual 1X6 AES Distribution Amp
- 32-192 kHz with < 300 picosecond Jitter
- Built-in SRC, Input EQ and EXT SYNC
- Webserver Remote and Email Alerts



sales@AtiAudio.com

Come visit us at NAB - Booth N4707

**ATI**  
 atiaudio.com

## DRONES

(continued from page 1)

stations; in its proposed rules, the FAA lists several potential business and non-business applications, particularly in areas that are hard to reach and/or dangerous for a manned aircraft. Examples include broadcast or cellular antenna and tower inspections.

"In some cases, unmanned aircraft could conduct inspections more safely than a worker who would need to climb a tower," FAA Administrator Michael Huerta said in a conference call with reporters.

The FAA's proposed drone rules stipulate that drones used for commercial operations should weigh less than 55 pounds, fly only during the day in good weather, fly no faster than 100 miles per hour, stay away from airports and remain within visible line-of-sight of the operator (see sidebar below).

Meanwhile, "Virginia Tech sees [its] collaboration as a key to groundbreaking research to use UAS for the news and broadcasting industry on a routine basis," said Rose Mooney, executive director of the Virginia Tech Mid Atlantic Aviation Partnership. "UAS can provide this industry a safe, efficient, timely and affordable way to gather and disseminate information and keep journalists out of harm's way. We are excited to be



**A drone is tested at a Virginia Tech evaluation site, one of six sites established by Congress to collect data on drone use.**

partnered with the consortium and the FAA to further UAS integration into the National Airspace System."

### BABY STEPS

When it comes to the current market for drones, there is no shortage of manufacturers, with models ranging from the simplest hobbyist plaything to sophisticated flying machines featuring state-of-the-art performance, stabilization and telemetry. There are also many potential customers ready to buy and fly the drones, some looking for fun and others looking to put the drones to work.

But standing in the way of the second group is the FAA's ban on commercial flight of small unmanned aerial systems. Among those who are lobbying to have

the ban lifted are newsgatherers, who should be allowed to use drones to cover news stories, according to Mike Cavender, executive director for the Radio Television Digital News Association. "That's the goal that we have been working toward for many months," he said.

There has been some movement on the FAA's part recently on using drones commercially for aerial photography, though none of it has permitted reporter/photographer teams to go out and shoot news with drones.

Last September, the FAA granted exemptions to a half-dozen aerial photography companies, allowing them to operate camera-toting drones under controlled circumstances, operated within line of sight by an FAA licensed pilot

Under the proposal, the following rules would apply to small unmanned aircraft for commercial use:

- Weigh no more than 55 pounds
- Maximum altitude of 500 feet above ground
- Maximum airspeed of 100 mph (87 knots)
- Unaided (except for glasses or contacts) visual line-of-sight by the operator
- Flight during daylight only
- No flight over people not involved in the operation
- Minimum weather visibility of three miles from control station
- Preflight inspection
- Limited to no flight in restricted airspace
- No airworthiness certificate is required
- Operators must avoid all other aircraft, manned or otherwise
- Accidents resulting in property damage or injury must be reported

The FAA will accept public comments on the NPRM until April 24 to Docket FAA-2015-0150. Attorneys with Thompson Coburn LLP in Washington expect "a high volume of comments given the wide-reaching impact of these regulations on commercial UAS activity in the United States."

The FAA issued a status report indicating it received 33,000 comments on its June 2014 "Interpretation of the Special Rule for Model Aircraft." The status report "provides us with just a hint of what could be a massive undertaking that is ahead of the FAA when comments to the NPRM start rolling in," the attorneys said in a letter to clients.

— Deborah D. McAdams

and with the assistance of a trained spotter. The companies needed to provide the FAA with a week's advance notice and file a flight plan with a local FAA office.

The airspace in which the drones are operated must be under control, and the general public cannot be on the ground below the operating drone.

ESPN announced in January that the FAA had granted permission to Vortex Aerial, one of the aerial photography companies with an exemption, to conduct drone photography flights for use in covering the Winter X-Games.

FAA exemptions have also been granted to a small number of firms for uses in industries such as real estate, agriculture and pipeline and power line inspections.

The very nature of a breaking news story is that much of it is unpredictable, so the one-week notice requirement and control of the situation on the ground are non-starters for news use, according to the RTDNA. "What we are working toward in working with the FAA and other organizations in Washington, is a broader exemption which would allow newsgathering organizations to have some type of limited, line-of-sight opportunity to use unmanned vehicles over breaking news events and spot news," said Cavender.

### HARD TO MANAGE

Indeed, the FAA doesn't disagree with an estimate by the General Accounting Office that final drone rules are probably two to three years away. Until that time, the current rules remain in effect.

Huerta told reporters the FAA is tackling integration of new rules — which he called a "flexible, regulatory framework" — in phases to keep the nation's airspace safe because that's what the public expects.

Pictorvision in Van Nuys, Calif., is another of the six aerial photography companies granted an exemption from the FAA last fall. Pictorvision President Tom Hallman contrasted the use of drones in "controlled circumstances" with the uncontrolled environment of ENG.

Using drones for newsgathering "is just the opposite of our situation," Hallman said. "Newsgatherers don't have total control, and it wouldn't be newsworthy if it was. That's why they're the hardest of all users for the FAA to know how to manage."

McKenna Long & Aldridge LLP attorney Lisa Ellman has worked both sides of the drone fence, first with the Department of Justice working to craft rules that would guide the domestic use of drones in the U.S., and now as co-chair of her law firm's unmanned aircraft practice.

Currently, the FAA requires someone to have a pilot license to fly a commercial drone for safety reasons.

(continued on page 8)

## NON-PILOTS CAN FLY DRONES UNDER PROPOSED RULES

Drones would not have to be flown by licensed pilots under rules proposed in February by the Federal Aviation Administration.

The proposal is counter to exemptions granted last year to several TV and movie production companies requiring unmanned aerial systems to be operated by a licensed pilot. The FAA said the requirement would pose an "unnecessary burden for many small UAS operations."

"A person typically obtains a private or commercial pilot certificate by learning how to operate a manned aircraft," the FAA said in its 195-page Notice of Proposed Rulemaking. "Much of that knowledge would not be applicable to small UAS operations because a small UAS is operated differently than a manned aircraft."

A commercial drone operator would be required to pass an FAA-approved aeronautics test, obtain approval from the Transportation and Security Administration, get FAA-drone certified and be at least 17 years old. She or he would have to be recertified every two years.

"This is the most hopeful I've been about the prospects for drone journalism in quite some time," said Matt Waite of the University of Nebraska's Drone Journalism Lab. "There's very little you couldn't do journalism-wise within these rules."

Waite continued: "Under this regulatory framework, every newsroom will have drones and people certified to fly them. I had, before today, been despairing that people were going to have to get a pilot's license and there was going to be scads of additional gear you were going to have to own."

WHERE COULD YOU GO...

...IF YOU HAD  
ACCESS?

VISIT US AT NAB  
BOOTH #C2627

NEED ACCESS?  
CONTACT US:

1 800 237 1776  
info@comrex.com

◀ ACCESS ▶  
2USB

**COMREX**  
BROADCAST RELIABLE



19 Pine Road Devens, MA 01434 www.comrex.com

info@comrex.com 1 300 237 1776 1 978 784 1776

World Radio History

## DRONES

(continued from page 6)

Significantly, it has proposed that those flying drones will not need the same training as pilots who fly manned aircraft. Rather, the FAA proposes to create a separate certification-based process for drone operators; such operators would need to be recertified regularly.

Ellman characterized the proposed UAS operator's certificate as a "huge, wonderful thing" in comments to Fortune Magazine. "It will be relatively easy to get and will make drones broadly accessible."

She applauds the FAA's recent moves on authorizing media-government partnerships on drone testing. Such tests, she told TV Technology, could answer questions such as "if you're using them at a crime scene investigation, is it going to be safe and not going to interfere with the investigation." The tests would allow broadcasters "to think in advance of all these issues that policymakers could be thinking about, and then present those to the FAA."

### 'COMMONSENSE RULES'

Mickey Osterreicher, general counsel for the National Press Photographer's Association, suggested that the FAA should develop "commonsense rules" regarding drone flight pilot's licensing, "...something similar to what people have for driver's licenses, which are, that



**Pictorvision has received FAA approval to fly two new heavy lift drones for aerial cinematography. Pictorvision was one of the first companies to receive the FAA exemption to commercially fly drones for aerial cinematography and also has FAA licensed and approved personnel.**

you have to take a written test; you have to take a road test. In other words, you have to show you can fly one of these devices; you have to have it registered. You can't just fly any platform, just like in a similar way the Department of Transportation limits what can be on the road, and then you have to meet certain minimal insurance requirements, meaning you have to have some insurance."

As to what will be the minimum requirements for a drone to be deemed airworthy for news coverage use, Michael Perry, spokesman for drone-maker DJI in Hong Kong, noted some features on the company's top-of-the-line unmanned aircraft.

"We've just created a pretty remarkable app for our Phantom Vision series

that gives you all of the telemetry onboard in real time to your smartphone," he said. "So while you're looking at the image of what the camera's seeing, you're also getting everything from altitude, speed."

Though the FAA requires the previously noted operation of a drone within line of sight of the pilot, Perry said it might be difficult to tell at a distance whether the drone was coming or going. "The app also gives you the orientation of the aircraft. It will tell you where the platform is on the map, and you can set waypoints on it: 'I want the platform to fly here, here and here, this is the altitude, this is the speed, go.' And it will automatically fly out, and it will automatically come back to you."

Though there are stories making the

rounds about stations that have "jumped the gun" on using drones for news photography, attorney Ellman said, "It's illegal, and on Oct. 10 the FAA released new guidance talking about the ability to bring enforcement actions against those who operate a UAS illegally."

In January, the FAA "issued guidance to law enforcement about what the rules are and what they should be looking for, how to go about bringing enforcement action. So they're taking a big risk, liability concerns if something goes wrong, and the fact that it's just illegal," according to Ellman.

RTDNA's Cavender suggested there is something newpeople can do to assist in the industry's lobbying effort to the FAA: document for him "specific in-market examples of breaking news events and other news stories where the use of drones would have allowed for more access as well as better, safer video coverage than provided by equipment currently in use."

NAB also has the use of drones on its radar. The 2015 NAB Show in April will feature a new Aerial Robotics and Drone Pavilion and a session on drone use for newsgathering.

*A version of this story appeared in our sister publication TV Technology. Radio World News Editor/Washington Bureau Chief Leslie Stimson contributed to the above report.*

*Also see a related commentary on page 29 of this issue.*

## AM, FM Chip Topics at NABA

Commissioner Ajit Pai this winter urged his FCC colleagues to push for AM reforms; he also said he's not in favor of a mandate for FM chips in devices.

Pai spoke at the "Future of Radio & Audio" symposium in Toronto Feb. 19. Some 200 people attended the event, organized by the North American Broadcasters Association. Nautel, GatesAir, RCS, SonoTechnique and WideOrbit exhibited.

Noting that the FCC "has been deeply divided on many key issues" lately, the commissioner said that "AM revitalization is one area where we could come together to advance the common good. And now is the time to take concrete action because time isn't on the side of this grand old band," Pai said, according to a copy of his prepared remarks.

When we last checked, the Media Bureau was still working on its AM revitalization item. Sources tell Radio World the issue has been slowed, in part, because of the agency's focus on broadband.

Pai noted radio's plethora of competition in the auto dash, and said broadcasters can no longer "just sit back passively" and expect listeners to flock to them. "Rather, to meet consumer demand, they need to be more aggressive, to package their content in different ways and deliver it through a variety of means."

The commissioner "would love to have the functionality of being able to listen to FM stations over

the air through my smartphone."

He did not, however, endorse the idea of the U.S. government imposing a mandate on wireless carriers to embed and activate FM chips in devices. Though NAB backed off the mandate idea a while ago, others in the industry have kept the idea alive. Pai said he is "optimistic" about progress on FM chips "as a result of commercial negotiations and competitive pressure in the private marketplace."

In discussing government's role in regulating radio, Pai said when possible, change should come from the bottom up. "For example, Canada's unsuccessful attempt to transition AM and FM broadcasters to digital audio broadcasting in the L-Band serves as a sober reminder that markets will not necessarily evolve as regulators envision."

Indeed, Canadian broadcast sources speaking to Radio World recently about Canada's digital transition said that some broadcasters there now feel they should use the technology the U.S. has adopted. We've reported that HD Radio is being tested again in Canada.

NABA is made up of member broadcasters from Canada, the U.S. and Mexico, which has also begun



Photo by Jayson Gallop

**FCC Commissioner Ajit Pai has urged his colleagues to push for AM reforms and said he's not in favor of an FM chip mandate.**

an HD Radio rollout. North American automakers, their suppliers, smartphone makers and their carriers would prefer a unified digital radio technology platform.

NextRadio also was a large topic at the NABA meeting. NextRadio-backer Emmis Communications joined NABA as an associate member last year, and Emmis SVP/CTO Paul Brenner is vice chair of NABA's expanded radio committee; Julie McCambley, director of Radio Production at CBC/Radio Canada, chairs that team. Brenner and McCambley helped to plan the radio event.

Emmis President/CEO/Chairman Jeff Smulyan used the occasion to announce that an ad campaign informing consumers about the availability of FM chips

on certain Sprint smartphones would begin Feb. 23. NAB Labs has helped with development of the NextRadio FM smartphone app and the broadcast lobbying association is aiding the marketing effort.

NAB President/CEO Gordon Smith and RAB President/CEO Erica Farber sent stations a letter asking them to consider donating inventory to air the ads.

In a recent interview, Emmis SVP/CTO Paul Brenner characterized the spots as a "fun, positive way" to inform consumers about listening to radio on their devices.

— Leslie Stimson



## Ignite the Airwaves

It starts with producing great content. It ends with engaging your audience.

We emphasized the value of turnkey broadcast solutions throughout our history as Harris Broadcast – a history that continues today with the formation of GatesAir. We remain the only industry vendor that brings everything together for the over-the-air radio broadcaster.

Networked solutions to work efficiently and creatively across studios. Cutting-edge transport solutions to reliably move program audio across any network or connection. Cost-reducing transmission architectures to maximize revenue-generating opportunities across analog and digital broadcasts.

Realize your over-the-air potential with GatesAir.



*Connecting What's Next*

+1 513 459 3400

[www.gatesair.com](http://www.gatesair.com)

# WLEN: Community Service First

Michigan station awarded prestigious Crystal Heritage Award

## NEWSMAKER

BY KEN DEUTSCH

Detroit has been in dire economic circumstances ever since the auto industry's bankruptcies and reorganization. The effects have been devastating and wide-ranging, especially in small neighboring suburbs, like Lenawee County, home to WLEN(FM).

"We used to have several manufacturing facilities here supplying the 'Big 3,' and our area was the home of Merillat Cabinets," said Julie Koehn, president of the station. "When the economy sagged, the auto manufacturers began laying off, and the housing industry collapsed. Things changed dramatically for our community, and we lost about 10 percent of our population. I have seen homes for sale for less than

service that the station will be presented with a Crystal Heritage Award on April 14 at the NAB Show in Las Vegas. This honor is bestowed only upon stations that have won five previous Crystal Radio Awards for exceptional year-round community service, and only four other stations have been so recognized.

At a time when even the most community-minded of stations feel compelled to explore money-saving approaches like voice tracking, outsourcing and cutting back on local involvement, what drives WLEN's quest to super-serve its area, and how are these efforts documented?

### HOMETOWN HOPE AND MORE

"Our staff is really committed to the community," said Koehn. "We have 17 full- and part-time employees, and they really want to make an impact and do meaningful things. A few years ago, we started our Community Action Squad.

in Adrian, Mich., soliciting donations. Last year, \$20,000 was raised to aid veterans in the community with rent, utility bills or even a pair of boots to help secure employment.

While the station participates in a number of charity efforts throughout the year, there is one big project that has year-round visibility. It's called "Hometown Hope," and it provides a marketing grant every month to a different local nonprofit organization. Each October, the station calls for the next year's entrants over the air and through social media. There is a six-week application window.

"Nonprofits can all apply for the grants of \$3,700 each," said Koehn. "These grants include radio spots,



Julie Koehn

community service, but they are not documenting it or making it generally known. It's not a big market/small market thing, nor is it a corporate versus independent ownership kind of thing.

"I have friends in Detroit radio and TV who are doing amazing things, like raising money to pay for funeral expenses for a shooting victim, stocking soup kitchens or sponsoring events that raise funds for cancer research," said Koehn. "I especially admire the community service culture at Hubbard Radio and Bonneville International."

WLEN documents nearly all its public service activities, and Koehn personally puts this "scrapbook" together each year, complete with photos and narratives of the events. The 2014 edition was 12 pages, professionally designed, and included a list of awards and recognitions the station received during the year.

"We call it 'Report to the Community' and we present it to our elected officials. We also use it as a marketing tool to let people both inside and outside our community know who we are and what we stand for," said Koehn. "Documenting our efforts also helps us to gauge what we're doing and make sure we're going in the right direction with our community service."

### THE BUCK STOPS HERE

"There are times when we get underwriters to help us pay the direct expenses of our larger projects, which allows us to cover personnel costs and keep the lights on," said Koehn. "Many times we donate a portion of these underwriting efforts directly back to the charities themselves, like our Toys of Lenawee campaign. We get underwriters to help cover personnel expenses at the broadcast and make a monetary donation back to the Toy/Food drive."

Koehn is a 30-year radio veteran; her father, John W. Koehn, founded WLEN in 1965 and, five years later, the station that is now WMIM(FM), Luna Pier, Mich. He passed away in 1990. She has served on the Michigan Association of Broadcasters board of directors for many years, serving as chair in 2005, and as the District 13 (Michigan) representative to the NAB board of directors through June of this year. She has also been a featured speaker at national conventions for both the NAB and the RAB.

*Ken Deutsch says he still has fun writing for Radio World, even after 30 years.*



Check presentation at the Thank a Vet Fundraiser, which raised \$20,000. Funds to help veterans in need stay local and are administered through Housing Help of Lenawee. Pictured: Kathy Williams and Julie Koehn of WLEN; Marge Erickson and Kristine Henson-Jones from Housing Help of Lenawee; Jim Mooney of WLEN; and Suzanne Miller from TLC Community Credit Union.



Community Action Squad makes pasties for Habitat for Humanity of Lenawee. They sell approximately 5,000 pasties, all made by volunteers for \$5 each as a fundraiser for Habitat. Pictured, foreground, are Kathy Williams (sales), Leslie DeCapo (administrative) and Julie Galazka (morning show).

\$20,000 — literally less than the cost of a new mid-price car."

Because of the economic climate, requests for assistance grew and the pool of those able to give became much smaller according to Koehn, who added that the biggest local problems have been homelessness, hunger and unemployment.

In the midst of all this, WLEN, a standalone FM, has continued to focus so heavily and so successfully on public

In a couple of weeks, it will participate in the Walk for Warmth to help people pay their utility bills. The Squad also raced around a grocery store in the Supermarket Sweeps to raise money for our local soup kitchens, food banks and warming shelters."

Another public service event on WLEN's calendar is "Thank a Vet," which has taken place on Veterans Day for the last 10 years. Station personnel broadcast curbside outside the station

interviews on our morning show, a live broadcast and a social media presence."

One of WLEN's more recent initiatives involves local students creating their own anti-bullying public service announcements that air on the station.

### TELL ME ABOUT IT

Why don't more radio stations or groups put an emphasis on community service?

"I think most stations are doing great

## KARMAZIN TO BE HONORED

Say "Mel" and most radio people know whom you mean.

SiriusXM, Viacom, CBS Corp., Infinity and Metromedia are among the corporate entities where Mel Karmazin thrived and led. Now he'll be honored by the

Broadcasters Foundation of America with its Lowry Mays Excellence in Broadcasting Award.

It will be presented during the foundation's breakfast on Wednesday, April 15, in

the Brahms Room of the Encore Hotel. Past recipients include Dick Wiley, Stu Olds, Rick Buckley and Stanley S. Hubbard.

"Recognized as an industry leader and innovator, Karmazin was the CEO and member of the board of directors of SiriusXM when he retired in 2013," the foundation noted. "He held a similar position at Sirius Satellite Radio and oversaw the merger with XM Satellite Radio.

"Before moving into satellite radio, Karmazin was president and chief operating officer of Viacom, where he served on the board of directors and was responsible for all of Viacom's operations," it continued.

"Previously, he served as president/CEO, and member of the board of directors of CBS Corp., following a stint as its president and chief operating officer. Karmazin first joined CBS in January 1997 as chairman and CEO of CBS Radio, following the merger of Westinghouse/CBS and Infinity Broadcasting, where he had been president and CEO. Earlier in his career, Karmazin spent 10 years with Metromedia."

The foundation commended him for his philanthropic ventures for organizations like NYU Langone Medical Center, Autism Speaks and The Paley Center for Media.

The Lowry Mays Excellence in Broadcasting Award is bestowed on an individual in broadcasting "whose work exemplifies innovation, community service, advocacy and entrepreneurship."

The breakfast is complimentary to all. To register email [info@thebfoa.org](mailto:info@thebfoa.org).



## IF YOU GO

Where: Las Vegas Convention Center is the main venue, though meetings and other events also take place at several others

When: April 11-16

Who: Last year's show drew an estimated 98,000 communications and entertainment

professionals, according to organizers

How: [www.nabshow.com](http://www.nabshow.com)

How Much: Various registration packages are available starting at \$150 for a "Session Three-Pack" plus exhibits pass to a \$1,449 "Smart Pass" that "gives you access to just about everything NAB Show has to offer."

# Everything You Need for On-Air or Production

- Feed multiple markets from a single studio
- Simple integration with audio playout systems
- Immediate access to any source in the station
- Built-in profanity delays and dynamics processing
- Buckets of mix-minus
- Powered by Logitek's dense-node AoIP architecture

**Logitek**  
Networked Console Systems

[www.logitekaudio.com](http://www.logitekaudio.com) | 800.231.5870

# Protect Yourself From Cyberthugs

Develop a strategy to keep your station safe from online threats

## RADIO IT MANAGEMENT

BY JAMES CARELESS

Once upon a time, a broadcaster's worst security threat was someone cutting tower guys and dropping the tower.

Unfortunately, the advent of the Internet and Web-connected stations has resulted in a new class of threats. Cyberthugs can cripple a broadcaster in so many novel ways that cowering and hoping to stay out of virtual sight is no longer an option.

A session of the 2015 NAB Show is titled "Cybersecurity for Broadcasters: Protect Your Station From Hackers, Spammers and Black Hats." Moderated by Gary Smith, chief engineer at Cherry Creek Radio in Saint George, Utah, the session will be held on Wednesday morning, April 15.

"The session is intended to make broadcasters aware of the need for cybersecurity and to introduce cybersecurity best practices," said Smith.

### KNOW YOUR ENEMY

Awareness starts by understanding the difference between hackers, spammers and black hats; all can do harm to a broadcaster through the Web.

"A hacker may be ethical, using IT knowledge to improve security, or may be unethical — "cracker"— using knowledge for harmful purposes," Smith explained.

"A spammer uses email, messaging services, junk fax and other means to deliver unwanted or unsolicited messages. A black hat hacker uses IT knowledge to violate computer or Internet security for disruptive malicious purposes or for personal gain."

The scope of the cybersecurity threat cannot be overstated in its potential breadth and impact on broadcasters.

"A cybersecurity attack can be as minimal as unwanted pop-ups on a Web page to a complete shutdown of the automation system and station routing systems," said Gary Smith.

"Business and accounting systems may be put at risk. EAS system attacks can result in costly fines to the licensee for failing to protect their system and or train their staff in EAS operations. Further, unauthorized EAS activations [can] diminish the effectiveness of the system in a real emergency."

The Emergency Alert System has been targeted by hackers. For instance, on Feb. 11, 2013, hackers briefly broke into EAS via various U.S. stations.

"The data bursts and the two-tone EAS attention audio preceded the report, which warned, 'Civilian authorities in your area have reported that the bodies of the dead are rising from their graves and attacking the living,'" said Smith. The message may have been amusing, but alerting officials took it dead seriously.

The hackers were able to achieve this breach because "the EAS decoding devices were on the public Internet and had not had their default passwords changed, enabling the problem."

### TARGETS

Broadcasters' video and audio streams are attractive targets for hackers. In two instances, hackers broke into a station's IT infrastructure, changing their streaming media settings such that users were redirected to [www.rudefm.com](http://www.rudefm.com), rather than the station's own media feed. The cause was a combination of the two stations' "inadequate security safeguard."

said Smith, plus the hacker's "ability to insert and/or redirect audio content."

A further threat is ransomware. This is a form of malware that is introduced into a broadcaster's network when an employee unwittingly clicks on a bogus link or an executable file attached to an email. Once in the station's network, the virus encrypts the files there so that they cannot be opened. The broadcaster is then told that it has to pay a certain sum electronically to the hackers within a certain time limit, in order to get an electronic "key" to unlock its files.

Ransomware incidents "have already occurred at several radio stations in Michigan, Louisiana and Arkansas, the Australia Post and ABC News," Smith said.

These are just some of the cybersecurity issues that today's broadcasters have to protect themselves against. The FCC's Communications Security, Reliability and Interoperability Council Working Group 4 (CSRIC WG4) is developing a cybersecurity strategy for broadcasters that will help them address such threats.

Meanwhile, "the FCC's CSRIC WG3 has prepared a report 'Recommended Security Best Practices for EAS Participants,' which extensively outlines methods to protect from unwanted intrusion into the network," said Smith. "It



includes basic recommendations, such as changing factory default usernames and passwords, placing equipment behind a firewall and limiting physical access to sensitive equipment."

On a day-to-day basis, broadcasters can improve their cybersecurity by training staff never to open suspicious emails and attachments; to stay away from questionable websites; and to use passwords that are robust and changed on a regular basis.

Broadcasters should also ensure that their data is backed up in a separate location that is kept off the network, except for daily updates. In this manner, the broadcaster's IT department can restore files that have been damaged by hackers, or encrypted by ransomware.

*James Careless reports on the industry for Radio World from Ottawa, Ontario.*

## Economize and Monetize Your Assets

Experts offer tips on saving money, increasing revenue

BY SCOTT FYBUSH

Want to save some money on some surprising office expenses? Avoid expensive FCC fines? Reimagine how your station reaches its audience? Move in to the world of mobile apps?

Just ask the experts.

Take office expenses, for instance: "How would you like to save up to 70 percent on your electric bill?" asks Paul Shulins, director of technical operations at Greater Media in Boston. It's all in the studio and office lighting, he says.

"There are a lot of incentives from electric companies for changing out fluorescent and incandescent lights to LEDs," some of them repaying the cost in as little as 18 months to two years.

And what about all those reams of paper and cartridges of expensive toner

that go into the office printer? "We're saving a ton of money with a new technology called Paper Cut," Shulins says. Instead of automatically printing every page that's sent to the printer — a surprising number of which never get picked up and used — the printers at Greater Media wait until employees walk up and swipe their IDs on a reader, and only then do they spit out the requested pages.

### BE VIGILANT

Does your station *habla Español*? Watch out for what could be expensive fines for indecency that might once have slid past English-only FCC agents.

"The FCC is watching and listening to foreign languages more closely," says Scott Goodwin, NAB's associate general counsel for legal and regula-

tory affairs. According to Goodwin, the current chief of the Enforcement Bureau, Travis LeBlanc, "has made clear that he wants the commission to take a more active role in enforcing the rules."

If the FCC makes good on its stated intention of requiring radio stations to put public files online, "stations will need to be more vigilant about the state of their political file," Goodwin notes.

And keep an eye on those EAS tones (or even close copies) that over-eager production directors and ad agencies try to slip into promos and spots — they've been a reliable source of FCC fines lately.

### THE NEW FRONTIER

If your station's "digital strategy" involves nothing more than some

*(continued on page 14)*



**nautel**  
Spectrum/Efficiency Optimizer  
Highest Hybrid IBOC Efficiency

70% at -20 dB	57% at -14 dB	52% at -10 dB
------------------	------------------	------------------

nautel.com/GV

# DON'T WASTE \$\$ ON SATELLITE CHARGES

Save Money on your Network Distribution using GatesAir IP Codecs-No more Uplink Charges



The Intraplex® IP Link family of IP audio codecs provides high-end features at an affordable price.

Offering an array of audio coding options, the IP Link codecs are suitable for use in Studio to Transmitter Links (STLs) as well as audio contribution and distribution networks. Support for IP multicast and multiple unicast streams enables one encoder to feed multiple decoders.

The Flexiva NetWave™ networkable digital audio system delivers the extensive features, operational flexibility and robust construction needed for standalone operation in both on-air and production studios, while the slim, desktop styling makes it perfect for news booths, voice tracking and portable applications.

The Flexiva™ air-cooled FM solid-state transmitter family provides today's broadcaster with a single transmission platform capable of analog and digital operation. Incorporating field proven GatesAir technology, Flexiva transmitters deliver world-class performance, reliability and quality.



New IP Link™ codec features enhance how broadcasters can cost-effectively move audio between one or more points, including flexible studio-to-transmitter, remote broadcast and internet delivery architectures.

New built-in Intraplex® SynchroCast™ technology for the IP Link enables precision-timed on-air program delay for content delivery across large single-frequency networks. Ideal for broadcasters and network operators covering large areas and difficult terrains, where many low-power transmitters cover widespread populations.



Call SCMS for more information

**1-800-438-6040**

[www.scmsinc.com](http://www.scmsinc.com)



Latin America  
760-650-1427  
Lily Massari

West Coast  
818-398-7314  
Doug Tharp

Central  
315-623-7655  
Bernie O'Brien

North Central  
573-478-3737  
Pam Leffler

Southern Gulf  
866-205-6905  
Andy Cole

Mid-West  
844-436-4327  
Chuck Maines

North-East  
315-623-7655  
Jim Peck

Mid-South  
877-391-2650  
Bob Mayben

Pro Audio/South-East  
877-640-8205  
Ric Goldstein

Bradley Division  
800-732-7665  
Art Reed /  
Bob Eburg

**TIPS**

(continued from page 12)

banner ads on your website, it's time to revisit what you're doing, says Paul Jacobs, VP/general manager of Jacobs Media and jacapps.

"We believe the days of banner ads are going away," Jacobs says. Instead, the new frontier is ads that run within a station's app — and can be activated by voice command. (Imagine a spot telling a listener/app user to "say coupon now" or "say directions now to find the nearest location.")

Another area where stations can boost digital revenue, Jacobs says, is local guides. "Imagine a rock station with a local bar guide, with the bars paying to be included," he says.

Jacobs acknowledges that the transition to these new forms isn't always an easy one for established sales staffs or the agencies they sell to.

Within radio, "there's an ongoing challenge in selling anything that isn't a :60 or :30 spot with Nielsen numbers behind it," Jacobs says, but outside radio, "ad dollars are moving to a much more definitive ROI model," in which

advertisers pay for the actual reach of their ads.

Want to think about even bigger changes in the way your managers think about radio? David Goldsmith, president of MetaMatrix Consulting, says owners shouldn't get caught up in traditional concepts of what "radio" is.

**CHANGING THE PARADIGM**

As an example, he points to digital media players, which existed in various not-so-successful forms until Apple launched iTunes.

"It wasn't the digital players, it was

the delivery service that changed everything. That was the newest iteration — you could suddenly download music immediately and that changed the paradigm," Goldsmith says.

He's still bullish on some forms of "radio," especially podcasts.

**People are still in modalities where listening to radio is still viable.**

— David Goldsmith

"People are still in modalities where listening to radio is still viable," he says. "Drivetimes are getting longer, and if people are on an airplane, they can't stream video, at least not yet. But being stuck on 'radio' needs to be unlocked."

Goldsmith will be the keynote speaker at an NAB Show session "45 Foolproof Ideas to Enrich Your Radio Station" to be held Tuesday, April 14 from 2:30–5 p.m. His topic: "Five Common Traits of Pragmatic Leaders."

The session will also include presentations from Shulins ("Six Tech Tips to Work Smarter, Not Harder"), Jacobs ("Nine Mobile Apps That a Station Can Monetize") and Goodwin and NAB colleague Justin Faulb ("10 Rapid Fire Do's and Don'ts from a Legal Perspective").

The session will also include input from the Radio Advertising Bureau's John Potter ("Seven Ideas to Drive Radio's Revenue Growth") and Julie Koehn, president of WLEN(FM) in Adrian, Mich. ("Eight Ways to Monetize Your Community Service Efforts").

Veteran broadcaster Scott Fybush is editor of *NorthEast Radio Watch* ([www.fybush.com](http://www.fybush.com)) and has written for *Radio World* since 1999.

**NEW...**

**DIGILINK~HD**

- Single station to Multi-site Group
- VPN Remote Voice tracking
- Your Music scheduler or ours
- Multi-sound card Console interface
- Live & Automated Games with Rain delay
- Share audio files across the hall or continent

**ARRAKIS SYSTEMS INC.**



**Scalable, high speed Radio Automation for Multistudio, Multisite Applications**



Digilink-HD (DHD) is designed from the ground up for today's fast paced, distributed content, single station or multi-site Group. It empowers local and remote talent to collaborate to deliver exciting content, build your audience share, and increase sales. DHD has the tools to enable you to work faster, work smarter, and do more. For On Air, DHD supports live on air, live assist, hard disk automation, satellite automation, and Games automation. DHD supports multiple sound cards for interface to a console and live crossfading. Audio files can be shared across the station or across the planet. To create live sounding automation and facilitate flexible use of talent, DHD features a powerful segue editor, voice track recorder-editor, and remote voice tracking over a VPN (virtual private network). The voice track recorder-editor supports complete control plus the ability to assign a music bed under the voice track with ducking. DHD supports any kind of programming and any size market or multi-site group.

4 On Air Station cluster only **\$500 / month**

[www.arrakis-systems.com](http://www.arrakis-systems.com)

970.461.0730

**A Focus on Tech**

In our next issue, we'll dig into the tech sessions and exhibits of the spring NAB Show.



Photo by Jim Peck

**KEEP AN EYE ON ...**

Here are more selected NAB Show highlights for management-oriented radio attendees. We'll delve into technical/engineering sessions and the exhibitor list next issue.

**Vision to Action** — A Monday lunch led by Radio Advertising Bureau President/CEO Erica Farber features commentary about leadership from Scott Herman, executive vice president of operations, CBS Radio; Kim Guthrie, executive vice president, Cox Media Group; and Bob Proffitt, president and CEO, Alpha Media LLC. The session is called "Vision and Leadership: Getting the Buy-In." (We'll have more with Scott Herman next issue.)

**New Sheriff** — Broadcasters get a chance to meet new FCC Enforcement Bureau Chief Travis LeBlanc in a Tuesday morning session in the Broadcast Management Conference.



**They Done Good** — There are 50 finalists for the 28th Annual Crystal Radio Awards.

The awards recognize outstanding year-round commitment to community service. Winners will be announced and finalists honored at the NAB Radio Luncheon on Tuesday of the show. Also, the "Kevin & Bean Morning Show," based at CBS Radio's KROQ Los Angeles, will be inducted into the NAB Broadcasting Hall of Fame.



**Hey, Elaine!** — Radio is but one of the media in which Mari-lu Henner has made her mark. Add it to her list of TV, stage, books and movies. An NAB official said Henner will talk about "her enthusiasm for radio and audience relationships" at Tuesday's Radio Luncheon.

**Utility Chairman?** — Tom Wheeler has been in the headlines more than usual lately thanks to the FCC's actions on the issue of "net neutrality." The chairman will speak at the show on Wednesday morning.

**They Might Drone On** — A Wednesday morning management session will find out how broadcasters might make use of drones in "Unmanned Aerial Vehicles: Myths and Realities."

**No. 1 in Zeroes and Ones** — The National Association of Broadcasters

will introduce its Digital Leadership Award, to be presented "to an individual at a broadcast station, group or network who has had a significant role in transforming a traditional broadcast business to succeed on digital media platforms in a measurable way." Nominations were being taken into early March. The honoree will be saluted at the Technology Luncheon on Wednesday.

**In From the Cold** — John McAfee, founder of security tech company McAfee Inc., will speak at the Technol-

ogy Luncheon on Wednesday. NAB says he is "considered one of the greatest, most outspoken and controversial minds on the topic of information security." A recent USA Today story put it this way: "Welcome to the unhinged world of John McAfee, a pioneer in the computer-security industry who gained international notoriety in 2012 when he was entangled in a murder case in



Belize. McAfee, who was not officially charged, escaped the Central American country and became a cult figure."

**DSX4r** — A "Digital Strategies Exchange for Radio" is presented by NAB Labs on Wednesday. The one-day workshop will focus on new technologies affecting radio and promises to provide non-techie managers with tools to leverage digital assets. So expect lots of talk about digital audience measurement, connected cars, hybrid radio, branding, social media and the like.

## Do you Dream of T1 Quality Audio with Public Internet Prices?

*(but don't want to invest in New Audio Codecs?)*

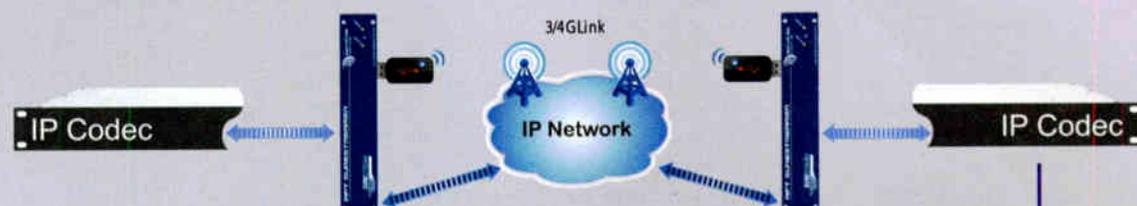
You've probably heard of APT's SureStream technology which is currently enabling hundreds of broadcasters worldwide to achieve the reliability & audio quality you expect from a T1 using easily affordable public internet connections. Now, you no longer need to invest in a new set of codecs in order to benefit from SureStream!



Find out more at  
[www.surestream.ws](http://www.surestream.ws)

The **APT SureStream** offers all the power and benefits of SureStream in an individual box that you can simply connect to your existing single port IP audio codecs.

### All the Benefits of SureStream on Your Existing IP Audio Codecs!



Use multiple wired internet connections or a combination of wired and wireless to send redundant streams over different network paths. SureStream's sophisticated techniques add even greater robustness to the connection!



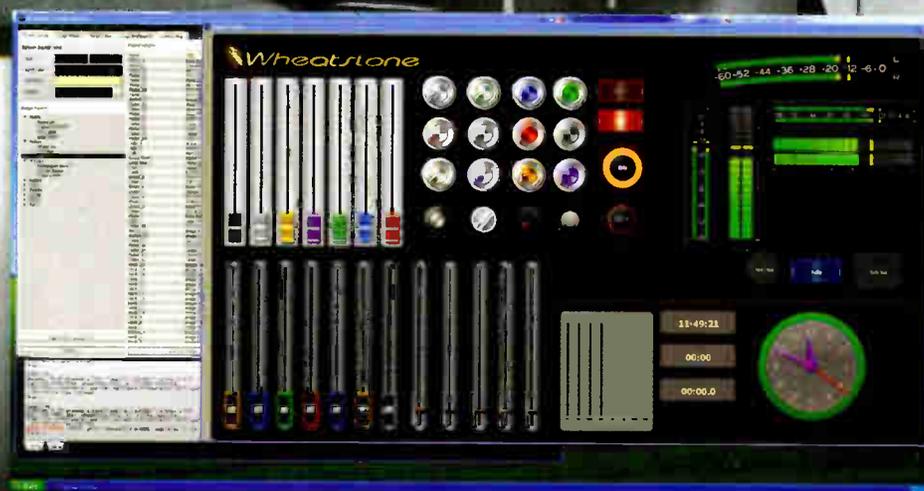
Even when a constituent link suffers drop-outs or loss of connection, the decoder receives a perfectly seamless, reconstructed stream with consistently low delay!

Today hundreds of SureStream links are in operation worldwide and being used for an amazing range of applications from STL to SSL and from syndicated content distribution to remotes and contribution feeds. Now, with minimum outlay, you can also enjoy the advantages of this amazing technology!

Powerful Performance
Powerful Control
Powerful Savings

✉ [ussales@worldcastsystems.com](mailto:ussales@worldcastsystems.com)
☎ +1 305 249 3110
🌐 [www.worldcastsystems.com](http://www.worldcastsystems.com)

FEEL FREE TO TELL THE BOSS THAT IT'S ROCKET SCIENCE...



## Screen Builder CONTROL YOUR UNIVERSE(S)

Mix, fire salvos, meter, time, start, stop. Build screens that do it all. Run them from anywhere. It's the ultimate control software.

## The Scoop on Codecs for IP Audio

Using the Internet for audio distribution makes sense, but the problem is a little like the holiday rush at the Post Office.

There are simply too many packets of data for the pipeline.

You need a codec to bit-reduce the audio stream. So what's it going to be? AptX, Opus, G.722 or AAC, and if so, which version of AAC? We asked Charlie Gawley from Teline, "The Codec Company" and a Wheatstone technology partner to fill us in on Opus, the EBU ACIP standard, and how the AES67 factors into the use of codecs for IP audio delivery.

For the entire story...

Go to: [INN20.wheatstone.com](http://INN20.wheatstone.com)



## Processing Tip from THE Processing Guy

Here's a helpful tip from Wheatstone Processing Guy Mike Erickson on keeping track of presets:

"One thing I try to remember to do when I'm making presets for a new install, or adjusting presets on a processor that's already online, is to date the presets. This not only gives you a good track record as to when you created that perfect sound, but it also allows you to go back if the PD complains that the processing 'sounded better last week' ... you'll know what preset to go back to even if you didn't physically write it down! Saving presets with the dates allows you to do the processing version of 'System Restore.' Also, it's a good idea to back up your presets. ALWAYS! I recall a Memorial Day failure of a processor in Market #1 going back almost 7 years ago. The backup switched on via silence sensor and I was able to swap out the main with another of the same model we had on the shelf and load the custom presets. Within an hour, we were back sounding as good as you could get with that box! The PD was nervous while I was swapping hardware that we wouldn't sound the same because all the presets were lost on the hardware. If I hadn't backed up the presets, weeks of work would have been down the drain."

This tip is brought to you by our new FM-55 audio processor, which is so easy to adjust from the front panel, you might want to save and date presets for the presets.

For more great information on processors and how to get the most of them...

Go to: [INN20.wheatstone.com](http://INN20.wheatstone.com)



## Beyond 4K at CES. The Internet of Things

What at CES 2015 could possibly interest a couple of audio network nerds?

Well, yes, gadgets of course. But there was also this: the Internet of Things (IoT). One analyst counted 900 exhibitors with IoT products there.

Thermostats, coffee makers, watches, jewelry, dog collars, ovens, smart sports apparel ... baby bottles. All connected to the Internet of Things.

It's a great concept, this idea of connecting appliances (not to mention, that new 4K TV) to the internet and controlling them through your smartphone or laptop.

For the entire story...

Go to: [INN20.wheatstone.com](http://INN20.wheatstone.com)



## It's Audioarts for LPFM

Since they opened the gates, we've been deluged with people wanting to know what they need for LPFM.

Well, here it is. Download this handy FREE guide to LPFM from Audioarts' website. It'll point you in the right direction toward everything you need to know.

Download your FREE LPFM guide at...

Go to: [INN20.wheatstone.com](http://INN20.wheatstone.com)



See Wheatstone at NAB 2015 • Booth C755

phone 1.252.638-7000 | [wheatstone.com](http://wheatstone.com) | [sales@wheatstone.com](mailto:sales@wheatstone.com)

OK, this space is an advertising space paid for by Wheatstone. But hopefully you'll find it informative, entertaining and compelling.



# Inspect Trouble Spots With a Scope

Also, shine some light on your rack room

## WORKBENCH

by John Bisset

Read more Workbench articles online at [radioworld.com](http://radioworld.com)

Here's a multipurpose troubleshooting tip from Los Alamos Neutron Science Center RF Systems Engineer John T. M. Lyles. It's a fiber-optic bore scope inspection tool with video.

John has used it to inspect the inside of large cavity amplifiers and to look down the annulus of 6- and 9-inch coax, searching for burned contacts and arc marks. Now you don't need to tear down a system just to inspect it. You can also look down dry drainpipes for obstructions or dropped tools.

Have you ever lost a screw around an engine and wondered where it landed? Then the bore scope is for you.

John writes that many sources sell these, such as Harbor Freight ([www.harborfreight.com](http://www.harborfreight.com)). Cheap ones don't have the best resolution or features; don't expect bottom-end models to provide superior performance. John picked up a brand by Starrett for \$200 and reports that it is fine for quick and simple uses.

He writes that the shorter bore scope is better than the longer ones; the latter become difficult to maneuver.

Look for a scope that has variable brightness LED illumination, a right-angle lens and the ability to articu-

late the far end of the fiber with a joystick.

John also was fortunate to convince his management to get an expensive Olympus brand, which has a large LCD remote screen and the ability to save snapshots to a USB stick. The Olympus has a fully articulated end that can see in every direction. It extends to 6 feet; the diameter of the camera end is 0.35 inches. The Olympus has removable wide-angle and long lenses, including a right-angle illuminated lens.

Adequate rack lighting is a recurring problem. Fig. 1 shows a creative way to shine some light on the subject.

Spirit Catholic Radio's Mark Voris sent in this suggestion. Depending on the size of the lighting fixture, several racks can be illuminated with one fixture. The protective metal and plastic shroud protects the florescent bulb compared to open fixtures.

Spring is right around the corner, and where cold is receding it won't be long until nesting insects and rodents look for new homes.

Fig. 2 shows another of Mark's solutions, a satellite conduit plug. Check all conduits leading into buildings. Use an end cap or expandable foam, as shown, to discourage these varmints.

(continued on page 20)

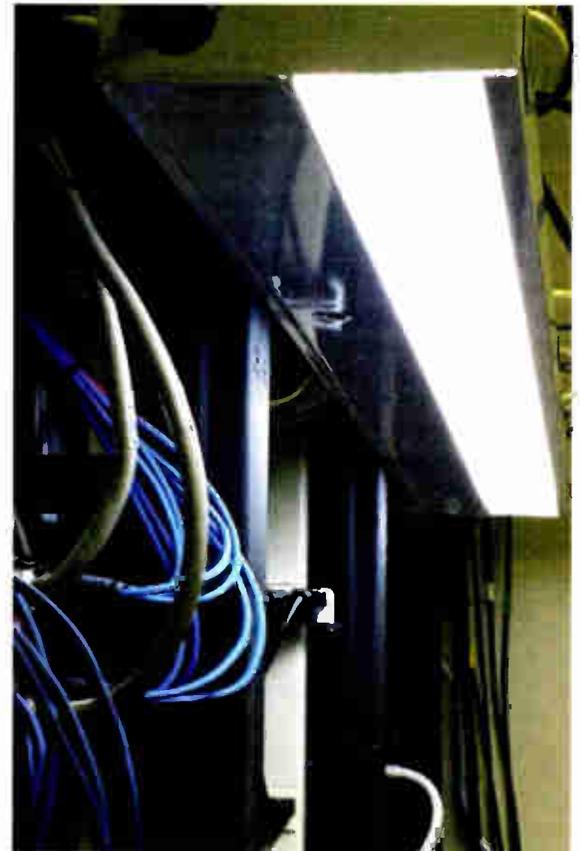
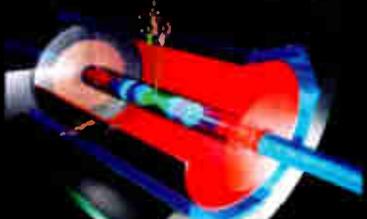


Fig. 1: A florescent light fixture illuminates equipment racks.



**DC**  
High-Voltage Supplies  
for Science and Industry



**HF**  
**DRM Shortwave**



**VHF**  
FM Analog & FM/HD  
Radio Transmitters



**VLF/LF**  
High-Power Systems that  
Ensure National Security



**UHF/SHF**  
Transmitters for NASA's Deep Space Network

**Customer Driven Solutions from DC TO SHF**

*Continental Electronics*

[www.contelec.com](http://www.contelec.com) (214) 381-7161

NEW

# Like Clockwork



## ANALOG FM & HD1 PERFECTLY IN SYNC

Inovonics' new JUSTIN 808 maintains time alignment between analog FM and HD1 channels to within 23 microseconds ( $\pm 1$  sample)! No more lost words, stuttering, echoes, or level shifts. The entire sync process is 100% automatic. Nothing for you to do but sit back and watch in awe as it does its thing.

The JUSTIN 808 uses your actual off-air signal and powerful autocorrelation algorithms to keep analog and digital modes faultlessly in step, hour after hour, day after day.

- Precise time alignment between analog FM and HD1
- Automatic phase correction and RMS gain leveling
- Insert in either the FM or HD Radio AES digital feed
- Full Web interface for remote control, metering, etc.
- SMS/email alarms for loss of signal and loss of audio
- Extensive data logging with graphic display
- Auto failover with relay bypass

See the JUSTIN 808 in action at NAB Booth C3248  
IN PRODUCTION NOW FOR DELIVERY IN MAY, 2015

**INOVONICS**  
BROADCAST

**MARKETPLACE**

**Conversion:** Henry Engineering has announced delivery of the D2A, a digital to audio converter.



The D2A takes one XLR input of AES3 digital audio and converts it to left/right analog audio exiting on a pair of XLR outputs.

It can handle digital audio from 32 kHz up to 24-bit/192 kHz, automatically digitally locking onto the transformer-isolated signal.

The D2A also has a front-panel headphone monitor on a 1/4-inch TRS plug. According to Henry Engineering, it follows a line-level design so it mimics exactly what is being output.

An internal power supply eliminates a wallwart and is designed to be low-noise. The metal case is 1/3 RU and will mount in a rack, desk or wall with

the appropriate hardware. Price: \$495

Info: [www.henryeng.com](http://www.henryeng.com)

**MCredible:** A year ago at this time, Audio-Technica released the ATH-M50x headphones. Now it's time for the next addition to the M Series family to be released, ATH-M70x.

The 70Mx is similar in design to the ATH-M50x, using 45 mm drivers with copper-clad aluminum wire voice coils with neodymium magnets, but it has much higher performance specs — 5 Hz–40 kHz and an increase in input power.

The earcups swivel, allowing for single-ear use. They are of a collapsible, closed-back circumaural design.

Three detachable cables are provided: 1.2-meter straight, 3-meter straight and 1.2–3-meter coiled. Ships with a carrying case. Price: \$419.

Info: [www.audio-technica.com](http://www.audio-technica.com)



**DEVA's FM Diva:** The DB7007 is a second-generation digitally tuned FM rebroadcast receiver from DEVA Broadcast. DEVA says it has equipped it with two selective DSP-based FM tuners to solve critical rebroadcast scenarios.



The DB7007 measures important parameters of the FM transmission with tools such as a basic spectrum analyzer, RF, pilot, L-R, MPX and RDS data.

On detection of audio loss at the inputs, DB7007 will notify the maintenance staff and automatically switch to the second backup RF frequency. In case a failure of the second station is detected, DB7007 will shift to the onboard IP stream player or MP3/AAC backup audio player. The backup audio source priority is user-defined.

The IF bandwidth filters of the device have high signal selectivity, while difficult adjacent-channel problems are eliminated, the company says. RDS information contained in the processed MPX signal is decoded and visualized as RDS/RBDS data and statistics.

Info: [www.devabroadcast.com](http://www.devabroadcast.com)

**WORKBENCH**

(continued from page 18)

When you run conduit into the building, don't forget a pull string for future wiring pulls. Look closely and you'll see Mark's got one.

It's not always possible to mount short tower sections on the roof. The next best thing is close to the side of a building. In Nebraska, WJAG(AM) Chief Engineer Jerry Jaroska was tasked to install a tower against his studio building but the only available side of the building was next to a driveway.

Fig. 3 shows protective concrete pillars that were installed on either side of the tower, shielding it from errant car bumpers.

Contribute to Workbench. You'll help your fellow engineers, and qualify for SBE recertification credit. Send Workbench tips to [johnpbisset@gmail.com](mailto:johnpbisset@gmail.com). Fax to (603) 472-4944.

Author John Bisset has spent 45 years in the broadcasting industry and is still learning. He handles West Coast sales for the Telos Alliance. He is SBE-certified and is a past recipient of the SBE's Educator of the Year Award.



**Fig. 2:** With spring approaching, check all conduit openings and seal holes with expanding foam.



**Fig. 3:** Concrete pylons protect a small tower from vehicle traffic.

Our photo of the mid-'60s radio studio in the Feb. 1 Workbench has generated a lot of comments, although none as thorough as one from Marlin Taylor. Based on the cart machines and especially the poster, sleuth Marlin reaches the following conclusions:

First, this station likely played country music and maybe some gospel, given that the poster is about a southern gospel music concert.

Next, the station is probably in New Albany, Tupelo or Boonville, Miss., based on the town listed on the poster; these places had stations licensed within that range.

The year is likely 1967, with the prime clue being "Saturday October 7th" on the poster. The next earlier year would have been 1961, but this is not as likely; cart machines were still quite new then. Plus, the Dixie Echoes were listed second on the list of artists appearing, and they were just organized in later 1960.

Of course, it could have been 1972, the next year when Oct. 7 was on a Saturday, but Marlin doesn't think the picture is any later. A good number of small-market stations were still using carts and records in the '70s, so who knows?

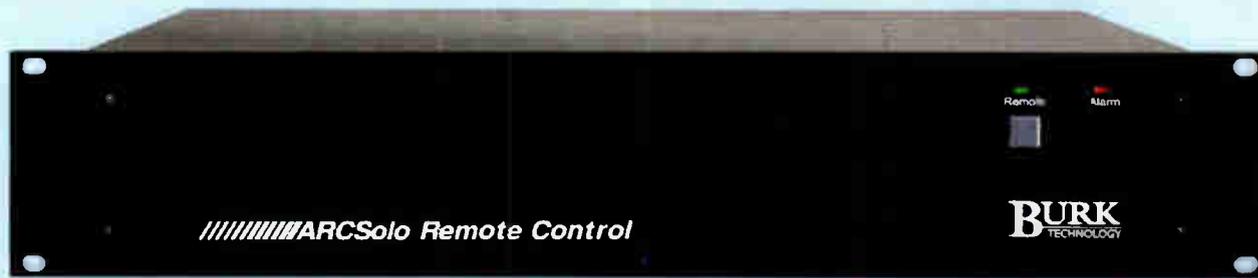


**8** of the **TOP 10** U.S. radio stations are Nautel customers.

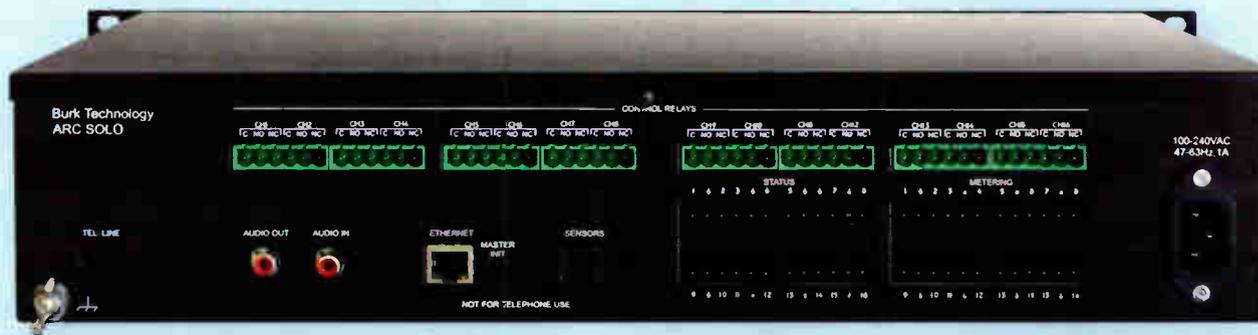
[nautel.com](http://nautel.com)

# ARC Solo

## PLAIN FRONT,



## GREAT BEHIND.



In between, the ARC Solo is packed with the features you've come to expect from Burk. For uncomplicated remote control, there's nothing else to buy. Even the new Recordable Speech Interface is built in.

WEB AND AUTOPILOT 2010 READY



www.burk.com | sales@burk.com | (978) 486-0086



# Passion, Lifestyle Tie-Ins Drive Success

What makes — or breaks — a station's formatting choice?

BY JAMES CARELESS

Radio stations that are passionate about their formats and are tied into specific lifestyles are on the path to success. Conversely, broadcasters who run their stations on autopilot, with no connection to their listeners' lives, are traveling a road to ruin.

That's the take of three radio programming experts in the United States and U.K. Collectively, they describe a radio industry where success is still possible in the Internet Age, but only for stations that take their content and their listeners to heart.

## HOW YOU DOIN'?

Music radio is alive and well, at least those formats that speak to tastes and lifestyles of their listeners.

"This is why country radio is doing well, as is Christian music radio," said Phil Hunt, president of Hunt Media in Little Rock, Ark. "Both of these



Phil Hunt

programming approaches are lifestyle formats, which are intimately connected to their listeners' day-to-day lives. They mean so much more to their audience than just being sources to tune into for their favorite songs."

The same is true for classic rock and CHR, said Fred Jacobs, president of Jacobs Media in Bingham Farms, Mich., who is credited with the invention of the classic rock radio format.

"This is music that speaks to people and that has an emotional link to their lives, whether it be nostalgic memories tied to classic rock or what's happening now for young CHR listeners," he said. "In either case, the formats matter to their audiences."

Sports talk radio is also on the way up. The reason: "Sports talk provides

the same degree of spoken combativeness and listener interaction that traditional talk radio does, but without all the political pitfalls and controversies

that advertisers like to avoid," said Jacobs.

"The last thing sponsors want is the kind of negative 'blowback' with consumers that has been linked to high-profile commentators like Rush Limbaugh. This is why sports talk is eating into the standard talk revenue base — and its audience."

Lately the industry has watched the rise of a classic hip-hop format; these stations play hip-hop from the 1980s and 1990s, in addition to current hits.

**Success belongs to those stations who truly believe in what they're offering, and go the extra mile to deliver.**

— Fred Jacobs

"It seems like there is a new classic hip-hop station popping up every week," Jacobs said. "They are emerging for the same reason that classic rock emerged: Contemporary hip-hop stations aren't playing the early hits of the genre, and people want to hear them on air."

## CHALLENGES

Both Hunt and Jacobs agree that American talk radio faces issues.

Some of these are due to advertisers backing away from controversial commentators, motivating stations that carry these personalities to consider dropping their shows; in some cases, they are doing so.

Other issues appear to be related to the novelty of talk radio having worn off, leaving commentators like Limbaugh and Glenn Beck with their core audiences but little more.

Either way, talk radio is not as strong a shining format light as it once was.

American adult contemporary (AC) is also having troubles, as the Baby Boomer audience ages.

"As the audience ages past the magic

25–54 demographic, they fall off the cliff as far as advertisers are concerned," Jacobs said.

Hunt added, "AC is also not a passionate format, which is why its audience is being attracted to the formats with more drive."

This isn't the case across the pond.

"Here in Europe, AC usually wins," said Antal Sofalvy, managing director for Europe for Radio Consulting Network in London. "It is common to find massive 20 to 45 percent listenership data for these stations." He attributed AC's European success to "an uncrowded radio market" — meaning limited format choices — rather than any particular passion for AC. "Pure oldies have dropped off because ... '60s–'70s music has been integrated into some AC formats," he said.

As for smooth jazz? "With the advent of Portable People Meters replacing diaries, the measured audience for smooth jazz seriously declined," said Jacobs. "This motivated many broadcasters to drop the format. Today, smooth jazz is a nonstarter."

## ADVICE FOR THIS YEAR

With 2015 underway, all three of these programming experts see room for a wide range of music formats — and sports talk, too. What will divide the winners from the losers is how committed specific stations are to bolstering their formats; from fostering relationships through interactions between on-air personalities and listeners, to building virtual communities that audiences will support by tuning in on a daily basis.

"Success belongs to those stations who truly believe in what they're offering, and go the extra mile to deliver it," said Fred Jacobs. "Those who just 'phone it in' hoping to fool the listeners, will fail."

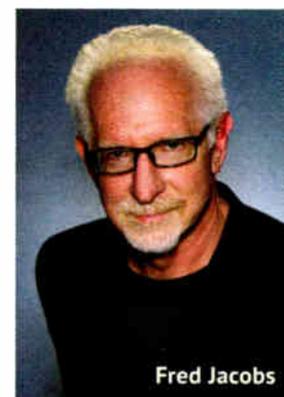
"One thing I do know: The only non-duplicable part of our business is people," Hunt added. "Having outstanding personalities

that are in touch with a station's target audience — in addition to music — is the key to getting more than your fair share in the ratings game. Stations that have this 'hybrid force,' attracting listeners outside the format, are ones that are truly in the driver's seat."

James Careless is a longtime *Radio World* contributor; he writes the recently introduced column *What's Next about new radio platforms and applications.*



Antal Sofalvy



Fred Jacobs

**RADIOWORLD**

**Mailed to Your Inbox**

Radio. It's among the most important things in your life. Only another radio person can understand how you can be so passionate about it. Now you can share the world of radio in a new format with a **FREE** digital subscription to the #1 technical radio publication: **Radio World**.

Digital subscribers get all the same great features of the print edition and then some, with links to manufacturer websites and rich media content. You'll receive an email notification when the issue is ready to view:

Just click on the link provided and it's all right there in your browser. Read the issue on line or print out the pages — it's your choice!

To sign up for your **FREE** digital subscription, simply go to <http://www.myrwnews.com> and fill out the form.

# Nautel GV40 Does More With Less Power

Northwest broadcaster happy with HD Radio performance and user interface

## USERREPORT

BY BRYAN HUBERT  
Chief Engineer  
Crista Media

**BELLINGHAM, WASH.** — Located off the northwestern corner of San Juan County, Wash., is Orcas Island, the largest of the San Juan Islands. Most of this beautiful, horseshoe-shaped island's 57 square miles are rural and hilly. In April 2014, KWPZ(FM) installed the first Nautel GV40 transmitter on Mount Constitution, near the island's highest point at 2,409 feet above Puget Sound. Playing a contemporary Christian format at 106.5 MHz, the station serves northwest Washington and Canada's metro Vancouver, Victoria and the Fraser Valley.

Because the transmitter was the first GV40 built (serial number H0101), it was shipped to Orcas Island direct from the exhibition floor of the 2014 NAB Show. Station colleague Tim Vik and I spent a couple of 15-hour days unpacking and installing the transmitter. A lot of that time was spent getting to and from the transmitter site aboard a Washington State Ferry, part of the United States' largest ferry system.

The transmitter certainly was packed with love; we could feel it as we tore the walls off the crate. The three-phase wiring that powered the previous transmitter was the correct size for powering the new GV40 and luckily turned out to be just long enough to reach the new transmitter.

Tim was impressed with the GV40 Advanced User Interface. Even though it was his first time playing with the AUI, he quickly figured out how to review alarms and set up presets. After



Tim Vik and the Nautel GV40

wiring up the control and metering, connecting the 3-inch coax output, setting the IP numbers, and feeding AC to the UPS option that feeds the controller and exciter, the transmitter was ready to go.

Mount Constitution sites engineer Erling Manley commented on the improved layout changes of the GV40 compared to the NV20 (KAFE) and NV30 (KISM), located in a different

facility on Mount Constitution. He said: "One thing we underestimated with the installation was the power needed to run the controller/exciter. When we first tried to turn on the transmitter it tripped the 1 kVa UPS unit that also powered an adjacent equipment rack, knocking the station off the air for a couple of minutes."

He continued, "That's when we discovered that the UPS option not only feeds the controller, but also the power supplies that power the two exciters (we ordered the standby exciter option), which can draw up to 14 amps when powering up the transmitter and 9 amps when running normally. Putting the transmitter on the air was delayed until we acquired a new Staco 2 kVa UPS, dedicated to the GV40. The exciter output can actually put out 500 watts of RF, feeding the output modules directly, eliminating the IPA normally found in transmitters. This accounted for the extra power needed to run it."

I was surprised when I measured the three-phase amps feeding the transmitter running at 25.5 kW and it looked like the GV40 was drawing a good 20 amps less per phase at -14 dB than the previous transmitter running at -20 dB. It's nice to put in a new transmitter, increase the HD Radio level, and actually see a reduction in power consumption. And we still have headroom if we should ever want to raise the HD level again.

We also found that the lowest power level we could set to minimize tower worker exposure was 4 kW FM+HD.

*(continued on page 26)*

### ABOUT BUYER'S GUIDE

Radio World publishes User Reports on products in various equipment classes throughout the year to help potential buyers understand why colleagues chose the equipment they did. A User Report is an unpaid testimonial by a user who has already purchased the gear. A Radio World Product Evaluation, by contrast, is a freelance article by a paid reviewer who typically receives a demo loaner. Do you have a story to tell? Write to [bmooss@nbmedia.com](mailto:bmooss@nbmedia.com).

YOUR ULTIMATE  
**SUPPLY & SERVICE SOLUTION**



From our Facility to yours



Design & Integration



Repairs & On-Site Service Calls

**LIGHTNER ELECTRONICS** [www.lightnerelectronics.com](http://www.lightnerelectronics.com)  
Toll Free 1-866-239-3888 Shop online [www.broadcastavsales.com](http://www.broadcastavsales.com)

# GatesAir Balances Efficiency, Performance

"I was able to drive to the transmitter site with the unit in the front passenger seat"

## **USERREPORT**

**BY VICTOR VICKERS**  
Contract Engineer  
KMLS(FM)

**SAN ANGELO, TEXAS** — As a contract engineer for several broadcasters, I often am involved in planning transmitter facilities from the construction phase through installation and commissioning. For the most part, my services are retained well after the transmitter has gone on the air, handling ongoing maintenance and technical support.

Having intimate involvement across many RF facilities gives me deep insight into the efficiency and performance of various transmitters. For my money, the GatesAir Flexiva is outperforming any transmitter today.

### **EFFICIENCY**

My experience with Flexiva has mostly been in the low- to mid-power range. One of the more recent projects was KMLS(FM), a new build — tower and all — on a leased slice of land. Efficiency was a top demand from the station owners. Given the quick turnaround required, the discussion first centered on a used transmitter rental.

My representative at SCMS, my preferred industry supplier, reported that GatesAir was prepared to ship a high-efficiency Flexiva transmitter to the site within one week.



We required a 3.5 kW model to power the FM signal across the allotted coverage area, but wanted a transmitter that would save us on cost over the long haul. The Flexiva FAX3.5 delivers a 72 percent AC-to-RF efficiency ratio, with minimal cooling requirements. This is significant, as anything north of 65 percent is a real game-changer for a full Class A station, and efficiency-minded Class C3s like KMLS. The Flexiva is saving us approximately \$300 a month — reducing what was before a \$500 monthly electric bill to just over \$200.

Where does this efficiency come from? GatesAir utilizes a transmitter design called PowerSmart 3D for their current-generation transmitters. PowerSmart 3D uses 50 V LDMOS

transistors to drive amplification, which delivers very high power density inside the transmitter. In addition to affecting energy use, this technology drives down the transmitter footprint — and minimizes parts inside the cabinet. These two design traits deliver an entirely different set of efficiencies tied to installation, operation and maintenance.

First, the compact design benefits can be summed in one point: I was able to drive to the transmitter site with the unit in the front passenger seat. It's the first time in 30 years I have had a full-power transmitter in my front seat.

Because the transmitter came pre-configured, it was plug-and-play at the site.

That power density is significant not only to size but ongoing operation. The PowerSmart 3D design is fully broadband, which means it's a frequency agile transmitter driven through a single power amplifier. An owner with multiple stations can easily move this to a new station and change the frequency on the transmitter. Additionally, the use of fewer parts inside makes maintenance

simples a simpler proposition.

The Flexiva shines in several respects in terms of performance. In addition to excellent audio quality — driven through the integrated Flexiva exciter — there are several RF-specific performance benefits that I could detail. However, for the purpose of this story I'll share a benefit that is rarely discussed: the handling of intermodulation and spurious emission.

We're required to do emissions testing at this site, and the Flexiva is collocated with a high-power transmitter. The Flexiva's broadband power amplifier more effectively reduces inner modulation compared to other transmitters. When collocating a lower-power transmitter with a higher-power unit, there is concern that each transmitter will pick up radiation from the other as the signals come down the feedlines from the antennas. That radiation then mixes and creates a new frequency on the output.

Unlike tube transmitters, modern solid-state transmitters don't have a protective tank circuit between the antenna and the power amplifier. Often, an engineer is forced to buy an expensive filter to solve the problem across collocated solid-state transmitters. The Flexiva design solves the problem of handling intermodulation and spurious emission itself.

This represents the core benefit of the Flexiva: its ability to solve problems, whether lowering power bills, reducing HVAC headaches or addressing intensive RF engineering challenges.

I'd like to close with a point about GatesAir technical support. We recently had a tree fall onto a power line, which initiated a power surge at the transmitter facility. The exciter software shut down the unit to protect itself from damage. As I drove the 100 miles to the site to bring a backup unit to air, I called GatesAir support to explain the problem. Through a live Internet connection to the GUI, the technical support representative reset the exciter before I reached the site. Without any intervention beyond a phone call, the transmitter was back to full performance. That kind of support is extremely attractive in modern engineering.

In summary, to be a good custodian of your capital as an engineer, it's important to understand and realize the efficiencies that a modern transmitter can deliver. The Flexiva transmitter efficiencies from the AC-to-RF ratio, broadband amplification and built-in redundancies are just a few of these revelations.

For information, contact Keith Adams at GatesAir in Ohio at (513) 459-3447 or visit [www.gatesair.com](http://www.gatesair.com).

## **PRODUCTS & SERVICES SHOWCASE**

### **NOT out of the blue**

**Bext's loyal customer base did not come out of the blue. It's a 30-year track record of high quality RF broadcast equipment, experience & 24/7 customer service.**

**Call Bext today to find out what Bext can do for you.**

**BEXT**  
888 239 8462  
[www.bext.com](http://www.bext.com)



**TECHUPDATES**

**PROGRESSIVE OFFERS NEW FM/LPFM TRANSMITTER LINE**

Progressive Concepts, in cooperation with Technalogix of Canada, has produced a new line of FM and LPFM transmitters.

Available in 50 W, 150 W, 300 W, 500 W and 1 kW versions, the TXF series FM transmitters are FCC-certified, making them suitable for use on LPFM stations and/or Class A stations in the United States. They also are Industry Canada approved.

The TXF series have an array of features that the company says are not usually found on transmitters in their price range. Features include color touchscreen, stereo encoder, Ethernet remote control, RDS/RBDS encoder, audio processor, analog and AES/EBU digital audio inputs, SCA and composite inputs and VSWR protection.

The 50–500 W models operate on any voltage from 110–240 VAC for worldwide power compatibility. The 1,000 W models operate on 220–240 VAC. TXF series FM transmitters come with a two-year warranty, which is upgradeable to five or 10 years.

For information, contact Progressive Concepts in Illinois at (630) 736-9822 or [www.progressive-concepts.com](http://www.progressive-concepts.com).



**BW BROADCAST UPDATES V2 FM TRANSMITTER**

BW Broadcast has issued new firmware for the V2 transmitter range, enhancing its SNMP capability. SNMP support allows for more detailed monitoring in real time over IP. This will help a user be aware of a problem immediately, at any time of day, and provide detailed information about it, allowing quick diagnosis and action.

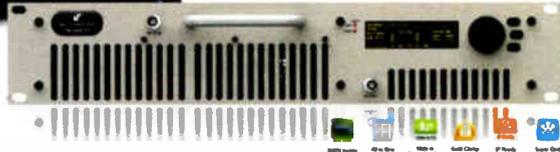
The firmware update includes a stealth screen saver and a triggerable automatic RF mute mode for when disaster strikes.

The V2 range includes “dual slide-in power supplies” that will keep a station on the air in the event of power surges or lightning strikes, automatically switching from one power supply to another. The power supplies slide in and out from the back quickly, requiring no tools or training.

“Gold Clamp” transistors can be changed in minutes using a screwdriver, reducing the time and hassle involved in getting back on air.

The company also promotes its Remote Control App for making changes to transmitter settings from wherever you are.

For information, contact BW Broadcast at (866) 376-1612 or visit [www.bwbroadcast.com](http://www.bwbroadcast.com).



**NEW 10 KW TX FROM BROADCAST ELECTRONICS**

Available in the second quarter this year will be a new 10 kW FM transmitter from Broadcast Electronics.

BE says that the STX 10 has been designed to combine audio quality, reliability, redundancy, serviceability and efficiency in a compact design. The company promotes efficiency of greater than 70 percent AC to RF; BE says the STX 10 will save electricity costs immediately upon use.

It is equipped with four power amplifier modules and seven power supplies. Power amplifier and power supply modules are hot-pluggable and hot-swappable; there's no need to take the transmitter off-air to install a spare. The combiner will auto-adjust to the power change when a module is added or removed. Auxiliary power supply options are available for the PA power supplies and controller power supply providing a redundancy configuration for harsh electrical environments. The STX 10 has a redundant cooling system, allowing it to operate at full power with a fan failure.

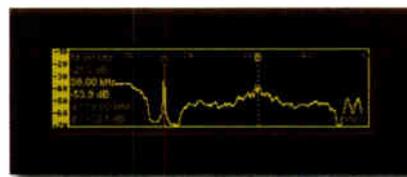
The STX 10 can fit in a standard 19-inch EIA rack that is 30 inches deep. It is transportable to any transmitter location; the small form-factor reduces shipping costs, BE says.

With IP connectivity at the transmitter site, the STX 10 will provide transmitter operating conditions and control options from a laptop, tablet or smartphone. BE highlights the transmitter's simplicity and a mechanical design that allows access to important parts and assemblies.

For information, contact Broadcast Electronics in Illinois at (217) 224-9600 or visit [www.bdcast.com](http://www.bdcast.com).



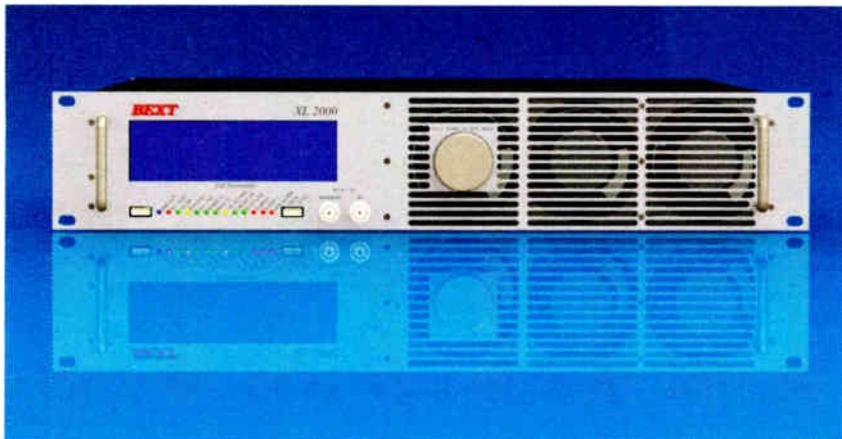
**DB4004 Modulation Monitor**  
**Product with no equal in the industry**  
*... it's Simply the BEST !!!*



**Price: \$3200**  
[sales@devabroadcast.com](mailto:sales@devabroadcast.com)

Fully Digital DSP-Based IF Filter • iPhone, iPad & Android Compatible  
 Built-in Audio Streamer for Remote Listening • Easy to use WEB interface  
 Built-in 50 channels Data Logger and FTP Server



**TECHUPDATES****BEXT CONTINUES FM TRANSMITTER LINE**

The XL Series solid-state FM transmitters are the latest from Bext.

The Bext XL 150, XL 500, XL 1000, XL 2000, XL 5000 and XL 10000 cover a wide range of power levels, where the number in the model type reflects the power in watts.

The 150 W through 2,000 W units are housed in a compact standard enclosure that's only two rack units high. The 5,000 W enclosure is four rack units high, and the 10,000 W transmitter is 12 rack units high.

All units come with multiple connectivity options.

A 5 1/2-inch display allows direct access to all settings and readings through a user menu. All units are remote-controllable with direct access via a webpage. Individual contacts for analog remote control connections are also provided.

Two monitor ports are present on the front panel, one for RF and the other for baseband audio.

Two USB ports are provided, one of which allows downloading or viewing the entire user manual and other stored technical documentation directly from the transmitter's front panel.

All units come with multiple LAN connections, allowing each transmitter to function as a LAN switch and easily control other pieces of equipment located within the same transmitter site. Main TX/spare TX duties, and N+1 configurations are supported by the built-in firmware and dedicated connections.

The company says that efficiency is expected to average 80 percent overall, yielding low power consumption and requiring minimal heat dissipation.

For information, contact Bext in California at (888) 239-8462 (BEXT INC) or visit [www.bext.com](http://www.bext.com).

**NAUTEL**

(continued from page 23)

We normally try to reduce power to 10 percent, 2.5 kW. Nautel is looking at a way for us to reduce power to a lower level.

We are still playing with AUI settings for "Power Boost" and "Optimizer" to see what trade-offs in reception we observe. So far, it looks like going with the "high efficiency" mode has little impact on my car radio when listening 65 miles from the transmitter site. I think we will be experimenting with this for a while longer.

There are a number of cool features in the AUI which we haven't implemented, but are contemplating, like the ability to control other equipment with the extra GPIOs. Our present remote control is not set up for logging, and we're considering using the "Call Home" feature that uses servers at Nautel to do the logging.

All in all, this transmitter is really cool. It's a big step forward for KWPZ, and we're confident, given Nautel's reputation and experience with solid-state technology, that it will be more reliable than the previous transmitter. This GV40 transmitter is the seventh Nautel transmitter Crista Media has on the air with its four stations. We love these boxes.

For information, contact Wendell Lonergan at Nautel in Nova Scotia at (902) 823-5131 or visit [www.nautel.com](http://www.nautel.com).

**CONTINENTAL SHIPS 300 W AND 1 KW NOAA SYSTEMS**

Continental Electronics' WR300B and WR1000B Weather Radio Transmission Systems are standalone 300 W or 1000 W systems consisting of two solid-state WR300B (300W) or WR1000B (1000W) transmitters configured in a primary/secondary configuration. A redundant transmitter controller assembly monitors and controls the system.

The system includes required input and output interfaces. The operational frequency of each transmitter is controlled by means of a programmable direct digital synthesis chip, allowing frequency selection in 25 kHz steps from 162.400 to 162.550 MHz. The WR300B system power output is continuously variable from 100 W to 375 W, while the WR1000B system power output is continuously variable from 300 W to 1250 W, internally as well as through remote control and the RTC.

For information, contact Continental Electronics in Texas at (214) 275-2319 or visit [www.contelec.com](http://www.contelec.com).

**TRANSRADIO DELIVERS ENHANCED DMOD3 EXCITER**

Transradio says its DMOD3 DRM exciter is operating in a large number of major DRM transmitter installations and broadcast centers.

The company now announced an enhanced version, the DMOD3-CS, a DRM exciter with an integrated DRM audio/multimedia encoder and multiplex generator based on Fraunhofer's DRM ContentServer R5 technology.

The DMOD3-CS is scalable to a customer's needs, ranging from a cost-effective starter solution up to a fully-featured professional DRM setup with automation.

Features include encoding of the standardized maximum number of DRM services in parallel, with access to multiplex configuration and signaling options provided by the DRM standard; support of latest xHE-AAC audio and speech encoding; configuration options for standardized DRM data services such as text messages, Journaline, Slideshow, electronic program guide and TPEG/TMC traffic information, along with flexible interfaces on DRM protocol layers for broadcaster-specific applications; and maximized operation automation through a set of import interfaces for file-based and real-time contribution of audio and multimedia content (e.g. Livewire audio over IP, http(s)/ftp(s) upload and mirroring, UECP, RSS and real-time APIs documented with source code).

In addition, there are dynamic reconfiguration options according to the DRM standard based on weekly calendars, a calendar preplanning tool and interfaces for external reconfiguration triggers. Plus, there is maximum operational safety by support of the Redundancy Group feature shared with the standalone Transradio DRM ContentServers for centralized configuration and data management of frame-synchronous MDI output signals (even through dynamic reconfigurations).

For information, contact Transradio in Germany at 011-49-30-339-78-501 or visit [www.transradio.de](http://www.transradio.de).

**COMING UP IN BUYER'S GUIDE****Audio Processing**

April 8, 2015

**Microphones, Headphones & Audio Mixers**

May 6, 2015

## ACOUSTICS

**Acoustics First**  
-SOUND AND NOISE CONTROL MATERIALS-  
Toll-Free Number: **888-765-2900**  
[www.AcousticsFirst.com](http://www.AcousticsFirst.com)

## 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](mailto:sixtiesradio@yahoo.com).

## AUTOMATION EQUIPMENT

### WANT TO SELL

It's free and it has been expanded. The only cost is to keep us informed as to how the system is performing and let us know how you are using it. DIY-DJ, is a Linux based radio automation system and now sports a record scheduler (DIY-DJ-RECORDER) which allows you to schedule the recording of a network or any other program for replay later as well as a basic logging system. Beside these additions the system schedules music, does voice tracking (ALWAYS hit the vocal), create a shell, live assist, exact time events, join satellite feeds, automated temperature announce, do unattended remote events and more. Call (406) 679-0527 or email [krws@digitaldevelopment.net](mailto:krws@digitaldevelopment.net) for a copy today.

## 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](mailto:sixtiesradio@yahoo.com).

**SPACE IS AVAILABLE!**

## MISCELLANEOUS

**ROTRON BLOWERS AND PLATE BLOCKERS**, new & rebuilt for Elcom, Horris, CCA, CSI, McMartin, Goodrich Ent. 11435 Monderson St. Omaha, NE 68164 402-493-1886 Email: [charlesgoodrich44@gmail.com](mailto:charlesgoodrich44@gmail.com).

**FOR THE BEST PRICE & 24 Hr service** on transmitting tubes & sockets/ports, new & rebuilt call Goodrich Ent. at 402-493-1886 day or night, [www.goodrichenterprises.com](http://www.goodrichenterprises.com).

### WANT TO SELL

For Sale as one lot: 15 rolls of #10 solid, bare copper, approx. 150k feet total and .032" x 2" copper strap weighing about 900 pounds, approx. 3100ft of strap total. Sold as is where is. Contact via E-mail at [BYeager@PappasTV.com](mailto:BYeager@PappasTV.com).

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](mailto:ronwtamm@yahoo.com)

### 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](mailto:ilg821@aol.com).

LA-3A. [donelliot@gmail.com](mailto:donelliot@gmail.com)

2" plastic "spot" reels 6.5 or 8" diameter, as used for quad video. Wayne, Audio Village, 760-320-0728 or [audiovg@gte.net](mailto:audiovg@gte.net).

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](mailto:ajkivi@gmail.com).

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, KOBV, 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](mailto:ronwtamm@yahoo.com).

Looking for a broadcast excerpt of a San Francisco 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](mailto: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](mailto:ronwtamm@yahoo.com).

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

## RECEIVERS/ TRANSCEIVERS

### WANT TO SELL

Free sample SCA decoder. 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, 879-777-4653.

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

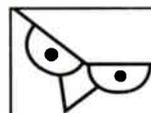
Schnader teletexts 16 mm musical films produced in the early 50 s. Bill Cook, 719-684-6010.

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

## TAX DEDUCTIBLE EQUIPMENT

Donations Needed: All Volunteer, Non-profit Low Power community radios stations need Equipment. Will offer tax deduction letter, You determine donation value, We will pay shipping. Equipment shared between three Wisconsin stations. Looking for Mics, Mixers, field equipment, etc. You name it. Email: [Dan@WIECradio.org](mailto:Dan@WIECradio.org).

# CONSULTANTS



## OWL ENGINEERING, INC.

Consulting Communications Engineers  
5844 Hamline Ave. N., Shoreview, MN 55126

**651-784-7445**

- AM/FM/NCE Applications
- Allocation and Upgrade Studies
- Pre-Purchase Inspections
- ANSI and NRSC Measurements
- AM Directional Array, Design, Tuning and Proof using Method of Moments
- Tower Detuning
- Intermodulation Studies
- Radiation Hazard Evaluation and Measurements

Fax (651) 784-7541

E-mail: [info@owleng.com](mailto:info@owleng.com)

\*Member AFCC\*

## GRAHAM BROCK, INC.

BROADCAST TECHNICAL CONSULTANTS  
Full Service From Allocation to  
Operation AM/FM  
Field Work, Antenna and  
Facilities Design

Over 45 years engineering  
and consulting experience

**912-638-8028**

**202-393-5133**

[www.grahambrock.com](http://www.grahambrock.com)



Full-Service Broadcast Engineers  
Transmitter Upgrade or Relocation  
FM Translators  
STL/TSL/RPU Licensing  
Coverage Studies  
(262) 518-0002  
[evansengsol@gmail.com](mailto:evansengsol@gmail.com)

Over 35 Years Experience - Member AFCC

For more information, ask  
Michele at 212-378-0400 x523  
or [minderrieden@nbmedia.com](mailto:minderrieden@nbmedia.com)  
**RADIOWORLD**

## Doug Vernier

Telecommunication Consultants  
Broadcast Engineering Consulting

AM/FM/TV/LPTV/DTV  
Custom mapping service  
Frequency searches  
Propagation prediction  
FCC application preparation

**Vsoft**  
SOFTWARE FOR YOUR PC

(800) 743-3684  
[www.v-soft.com](http://www.v-soft.com)

Looking for a good deal?  
You've come to the right place.

To advertise call Michele  
at 212-378-0400 ext. 523 or  
email [minderrieden@nbmedia.com](mailto:minderrieden@nbmedia.com)



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

Se Habla Español

# ECONCO

Se Habla Español

Tel: 800-532-6626 Web: [www.econco.com](http://www.econco.com)  
Intl +1-530-662-7553 Fax: +1-530-666-7760



### TRANSMITTERS/EXCITERS/TRANSLATORS

## TRANSCOM CORPORATION

Serving the Broadcast Industry Since 1978  
Transmitters and Broadcast Equipment for Radio & Television

#### Used FM Transmitters

100 W	2008	BE FM100C
500 W	2000	BE FM 500C
3.5 KW	2000	Harris Z3.5CD, solid-state
5 KW	1995	Harris HT5CD
5 KW	1999	Harris Z5CD, solid-state
5 KW	2006	Harris Z5, solid-state, unused
7.5 KW	2002	Harris Z7.5CD, solid-state, S PH
20 KW	1989	BE FM20B
25 KW	1996	Harris HT25CD
30 KW	1988	Harris FM30K
35 KW	1991	BE FM35B

#### Used AM Transmitters

Please see our website or contact us for current listing

#### Exciters & Miscellaneous Equipment

BE FC30, SCA Generator  
Bird Model 8936, 10 kW air-cooled RF Load  
Harris N + 1 Controller  
Harris THE-1, FM exciter  
Marti ME 40, FM exciter  
MCI 4 Port 1-5/8" Coaxial Switch  
Sola Constant Voltage Transformer #23-23-230-8

Please visit our website,  
[www.fmamtv.com](http://www.fmamtv.com), for additional listings.



**HARRIS nautel**

**CROWN BROADCAST**

TV Transmitters- Analog and Digital  
Used FLO TV Transmitters \*Axcera  
\*Rohde & Schwarz \* Harris Maxiva

New TV Transmitters- Analog and Digital  
OMB, Rohde & Schwarz and Technalogix  
VHF and UHF TV Antennas  
(10 W to 10 KW) TV STL

800-441-8454 • 215-938-7304 • FAX: +1-215-938-7361

[www.fmamtv.com](http://www.fmamtv.com) • E-mail: [transcom@fmamtv.com](mailto:transcom@fmamtv.com)  
RETUNING & TESTING AVAILABLE • CALL US FOR A QUOTE!

# 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](mailto:mitchellrakoff@yahoo.com).

Experienced radio station manager seeks new management opportunity. More than 39 years experience in radio. Willing to relocate. Family-friendly format(s) preferred. Send details about your management opening to: [radiogm@hotmail.com](mailto:radiogm@hotmail.com).

Above and beyond, and can handle pressure. Strong music knowledge, work ethics, and focused. Loves challenges/deadlines don't scare me! Yolanda, 347-284-0079 or [absyoland9246@yahoo.com](mailto:absyoland9246@yahoo.com).

Professional in broadcasting, production and voice over work. Seeking employment as an on-air personality and/or production engineer. Willing to relocate! Bernie, 469-618-6365 or [bernie.smith327@gmail.com](mailto:bernie.smith327@gmail.com).

Seeking to serve a Christian organization/station in the capacity of: copywriting, production or programming. Big heart, devoted, passionate, humble, and confident. Willie, [will2preach@yahoo.com](mailto:will2preach@yahoo.com) or 817-504-2261.

Extremely knowledgeable and articulate racing writer/talk show host Adam Amick is available for shows, correspondent, features, etc. Check out [www.bleacherreport.com](http://www.bleacherreport.com) for samples. Call 214-384-5812 or email: [adam@rubbinracingshow.com](mailto:adam@rubbinracingshow.com).

### HAVE YOU SEEN US LATELY?

New additions to our executive team and a significant infusion of capital are enabling operational growth, product quality improvements, and more responsive customer service. For competitively priced transmitters that are made in the USA, go to [www.ptekpower.com](http://www.ptekpower.com)



### AM Ground Systems Co

Complete AM Ground System Installation, Production and Repair Services. Free Efficient Full Site Consultation Services.

[www.amgroundsystems.com](http://www.amgroundsystems.com)  
866-22RADIO

### WANT TO BUY

Need Harmonic filter for RCA 25KW FM xmtr that was stolen. Chuck, 386-397-4489.

**PROMOTE YOUR BUSINESS!**



## DISTRIBUTOR DIRECTORY

The following distributors serving the broadcast industry would be glad to help you with any of your requirements.

CORNELL-DUBILIER  
MICA CAPACITORS

FROM STOCK

JENNINGS 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](mailto:link@surcom.com) web: [www.surcom.com](http://www.surcom.com)

## TUNWALL RADIO

SWITCH AND TRANSMITTER CONTROLLERS



AM/FM/MULTI-SWITCH AND CUSTOM DESIGNS  
330.995.9642 [www.tunwallradio.com](http://www.tunwallradio.com)

## ADVERTISE YOUR EMPLOYMENT AD ON OUR WEB SITE FOR ONLY \$2 PER WORD!

ADS GET POSTED THE NEXT BUSINESS DAY AND WILL RUN FOR A FULL TWO WEEKS!  
COMBINE THIS WITH AN AD IN OUR RADIO WORLD NEWSPAPER  
EMPLOYMENT SECTION AND REALLY COVER THE BROADCAST INDUSTRY AND THEN SOME!

[www.radioworld.com](http://www.radioworld.com)

Call Michele Inderrieden for all the details at

**212-378-0400 ext. 523**  
**[minderrieden@nbmedia.com](mailto:minderrieden@nbmedia.com)**

# UAS Will Benefit Broadcasters and Engineers

Possible applications for drones include site selection and tower surveying work

## COMMENTARY

BY BRIAN WYNNE

Everyone from amateur photographers to NASA scientists has been testing the capabilities of unmanned aircraft systems. And with regulations from the FAA on the commercial use of the technology on the horizon, industries from farming to filmmaking are clamoring to use the technology.

Once a regulatory framework is established, UAS will also be able to help radio broadcasters and engineers.

With the ability to fly in dangerous or extreme situations, and for lower costs than manned flight, UAS provide a safer and cheaper alternative for businesses currently reliant on manned aircraft. For example, the oil and gas industry has been utilizing UAS to inspect and monitor their infrastructures, including hard-to-reach oil rigs or multistate onshore pipelines.



Drones can be deployed to survey potential tower sites.

### TOWER SITE SELECTION APPLICATIONS

For radio broadcasters and engineers, UAS will prove valuable to assisting with both site selection and tower surveying.

UAS have already proven to be a cost-effective method for surveying land and collecting data, replacing more expensive manned aircraft. The U.S. Geological Survey and the Bureau of Land Management, for instance, has used the technology to create digital models of local landscapes and to collect data to access the surrounding land's environmental impact on the area.

UAS have also already improved construction site safety, and have performed highly technical tasks such as 3-D modeling and real-time imaging from remote areas (for example, read "Drones and the Future of Autonomous Vehicles" in Fountain Magazine).

When it comes to tower sites and infrastructure

updates, UAS can cover more ground, in less time, at a fraction of the cost and without putting lives at risk.

A UAS can easily circle an antenna to monitor signal strength or provide visual checkups, while human inspectors remain safely on the ground. With an estimated 300,000 towers in the U.S. (see "Drones Take on Cell Tower Maintenance," Network Computing), the potential for safely keeping more people on the ground for more tasks has strong appeal. In the Netherlands, cell phone giant T-Mobile has already partnered with UAS-maker Aerialtronics (as reported in "T-Mobile Partners With Aerialtronics



Brian Wynne

ogy will create more than 100,000 jobs nationwide and generate more than \$82 billion in economic impact in the first decade following integration.

Still, the future of this exciting industry is dependent on the pace of the FAA's development of a regulatory framework for commercial use of UAS. UAS technology has largely remained grounded while many commercial interests wait for the regulatory framework to catch up with technological advances.

In the meantime, the FAA has granted exemptions for businesses to begin using UAS for commercial purposes on a case-by-case basis. So far, exemptions have been approved for filmmaking, agriculture and real estate, among other industries. As of writing, the FAA has granted 29 exemptions while nearly 350 companies have filed requests. However, while these exemptions are critical developments, only the long overdue regulatory framework will help realize the full potential of UAS technology and allow a wide range of industries to reap its benefits.

The future holds an incredible number of opportunities for the use of UAS, and as the technology continues to grow and improve, new applications for it continue to be discovered. This is a very exciting time for UAS, and we look forward to seeing what's next for the broadcast industry.

Brian Wynne is the president and CEO of the Association for Unmanned Vehicle Systems International, which describes itself as the world's largest non-profit organization dedicated to the advancement of unmanned systems representing 7,500 members from 60+ allied countries.

Comment on this or any story. Email radioworld@nbmedia.com with Letter to the Editor in the subject field.

Unmanned Systems to Inspect Telecom Antennas," sUAS News) to test camera-equipped UAS as solutions for the inspection of cell phone towers.

Accelerating the commercial use of UAS doesn't only help businesses increase efficiency; it also unlocks economic growth and job potential. AUVSI's economic report projects that the expansion of UAS technol-

## READER'S FORUM

### "THE" JOSEPH HENRY

I was recently rummaging through some old family papers and came across the notes my great-great-grandfather Samuel Reese Frierson made in 1838 in his class in natural history at Princeton — it was taught by Professor Joseph Henry!

My g-g-grandfather was a great proponent of women's education long before such was popular. I came across a whole series of chap books that he made for the further education of his three daughters based on many of the subjects he learned while at Princeton. I particularly remember a three "volume" set elucidating the mathematical principals underlying perspective. Apparently, he believed a young woman should not only know how to draw or paint but be able to explain exactly why it works!

Gray Frierson Haertig  
Telecommunications Engineers  
Gray Frierson Haertig & Assoc.  
Portland, Ore.

## OCCUPANCY MISUNDERSTANDING

Most articles on digital-only medium wave broadcasting carry an apocalyptic but misguided warning: The potential for digital only interference must be studied before widespread operations may be authorized!

The warnings are due to a fundamental misunderstanding of spectrum occupancy of the HD Radio MA-3 and DRM30 digital-only systems, which are very different from the interference-causing hybrid HD Radio MA-1 system. The strong digital signals from MA-3 broadcasts, and all signals from DRM30 broadcasts stay entirely within the AM channel (+/-5 kHz). The MA-3 first adjacent sidebands are at the reduced level that an MA-1 hybrid system dumps on nearby second adjacent channel stations, while first adjacent stations don't have overlapping service areas, so no interference can occur.

Edward Schober, PE  
Consulting Engineer  
Radiotechniques Engineering, LLC  
Haddon Heights, N.J.

## HOW TO

### SEND A LETTER TO THE EDITOR:

Email [radioworld@nbmedia.com](mailto:radioworld@nbmedia.com) with "Letter to the Editor" in the subject field. Please include issue date.

### CHANGE YOUR MAILING ADDRESS:

Visit [radioworld.com](http://radioworld.com), click on the subscription button and follow instructions to change a subscription address.

### CONTRIBUTE FREELANCE ARTICLES:

Email [radioworld@nbmedia.com](mailto:radioworld@nbmedia.com) and request our Writer's Guidelines.

**READER'S FORUM****FOSTER A RADIO REVOLUTION**

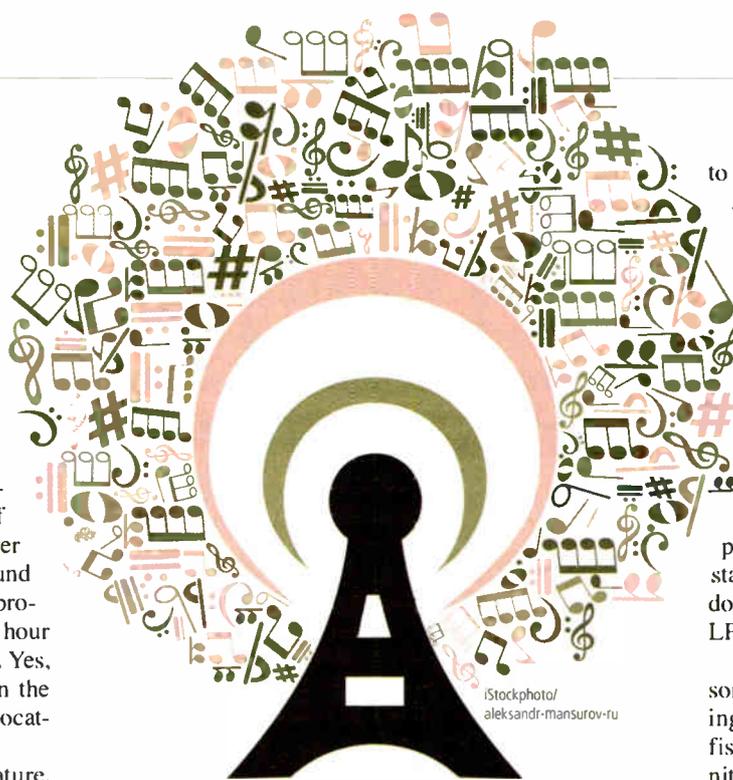
I couldn't agree more with Dan Slentz's LPFM blog for Radio World ("Looking at LPFM," [radioworld.com](http://radioworld.com)).

While I can appreciate the passion of people who are joining the micropower radio movement, I have, on more than one occasion, been the "victim" of their passion on Facebook.

What's my crime? I work full time in commercial radio and often suggest ideas that come out of commercial radio, but can also apply to micropower broadcasting ... such as designing your station around a central idea or format, then allowing for other programming and creativity in shorter one or two hour blocks that are used as spice for your programming. Yes, I also believe in a focused playlist, which many in the LPFM movement will assume (incorrectly) as advocating a 300-song playlist.

I get that micropower stations should, by their nature, be "different" from commercial broadcasting. But if people can easily understand what service your station provides and delivers in a professional manner and plays the songs they expect to hear (and then gets a dose of spice for the "Oh Wow" effect), you stand a better chance of gaining an audience that will tune back than if they hear a haphazard mishmash of programming delivered by an announcer with a mouthful of marbles and dead air.

All I know is, we've taken a municipally owned station from 12 underwriters to 114 in 3 years. Our station covers its expenses and has a little left over to turn back into the station. The company I am associated with is the program provider for this station ... and we have added a second station in a nearby community, for which we also provide programming, and 10 percent of our underwriting revenue is now going to a building fund to build a permanent structure and studio facility for the new station (which currently resides, literally, in an Airstream trailer shell at the tower). I act as program director for both.



I am also consulting a third LPFM that is about to go on the air as the only locally programmed station in a small southwest Ohio town. Its licensee has already gotten a deal with the local college and high school to provide interns, is already streaming online and is within a matter of dollars away from being able to purchase its transmitter. (By the time you read this, that goal may have been achieved.)

As much as I appreciate the desire of the people who volunteer in the LPFM movement to be creative and different from the commercial ranks (and believe that element should be present), I also know too many of these licenses get granted and the stations fail within 3 to 5 years. In my honest opinion, the culprit is usually either poor programming or engineering, or stations whose operators act as though they know better than the audience what the audience should like and are bound and determine to educate them on what "good music" is. I believe in finding out what people within 3

to 5 miles of the tower want to hear and give it to them ... whatever it is.

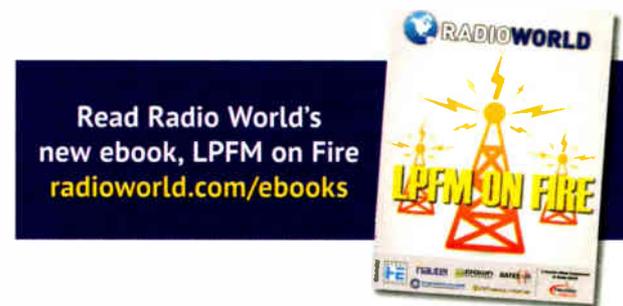
To me, some forget that the clientele is the listener and the underwriters. They're the boss if you want to stay on the air. And yes, LPFMs *are* a business. They have bills just like the big boys do. While you can have a creative goal, your main goal should be to stay in business. Too many people get into this for the creative aspects and don't consider the other side of things ... or don't until they're in over their heads.

That's where I think people such as myself can help. I know there are way too many good radio people out of work who could help some of these stations be successful in their own ways — and, in so doing, could just help foster that radio revolution that LPFM hopes to achieve.

That having been said, though, I am encouraged by some of the LPFM operators I see. Some are really taking the idea to heart that even an LPFM can be a big fish in a small town. An LPFM can be a major community voice for a town too small to support a commercial station, but plenty big enough to support a small station that can survive on smaller dollar underwriting packages; I would expect the majority of those stations to be around for a long time.

*Kevin Fodor*

*Gray Fox Broadcasting — WRPO(LP)/WOHP(LP)  
Russells Point/Huntsville, Ohio  
Cox Media Group/Dayton*





Our readers have something to say:

“I've been reading Radio World for 30+ years and still have to drop what I'm doing to peek inside. I learn something from nearly every issue.”



Joseph M. Davis, P.E.  
Chesapeake RF Consultants LLC  
Radiofrequency Consulting Engineers  
Yorktown, Va.

www.heilsound.com Shown: The Fin

**ADVERTISER INDEX**

This listing is provided for the convenience of our readers. Radio World assumes no liability for inaccuracy.

PAGE	ADVERTISER	WEBSITE/URL
14	Arrakis Systems Inc.	<a href="http://www.arrakis-systems.com">www.arrakis-systems.com</a>
24	Bext, Inc	<a href="http://www.bext.com">www.bext.com</a>
21	Burk Technology	<a href="http://www.burk.com">www.burk.com</a>
7	Comrex Corporation	<a href="http://www.comrex.com">www.comrex.com</a>
18	Continental Electronics Corp.	<a href="http://www.contelec.com">www.contelec.com</a>
5	DaySequerra/ATI	<a href="http://www.daysequerra.com">www.daysequerra.com</a>
25	Deva Broadcast Ltd	<a href="http://www.devabroadcast.com">www.devabroadcast.com</a>
9	GatesAir	<a href="http://www.gatesair.com">www.gatesair.com</a>
30	Heil Sound, Ltd.	<a href="http://www.heilsound.com">www.heilsound.com</a>
19	Inovonics Inc	<a href="http://www.inovonicsbroadcast.com">www.inovonicsbroadcast.com</a>
23	Lightner Electronics	<a href="http://www.lightnerelectronics.com">www.lightnerelectronics.com</a>
11	Logitek	<a href="http://www.logitekaudio.com">www.logitekaudio.com</a>
4, 12, 20, 31	Nautel Ltd.	<a href="http://www.nautel.com">www.nautel.com</a>
1	Radio Systems Inc	<a href="http://www.radiosystems.com">www.radiosystems.com</a>
13	SCMS	<a href="http://www.scmsinc.com">www.scmsinc.com</a>
2, 16-17, 32	Wheatstone Corporation	<a href="http://www.wheatstone.com">www.wheatstone.com</a>
15	Worldcast Systems - APT	<a href="http://www.worldcast.com">www.worldcast.com</a>

# NEW!

## NXSeries

The Industry's Most Advanced  
5 and 10 kW AM Transmitters

Outstanding Control  
86% Efficiency  
Compact

Proven NX Series  
Technology with over  
20 Megawatts  
Deployed

 **Radio**<sup>®</sup>  
Digital AM & FM

 **DRM**

**NABSHOW**<sup>™</sup>  
*Where Content Comes to Life*

Visit Nautel at Booth C2139

Making Digital Broadcasting **Work.**

Learn more at [Nautel.com](http://Nautel.com)

  
**nautel**

# YOU COULD GET THESE VOICE PROCESSING TOOLS OF THE TRADE...



a.



b.



c.



d.



e.

# OR JUST CUT TO THE CHASE...



## M4IP

a: GATES • b: DE-ESSERS • c: COMPRESSOR/LIMITERS • d: EQS • e: MIXERS & MORE x 4

ANYWHERE YOU NEED THEM ON YOUR NETWORK – FROM A SINGLE RACK SPACE

ALSO AVAILABLE: M-1, A SINGLE CHANNEL VERSION WITH ANALOG INTERFACE (BUT STILL WORKS WITH OUR GUI IF YOU LIKE)  
 AND M-2, A TWO-CHANNEL VERSION THAT WORKS ONLY FROM OUR GREAT GUI

See Wheatstone at NAB 2015 • Booth C755

**Wheatstone**  
 BROADCAST AUDIO PERFECTIONISTS®

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