



RADIOWORLD

JUNE 19, 2019 | The News Source for Radio Managers and Engineers | \$5.00 | RADIOWORLD.COM

INSIDE

BEST OF SHOW

• Award winners from this year's spring show — Page 8



TIGERS GROWL

• High school students stream for literacy — Page 20



PODMIC

• Review of a new Rode mic — Page 24

NAB Argues for “Economies of Scale”

Read its reply to critics of its proposed changes to broadcast ownership rules

REGULATION

The broadcast industry does not speak with one voice when it comes to whether the Federal Communications Commission should ease radio ownership rules; but that didn't keep the National Association of Broadcasters from adopting a firm tone in its reply to critics on the topic.

The commission has been conducting its required regulatory review of broadcast ownership rules, which it is supposed to do every four years; NAB had proposed several changes, as RW has reported. They include removal of caps on AM ownership; allowing a single entity to own up to eight commercial FM stations in Nielsen markets 1-75 (or up to 10 FMs for participants

(continued on page 3)



Getty Images/Bloomberg Creative Photos

BE Seeks “New Beginning” With Elenos

Peter Conlon talks about the efforts to bring fresh energy to Broadcast Electronics

BY PAUL McLANE

Broadcast Electronics is a long-standing radio industry brand celebrating its 60th anniversary. It also is an RF and studio products manufacturer

that has seen numerous ownership changes and now seeks to reestablish a bigger presence and higher profile under its new ownership.

BE was acquired in 2018 by the *(continued on page 6)*

00000000 068-1521

0002 TUCSON AZ 85710-7905
2033 S AUGUSTA PL
R004
BARRY NISKI
CHIEF ENGINEER

*****3-DIGIT 857
#000953 6# R004 000953 E1901



ENCO

DAD: RADIO AUTOMATION THAT GROWS WITH YOU

DAD'S SCALABLE ARCHITECTURE MEETS THE NEEDS OF SMALL STATIONS AND MAJOR BROADCASTERS ALIKE. HOW CAN WE BUILD A SYSTEM FOR YOU? VISIT ENCO.COM TO FIND OUT.





FULL GLASS



A fully functioning LXE console on your touchscreen monitors

GLASS LXE

wheatstone.com/glass-lxe-rw



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

www.radioworld.com

FOLLOW US

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

CONTENT

Managing Director, Content Paul J. McLane,
paul.mclane@futurenet.com, 703-852-4628
Senior Content Producer — Technology Brett Moss, brett.moss@futurenet.com
Content Manager Emily M. Reigart, emily.reigart@futurenet.com
Technical Advisors Thomas R. McGinley, Doug Irwin
Technical Editor, RWEE W.C. "Cris" Alexander
Content Director — International Marguerite Clark
Contributors: Susan Ashworth, Dave Beasing, John Bisset, James Careless,
Ken Deutsch, Mark Durenberger, Charles Fitch, Travis Gilmour, Donna Halper,
Craig Johnston, Alan Jurison, Paul Kaminski, John Kean, Peter King, Larry Langford,
Mark Lapidus, Jim Peck, Mark Persons, Stephen M. Poole, James O'Neal, Rich Rarey,
Jeremy Ruck, John Schneider, Randy Stine, Tom Vernon, Jennifer Waits, Chris Wygal
Production Manager Nicole Schilling
Managing Design Director Nicole Cobban
Senior Design Director Karen Lee

ADVERTISING SALES

Senior Business Director & Publisher, Radio World
John Casey, john.casey@futurenet.com, 212-378-0400 x512
Publisher, Radio World International
Raïfaella Calabrese, raffaella.calabrese@futurenet.com, +39-320-891-1938

SUBSCRIBER CUSTOMER SERVICE

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

LICENSING/REPRINTS/PERMISSIONS

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

MANAGEMENT

Managing Director/Senior Vice President Christine Shaw
Chief Revenue Officer Luke Edson
Head of Production US & UK Mark Constance
VP/Media Technology Group Carmel King

FUTURE US, INC.

11 West 42nd Street, 15th Floor, New York, NY 10036



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

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



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

OWNERSHIP

(continued from page 1)

in the FCC's incubator program); and imposing no restrictions on FM ownership in markets 76 and lower and in unrated markets. Critics then weighed in.

In its reply comments, the NAB encapsulated what it views as the main opposing arguments and sought to answer them. Below is the text of its overview section, which NAB prefaced with a tart note giving a definition of "backward" as "in the reverse of the usual or right way."

The comments submitted by those parties opposing reform of the FCC's local radio and TV ownership rules are fundamentally backward.

Commenters decrying relaxation of the ownership restrictions, for example, argue that the commission, in reviewing its radio rules, would be failing to act in the public interest if it focused on competition among audio delivery platforms for advertising dollars and audiences. To the contrary, that should be the precise focus of the FCC's review of its radio caps, and commenters such as these have it exactly backward.

If broadcast stations cannot successfully compete against other audio and video delivery platforms for audiences and, thus, advertising dollars, they will not earn revenues needed to cover their substantial fixed costs and will be unable to serve listeners and viewers effectively, let alone improve their programming and technical facilities.

Similarly, other parties insist that broadcast media, especially TV, are critical for providing local communities with news and information, or even for maintaining democracy, but then chastise the FCC for denigrating those values by focusing on economic concerns.

This, again, is backward. The broadcast "industry's ability to function in the 'public interest, convenience and necessity' is fundamentally premised on its economic viability." These parties fail to explain how imposing ownership restrictions only on local broadcast stations in today's competitive marketplace promotes their "economic viability" and, thus, their ability to serve the public.

Perhaps most significantly, commenters opposing alteration of the rules interpret Section 202(h) "in the reverse of the usual or right way." A remarkable number of commenters ignore Section 202(h) entirely, while others selectively cite its terms, leaving out the word "competition."

These parties urge the FCC to deemphasize competition in its review, contrary to statutory mandate, congressional intent in the 1996 Act, judicial precedent and previous quadrennial review decisions. Particularly given the vastly increased competition in the modern digital marketplace, placing competition at the rear of relevant considerations in this proceeding clearly would be backward.

"INTENSE AND GROWING COMPETITION"

Looking at Section 202(h) in the correct way, the FCC's primary focus in this proceeding should be on the intense and growing competition radio and TV stations face for audiences and advertising revenue in a broad marketplace with myriad content sources and advertising options.

Due to these profound changes, the current local radio and TV ownership rules are no longer "necessary in the public interest as the result of competition," and Section 202(h) requires the commission to "repeal or modify" them.

[T]he record here provides more than sufficient information and empirical evidence for the FCC to adopt the National Association of Broadcasters' proposals.

As multiple commenters, including NAB, demonstrated in comments and studies, radio stations are experiencing declines in audiences due to fierce competition, especially from online options, and significant revenue reductions in local ad markets increasingly dominated by digital platforms. Stations in smaller markets with limited advertising bases especially struggle to generate adequate revenue to cover their fixed costs, and AM stations face special competitive problems in all markets.



NAB wrote that "it borders on the absurd to contend that broadcast-only restrictions are needed to promote diverse viewpoints in the internet age."



If the FCC determines to retain broadcast-only ownership caps, it should permit radio broadcasters to achieve increased economies of scale by (1) removing caps on AM ownership; (2) allowing a single entity to own up to eight commercial FM stations in Nielsen markets 1-75 (with the opportunity to own up to 10 FMs by participating in the FCC's incubator program); and (3) imposing no restrictions on FM ownership in markets 76 and lower and in unrated markets. NAB's proposal accurately reflects the competitive environment for local radio broadcasters.

The record similarly shows that market competition had led to substantial drops in TV stations' viewership and advertising revenues and that smaller market stations face special competitive challenges.

Given the scale and concentration of TV stations' competitors, NAB again urges the FCC to eliminate the per se restrictions that ban combinations among top-four rated stations and that prevent ownership of more than two stations in all markets, regardless of local competitive conditions or stations' audience or ad revenue shares. Moreover, NAB and other commenters provided analyses of the substantial revenue and ratings gaps between stations ranked in the top four in their local markets that demonstrate the irrationality of the per se ban.

(continued on page 4)

OWNERSHIP

(continued from page 3)

“PROVERBIAL OSTRICHES”

Those parties opposed to reform of the outdated local radio and TV rules present no legal, factual or even logical arguments that undermine NAB’s proposals.

Most notably, these commenters offer no serious analyses — and provide virtually no relevant data — relating to competition for audiences and vital advertising revenues, even though free, over-the-air broadcast stations depend on ad dollars for their very survival.

Perhaps those parties against reform of the rules felt compelled to act as proverbial ostriches with their collective heads in the sand. After all, if they looked at the current market with their eyes open, they would be forced to recognize that radio and TV broadcasters compete against myriad multichannel and online audio and video sources and that the relevant market for evaluating ownership regulations can no longer be limited just to broadcast stations. And in that case, of course, the existing broadcast-only ownership rules would need to be repealed or modified.

But whatever the reason for their failures to meaningfully address the central issues in this proceeding, the FCC should pay little heed to commenters whose submissions opposing reform amount to little more than opinion pieces (or quotes from other people’s opinion pieces).

Ironically, retaining the ownership rules unaltered will not promote the professed goals of those opposing any change. Maintaining strict ownership limits has not in the past, and will not in the future, successfully promote diversity of station ownership or programming diversity.

NAB and other commenters firmly believe that addressing the lack of access to capital remains the only effective way to promote new entry into broadcasting. Moreover, retention of the existing rules will not foster, but will instead hinder, the provision of local news programming, given the resources needed to maintain local news operations, especially in smaller markets where stations most struggle to earn advertising revenues to support local programming production.

Finally, it borders on the absurd to contend that broadcast-only restrictions are needed to promote diverse viewpoints in the internet age.



[T]he FCC’s primary focus in this proceeding should be on the intense and growing competition radio and TV stations face for audiences and advertising revenue in a broad marketplace with myriad content sources and advertising options.

— From the NAB filing



“ECONOMIES OF SCALE”

In reviewing the radio rules specifically, NAB urges the commission to take account of the needs of both AM and FM radio.

While several commenters contend that loosening or removing the FM subcaps will devalue AM stations, no aspects of NAB’s proposal would require, or even directly encourage, radio broadcasters to sell their AM stations, particularly given that AM ownership would no longer “count” against any overall market cap. It also would be

inappropriate for the FCC to maintain competitively unnecessary ownership subcaps to essentially coerce broadcasters into acquiring or retaining one type of radio outlet over another.

The appropriate focus here is the ability of the radio station industry overall to compete successfully and serve consumers effectively. As the BIA Radio Study and the detailed comments of numerous radio broadcasters make clear, all radio stations, including FM, need to achieve greater economies of scale.

The FCC should not reject much-

LESS WIRING. MORE CONTROL.

ARC Plus Touch with SNMP Plus controls your SNMP-enabled equipment with a simple LAN connection. No parallel wiring required.

GET THREE FREE

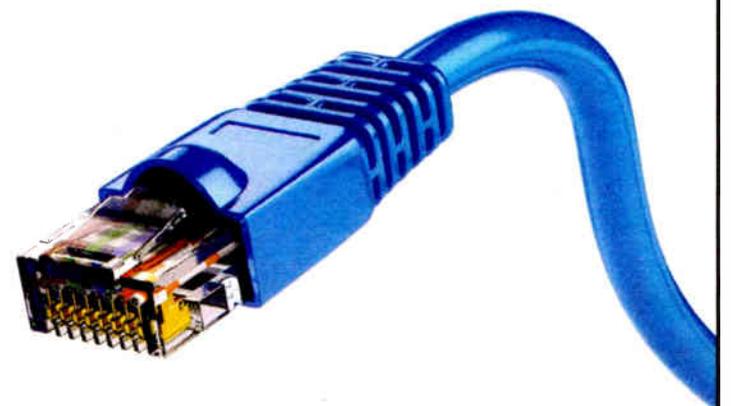
Save \$1,485. Get SNMP Plus, Jet Active Flowcharts and AutoPilot® for free when you buy ARC Plus Touch with RSI.

Offer good through August 31, 2019.



www.burk.com | sales@burk.com | 978-486-0086 x700

BURK
TECHNOLOGY



THIS ISSUE

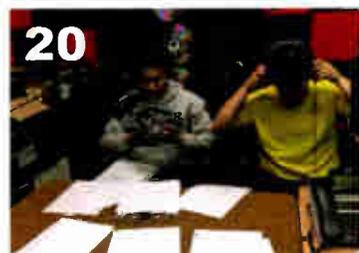
JUNE 19, 2019

NEWS

NAB Argues for "Economies of Scale"	1
BE Seeks "New Beginning" With Elenos	1
NewsWatch	5

BEST OF SHOW 2019 AWARD WINNERS

8-16



FEATURES

Change Your Filters to Avoid Cooling Problems	18
Grant Helps Dunnellon Tigers Grow!	20
People News	22



24

STUDIO SESSIONS

Rode's PodMic Puts Emphasis on Sound Quality.	24
--	----

OPINION

Seton Hall Student TAPped for Apprenticeship.	28
DRM+: A Solution to the AM "Problem"	29
Reader's Forum	28-30

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

needed FM ownership relief, especially in smaller markets, based on speculation about reduced demand for AM stations. That would be the regulatory equivalent of cutting off radio's nose to spite its face. NAB urges the FCC to foster the success of the AM service in ways other than retaining artificial restrictions on station ownership.

Finally, it is telling that the pay TV industry leads the opposition to reforming the local TV rule. The pay TV interests' tired complaints about retransmission consent have not improved with age and repetition, and the FCC should disregard their self-serving and factually inaccurate arguments. Rather than ensuring that the viewing public is served by strong local TV stations, pay TV providers' proposals are designed to weaken their competition for viewers and advertising dollars and gain an even greater advantage in retransmission consent negotiations. Their proposals to make the local TV rule and top-four ban more restrictive at a time when competition in the video marketplace has reached unprecedented levels must be summarily rejected.

In short, NAB urges the commission to rely on the data and empirical evidence submitted in this proceeding about competition in the broader media and advertising markets. Hyperbolic claims that broadcast deregulation will eliminate all diversity and all local news, or generalized complaints about media consolidation, provide no basis for retaining analog-era ownership rules. The FCC should discount the unsupported opinion and rhetoric submitted by parties wedded to a backward-looking approach to regulating radio and TV stations, and adopt rules reflecting competitive conditions in the 21st century.

To read the NAB's 90-page filing, go to <https://tinyurl.com/rw-nab-ownership>.

To read other comments filed to the FCC, visit <https://www.fcc.gov/ecfs/> and search MB Docket 18-349.

NEWS

NEWSWATCH

NAB SAYS GOOGLE AND QUALCOMM SHOULD PAY FCC FEES, TOO

FCC ownership rules (see page 1) aren't the only issue on which the NAB has weighed in recently.

The association is upset about a planned hike in regulatory fees that broadcasters must pay to the commission, especially about the impact on radio stations, and it wants the commission to justify those increases clearly.

But more broadly, NAB is pressing the FCC to spread the burden around in future by charging other industries and organizations that benefit from its work, including wireless internet service providers and new tech giants like Google and Facebook. It says Congress recently opened the door by changing wording in the law that covers the fee process.

"The commission is not bound to collect regulatory fees solely from licensees," NAB wrote. "[R]egulatory free riders leverage commission proceedings and the hard and ongoing work of commission staff to develop profitable business models without contributing regulatory fees. By expanding the base of contributors, the commission can significantly lower the regulatory taxes currently paid by some licensees while making its collection as a whole more accurately reflect the work of the commission and those who benefit from that work."

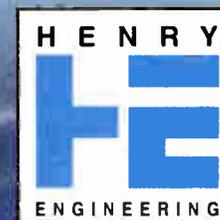
This includes those who benefit from the FCC's "significant and increasing level of attention to providing new opportunities for unlicensed spectrum. ... As it stands now, radio and TV stations, among others, are paying for the FCC staff to handle this work."

Among those who should pay, NAB said, are white spaces database providers and wireless internet service providers, as well as companies like Google, Microsoft, Qualcomm, Intel, Broadcom, Facebook, Amazon, Apple, the Dynamic Spectrum Alliance and the Internet Association, all of which the NAB said have submitted numerous filings — in some cases hundreds of them — requiring a great deal of FCC work.

— Paul McLane

GUEST POD II Solves "Headphone Headaches"!

Listen Up! The new Guest Pod II puts headphone jacks where you need them, with Cough and Talkback buttons near your talent. Both 1/4" and 3.5mm jacks and superb audio, Guest Pod II's can be mounted on a tabletop, under a counter, or into cabinetry. Easy installation with cat5 linking. Now in stock!



Visit www.henryeng.com or call Henry Engineering Tel: 562-493-3589 **We Build Solutions**

BE*(continued from page 1)*

Elenos Group, a transmitter manufacturer based in Italy and owned since 1977 by engineer Leonardo Busi. Elenos said it intended for BE to become “the face of the group in the Americas.”

That was 15 months ago. It was at this year’s spring NAB Show that BE really reintroduced itself to the U.S. marketplace, exhibiting with sister brands Elenos, Itelco Broadcast and Pro Television Technologies.

BE also announced several hires, including Peter Conlon as advisor to Busi; Chuck Kelly as vice president of the Elenos Group Television Division; and Ricardo Jimenez as VP of sales for Latin America. The BE sales team now includes John Lackness, Frank Grundstein and Joe Myers.

Conlon spoke with Radio World about BE’s goals and plans. He is founder of New Mosaic Advisory and was president/CEO of Nautel Ltd. for eight years, stepping down in 2014. He has also held executive positions with several organizations outside of broadcast.

Radio World: What was the main business message from BE to attendees?

Peter Conlon: That we are experiencing a renaissance, a new beginning. BE has become a significantly stronger organization since joining the Elenos Group. Each member of the group brings a long and highly respected history in broadcasting, a combined 250 years. Elenos is recognized around the world as a leader in FM, with an installed base of more than 40,000 transmitters in more than 100 countries.

When you couple BE’s reputation for world-class innovation and customer service to the strength of the sister companies, the result is a powerful force in the industry, particularly since the group is owned by someone who is truly passionate about broadcasting.

RW: What is your own role and title with BE?

Conlon: My role is to advise both BE and the Elenos Group on issues of strategy. My formal title is advisor to the CEO of the Elenos Group. The owner of the group knew of the success we enjoyed at Nautel while I was there, and asked if I would be willing to take the lessons I had learned and assist another wonderful and storied organization as it transforms itself into an energized, formidable global competitor.

RW: BE had been through several ownership changes over the past decade or two. What is BE’s role within the larger Elenos organization?

Conlon: None of the recent owners of BE brought it the combined strength of

financial stability, global presence and passion for the broadcast industry that it now has as part of the Elenos Group. Finally, BE can regain its deserved place as an innovator, a leader in customer service, a trusted partner to its extensive list of clients and friends. In addition, with BE at the forefront, the Elenos Group now has an effective means to establish a powerful presence in the Americas marketplace.

RW: Although BE seems to be focusing mostly on television now, what are its intentions for radio?

Conlon: The Elenos Group is a highly respected provider of TV solutions around the world, through its ownership of Itelco. The recent acquisition of Pro Television, which is globally recognized as the leader in modulation and signal processing for the broadcast industry, further strengthens the group’s presence in the market. And at NAB 2019, BE proudly introduced its own line of low-power TV transmitters, ideally suited for the Americas market.

While the team at BE is understandably excited about bringing these world-class television products to its clients, the group and its owner are passionate about all forms of broadcasting, including radio. You can expect new and exciting things to come from the group all across the spectrum.

RW: Why is this a good time to be an RF manufacturer?

Conlon: Interesting question, Paul. If allowed, I would rephrase the question to be, “Why is this a good time to be an RF manufacturer who loves the industry?” Because that is the difference. For decades, people have predicted the decline and disappearance of OTA broadcasting, especially radio. However, broadcasting has consistently demonstrated its value and persistence in the face of the nay-sayers. Unless you are passionate about the industry, it would not be unusual or unexpected for an RF manufacturer to look outside the industry to seek more “lucrative” opportunities. I believe the passion within the group for traditional broadcasting will drive interesting efforts in innovation, which will benefit the industry. That signals a bright future for BE and the entire Elenos Group.

RW: A company video states that its mission is to create reliable transmitters. Will BE remain active in the audio automation space too, and who will be responsible for updating the AudioVault line?

Conlon: Studio automation has long



Peter Conlon



Above: Attendees gathered in the company booth at the spring show.

Left: Employees under a banner proclaiming “a new BE-ginning.”

ity and his incredible global brand to help transform the Elenos TV business into a world leader.

RW: How many employees does BE have, and where are they based?

Conlon: The BE part of the Elenos Group has 42 employees, all based in the U.S., primarily Quincy, Ill. BE also has access to the entire Elenos 140-person development, sales and support team in Europe and around the world, of which fully one-third are engineers. This is a new day for BE.

RW: What else should we know?

Conlon: In the three months I have been with BE, we have already expanded the team by more than 10% and our sales projections have grown by 20%. There are people who would never have thought that possible. And we have only just begun.

been a part of the BE “persona” and will continue to be so for the foreseeable future. AudioVault now has access to a significantly expanded group of incredible engineers, with skills in RF, software, embedded systems, user interface design, etc. I think you can expect some pretty exciting things to come out of that mix.

RW: BE recently brought Chuck Kelly on board, or more correctly, brought Kelly back to a company he’d worked for under different ownership for many years. What’s his role going to be?

Conlon: Chuck was brought on board to be the vice president of television business development for the Elenos Group. He will use his extensive experience in the broadcast industry, his unparalleled reputation for creativ-

ACCESS NX

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



Unparalleled reliability for remote broadcasts!



Contact Us Today to Learn More
1-800-237-1776 | www.comrex.com

COMREX

World Radio History

And the Winners Are ...

Congratulations to recipients of the sixth annual Best of Show Awards, intended to honor and help promote outstanding new products exhibited at the 2019 spring NAB Show. Shown in the following section are the award winners named by Radio World.

Also watch for the Best of Show Program Guide coming to your email inbox, offering details about nominees submitted to all the Future publications that participate in this program. The guide is a great overview of the spring show floor. It is delivered this month to our newsletter subscribers and can be found under the Awards section of the Resources tab at radioworld.com.

Companies pay a fee to enter; not all entries are selected as winners. Any company that exhibits a new product on the exhibit floor may nominate. Products are evaluated by a panel, and winners are selected based on innovation, feature set, cost efficiency and performance in serving the industry. For more on the award process see <https://future.swoogo.com/nabbestofshow2019>.



Photo by Jim Peck

Inovonics Sofia 568 FM/HD Radio SiteStreamer+

We don't know who Sofia is, but now she has a SiteStreamer named after her.

Inovonics says the 568 is the first in a new series of elite SiteStreamers with advanced features for critical monitoring situations.

"It is the first FM/HD Radio monitor-receiver to display album art, AE logos and pictures via a web interface," the company states.

SiteStreamers are web-enabled receivers for remote signal monitoring, installed at a broadcast transmitter site or any remote location with an internet connection. Streamed audio is accessible from any web-enabled device.

The Sofia 568, occupying half of a standard rack width, provides analog, AES3-digital and AoIP-streaming audio outputs. It collects histograms of signal parameters and displays HD Radio album artwork, station logos and similar visuals via the web interface. Multiple stations can be sequentially monitored using the programmable StationRotation feature.

Ten people can listen remotely to the audio stream simultaneously.

In the photo: Standing, Josh McAtee, Jim Wood, Mukesh Chaudhary, Gary Luhrman, Sharon Barber; kneeling, Zack Calden and Ben Barber.

ARRAKIS SYSTEMS INC.

ALWAYS THE LEADER

For more than 35 years, Arrakis Systems has led the way with ground breaking innovations in cost effective, reliable Radio consoles... including USB, Bluetooth, world standard DANTE IP connectivity for ALL consoles and 'New for 2018' the DARC series AoIP consoles.

D.A.R.C.
Dante AoIP Radio Console uses the world standard DANTE IP protocol with more than 300 manufacturers and 1,000 compatible products. From only \$2,400.

operate from anywhere that you have wideband internet !!!

www.arrakis-systems.com

970-461-0730

On the road to HD Radio broadcasting?
Nautel has you COVERED.

nautel.com HDradio

Cover all Bases with ViA



Bill Eisenhamer, Chief Engineer (Left) with JR Rogers, Technical Director

The Tieline ViA has been the backbone of the San Diego Padres road play-by-play live broadcasts.

"The ViA comes with an SD card slot for recording, so no more worries trying to keep someone at the station focused on recording. The crew on the road takes care of that and records interviews for playback during their live show. Being self-contained makes the device more flexible for the real world."

The ViA is a winner for The Fan, and Entercom San Diego.

Bill Eisenhamer
Chief Engineer, Entercom San Diego



(((ViA)))

Tieline 

The Codec Company

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



RCS Zetta Cloud

Photos by Jim Peck

RCS says “the cloud” offers broadcasters a way to create low-cost disaster recovery insurance for their stations.

Zetta Cloud’s Disaster Recovery system is always backing up your database, including audio, schedules and metadata, and sends it to the cloud in a background process that doesn’t affect your normal workflow.

In the case of an event that disables your station, Zetta Cloud takes over, allowing you to stream your “station audio” from the cloud to your transmitter, or your web stream or emergency studios. You can enable it from any browser-enabled device, then turn things back over to the studio when the problem is fixed. The service will be offered for a fee of a couple of hundred dollars a month for commercial users.

Maybe this is a precursor to full cloud-based management. Will we see radio stations in the United States start moving toward the cloud in a bigger way now that stations no longer are required to have a studio in the city of license?

In the photo: Paul McLane, Chip Jellison and Philippe Generali.



Nautel NX Series All-Digital AM Transmitters

U.S. AM station owners reading Radio World know that while the FCC does not license digital-only operation, one station is running digital-only HD Radio under an STA, and another broadcaster has asked the commission to allow such operations on a voluntary basis in the future.

Nautel is involved in the experiment in Frederick, Md.; at the NAB Show it said it has increased its commitment to enabling all-digital AM operation by announcing support for the experimental all-digital modes as a standard feature in its NX Series transmitters.

“Although all-digital AM operation currently requires an experimental license, we and others feel that this is an exciting direction for the AM band and Nautel is ready to support broadcasters as they move ahead with their plans,” said John Whyte, head of marketing.

He said the digital modes of the NX Series provide the precision needed in the spectral mask as well as the in-band signal quality required for digital features such as User Experience metadata.

In the photo: Standing are John Whyte, Kevin Rodgers, John Wilton, Alex Morash; kneeling are Philipp Schmid and Scott Melvin.



Axia Audio iQx AoIP Console



Axia says the iQx looks like a traditional console but is a surface and mix engine rolled into one.

“That’s one less component and connection you need to worry about when building your studio, allowing you to get up and running quickly and easily,” the company says,

adding that iQx was built from the outset as an affordable AoIP console. It is AES67-compliant and, the company says, is capable of supporting emerging standards including SMPTE 2110-30.

“There’s no limit to the number of sources and connections broadcasters can access on the network.

If they already have an existing AoIP network, they may not even need to add additional I/O. They can connect an iQx and access any audio source, anywhere on the network, from anywhere in the world. Drop in an iQx and share resources without having to add additional equipment. By piggybacking off existing resources like an Axia QOR engine, a station on a budget can suddenly build an additional studio for far less.”

In the photo: Milos Nemcik and Cam Eicher pose while Angi Roberson runs things from behind the scenes.

DJB Zone from DJB Radio

DJB Zone is “all-in-one” radio automation software. The company highlights its intuitive interface and flexibility for hosts and operators in live-assist environments.

VP of Operations Adam Robinson says that the system allows a user to resize, move and save custom layouts for immediate recall according to each host’s needs. If you want, say, really big hot keys, or you want to open your audio editing software as part of the layout, you can do it.

It can operate on Windows Server with workstations, on a standalone workstation as its own server or on a peer network. Included in Zone are features familiar to DJB users including on-screen weather, simple remote voice-tracking and a built-in music scheduler.

In the photo: Ron Paley and Adam Robinson.





Look below the surface

Appearances can be deceiving. Axia® iQx looks like a traditional console, but it's actually a surface and mix engine rolled into one. We dove deep with AES67, giving you access to every source, anywhere on the network. iQx is affordable, allowing you to maximize existing network resources without paying for I/O you don't need! With nearly limitless connections, we can't even fathom the possibilities.



TelosAlliance.com/iQx

Available in the US from BGS.cc

SHAPING THE FUTURE OF AUDIO

THE TELOS ALLIANCE®

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

World Radio History



Wheatstone SwitchBlade AoIP Distribution and Control Appliance



Photo by Jim Peck

Wheatstone calls it a different type of AoIP appliance, combining the power of AoIP logic control with SIP connectivity and codec bandwidth optimization to transport not only programming but control logic for full studio operation between sites.

Without such control, the company says, broadcasters using public or private links can't do many basic studio functions at

a distance, such as turning on a mic or pressing a play button, sending and receiving router commands or automation control, or setting fader levels.

Wheatstone says SwitchBlade can be used in consolidating operations for stations across a region, sharing program and operating control between sister stations over an IP link, and transferring audio between facilities or from a cloud-based automation system over the internet.

The box has two ethernet connections, one for connecting to a SIP service provider, the other for connecting to the WheatNet-IP audio network. It incorporates WheatNet-IP's Application Control Interface for remotely triggering events and elements in the WheatNet-IP environment, allowing you to bring up channels, set fader levels and adjust EQ dynamics through software logic control.

SwitchBlade comes with several major codecs including 256 kbps stereo Opus and G.711. SIP negotiates the connection and method for compressing streams.

In the photo: Jay Tyler of Wheatstone and Michael Farrell of Radiomation.



Photo by Jim Peck

Sound4 FM Processor With RCS Zetta Payout

Sound4 has integrated RCS Zetta Payout into its sound processor to allow broadcasters to manage split programs. It says this association adds flexibility and reduces costs.

Available as an option on all Sound4 FM and HD processors, RCS Zetta Cloud integration means stations can add local commercials directly into the broadcast from transmitter sites, bypassing local studios. Operators can manage the RCS Zetta Cloud Payout via the RCS cloud software solutions.

Sound4 also says it offers its own hardware "without any hidden PC inside" for increased reliability, and all of its products are delivered with dual-power supply.

The company adds that it'll soon be integrating other playout editors into its solutions.

In the photo: Vincent Defretin, Todor Ivanov, Mike Oberg and Egor Tyagunov give the sign of the four.

Broadcast Bionics Caller One Talkshow System

Broadcast Bionics' new Caller One lets users answer screen and control VoIP/SIP calls from a browser on any device.

The talkshow system attracted a lot of attention during the spring NAB Show and took home a Radio World Best of Show at NAB Award.

Broadcast Bionics says this is an all-in-one software solution designed with the smaller studio in mind. It replaces traditional talkshow hardware and call screening software and, the company says, is easy to install and maintain while offering a rich feature set and lots of power.

Caller One handles multiple SIP lines and lets you add more workstations by accessing the software via your browser. This means you can also use it on a mobile device, such as an iPad or tablet.

In the photo: RW's Paul McLane and Dan McQuillin of Broadcast Bionics.



Photo by John Casey

AcousticsFirst.com
The first name in state-of-the-art sound control.™

SOUND BETTER.

Toll-Free Number:
888-765-2900

We have a 5 year warranty – best in the industry... but what is the **real life** of a Crown Broadcast Classic Transmitter?

In 2020 we will have manufactured FM transmitters for 30 years - do you have Crown's oldest unit still on the air?

***Oldest unit* will get a free
Companion***

***Plus we will draw 5 names from all submissions to also receive a free
Companion***

***Go to www.crownbroadcast.com to
submit your transmitter(s)***

****serial number is required with submission
drawing will be July 31, 2019***



DIVINE AoIP PoE Powered Monitor From GlenSound Electronics

DIVINE is a DSP-controlled PoE powered network audio monitor speaker that features up to four audio inputs and uses just one cable for audio and power.

"Interfacing to other manufacturers' equipment within your AoIP infrastructure is completely trouble-free as it supports both Dante and AES67 protocols," says GlenSound, which highlights its low-distortion and low-noise 10 Watt Class D amplifier and up to 96K digital audio capability.



With the source select switch on the front, the four audio inputs can be individually routed to the loudspeaker or mixed together. DIVINE also can prioritize one audio input over any of the others. "This is particularly useful if you wish to monitor program audio and also simultaneously listen to important talkback from a director or producer," GlenSound says. "Alternatively, this facility could be used to prioritize a fire alarm signal over anything else."

Four LEDs indicate the source selected, and the unit has recessed volume control. The rear features multiple preset DIP switches used for a bunch of cool functions like setting EQs, source priority, power saving mode and disabling the front controls.

In the photo: Ian Burns and Gavin Davis.

Panasonic SPYDR 2.0/ DTS Connected Radio

Panasonic Automotive announced at the show that its SPYDR 2.0 cockpit Android-based domain controller will support DTS Connected Radio via a collaboration with Xperi.

Xperi is involved in numerous audio solutions beyond the familiar HD Radio, and showcased DTS Connected Radio implementations with both Karma Automotive and Panasonic. It says DTS Connected Radio is a hybrid of IP and over-the-air broadcast that delivers a new radio experience for the vehicle.

"Panasonic Automotive is collaborating with Xperi to enhance DTS Connected Radio to deliver enriched content with broadened metadata to offer consumers an entirely new visual experience in the vehicle," the companies stated.

With Panasonic Automotive's Android-based platform, DTS Connected Radio technology enables receivers to display song titles, album art, station information with logo for analog and digital stations, a Live guide display to make a listening choice based on the content that is being played at that moment, and other features.

In the photo: Paul Venezia, Nick Cook, Bob Dillon and Dave Casey.



Photos by Jim Peck

In our next issue, we'll kick off our annual **SUMMER OF PRODUCTS** coverage with some groovy finds that should blow broadcasters' minds.



Getty Images/Dmitry Fisher

GatesAir Intraplex Ascent Audio Over IP Platform

From GatesAir comes an Intraplex product intended to address the convergence of broadcast ops with IT.

Intraplex Ascent is a scalable, multichannel audio over IP transport offering. It offers a direct connection to traditional digital and analog audio interfaces and is compliant with the AES67 standard and with AoIP networking solutions Ravenna, LiveWire+ and Dante.

It is available in two form factors: a 1RU server, with configurable options for physical and AES67 channels; and a software-only solution that operates in a virtualized container. Both support up to 32 audio channels (AES3, AES67, analog) and are interoperable with most Intraplex AoIP codecs.

This software-defined product is the first Intraplex system to live on a COTS x86 server. GatesAir says it provides broadcasters a scalable, redundant and cloud-based transport platform for multichannel contribution and distribution, and also streamlines things by removing the need for many codecs and hardware components.

"Ascent adds further value by allowing users to manage many Secure Reliable Transport (SRT) streams on a centralized platform, an industry-first in Audio over IP networking for broadcasters," GatesAir says. Dynamic Stream Splicing technology diversifies SRT data across redundant networks, adding protection against certain types of packet losses and network failures.

In the photo: Radio World's Paul McLane and GatesAir's Gavin Gundler and Keyur Parikh begin their ascent.





THE FUTURE CAN BRING ANYTHING LXE IS READY FOR EVERYTHING



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



LXE: YOUR FOREVER CONSOLE

wheatstone.com/lxe-forever-rw



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

The **Best of Show Program Guide** will take you on a tour of new products introduced at the NAB Show for radio, TV, film, video, streaming and pro AV professionals. It's a digital guide that features all nominees that participated in the 2019 Best of Show Awards program, and provides an excellent sample of new technology, allowing companies to tell you in their own words why they believe their product is noteworthy. Watch for it in your email box or find it under the Awards section of the Resources tab at radioworld.com.

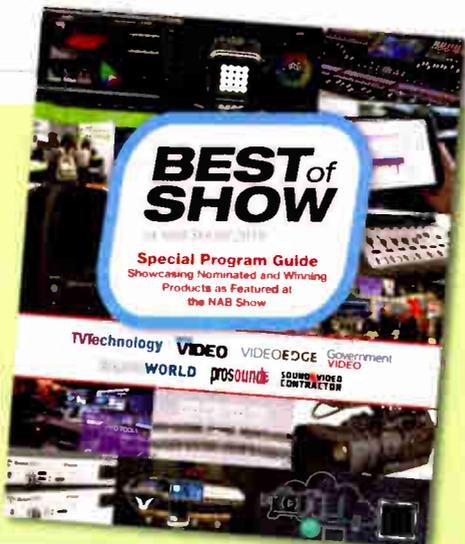


Photo by Jim Peck

Egreso FM 3 kW Transmitter From WorldCast Systems

WorldCast Systems now offers the Egreso FM 3kW transmitter, calling it an advanced solution for broadcasting that benefits from the market's lowest operating costs.

It is a compact transmitter in a 3U chassis design that provides redundancy in power supplies and power amplifiers.

In the event of a loss of power supply or amplifier, the transmitter will continue broadcasting with >1500 watts.

Hot-swappable power supplies and fans contribute to easier maintenance.

WorldCast quotes efficiency of up to 76%, thanks to its sixth-generation MOSFET and new planar design, and it says its special SmartFM Artificial Intelligence enables an additional, dramatic energy savings of 10 to 40%.

In addition to SmartFM, it includes a direct-to-channel digital modulator, dynamic RDS encoder, digital stereo encoder, 5-band audio processor, MPX/Composite over AES and GPIO support as well as single frequency networking.

It is built to satisfy the most demanding broadcaster and station.

In the photo: Gregory Mercier, Kevin Campbell, Tony Peterle and Christophe Poulain.

Moseley



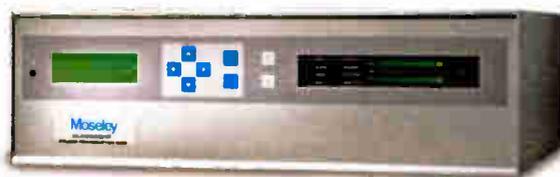
SIMPLY POWERFUL

Whatever your STL strategy:

- Group owner of multiple stations in a market with co-located studio and transmitter sites
- AM station adding one or more FM Translators to a common site
- Backup for multiple station cluster

The best tactic is the 8 channel Starlink.

The Starlink SL9003QHP-8SLAN overcomes overcrowded 950 MHz STL channels in your market by concentrating multiple stations on one licensed STL frequency. Perfect for main or backup service, it is extremely cost effective when compared to individual single station STL links.



- 2 to 8 Audio Channels make it perfect for multi-stations
- Linear Uncompressed Audio or AAC & MPEG for maximum payload capacity
- Data Channels carry RDS
- Ethernet Channel (one-way) for HD Radio™
- 5 Watts Digital Power conquers challenging STL environments
- Web Browser User Interface makes setup easy
- User re-configurable with no additional purchases makes it future-proof

It's your move now:

Contact Sales at (805) 968-9621 x785 • sales@moseleysb.com

www.moseleysb.com

Moseley uses proprietary technologies and owns more than 50 patents and has delivered more than a million radios deployed in over 120 countries.





NEWS DESK IN UNDER 1 SQ FT



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

BUILT WITH SCREENBUILDER

wheatstone.com/glass-screenbuilder2-news-rw

Wheatstone
BROADCAST AUDIO PERFECTIONISTS®

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

Change Your Filters to Avoid Cooling Problems

And where can you find a reasonably priced Yagi antenna?

WORKBENCH

by John Bisset

Email Workbench tips to johnpbisset@gmail.com

How does that saying go — “Out of sight, out of mind!” Don’t let summer go by without changing out your air conditioning filters. Not only do clogged filters cause your cooling system to work harder, but the dirty filters can actually cause your system to fail prematurely.

As we have less time to visit sites (and to crawl up on the roof or into the studio ceiling), filter change-outs are easy to forget. If it’s been awhile, take a peek.

If you’re not using the more expensive high-density filters, consider switching to those. They will keep systems cleaner, and if you order them in bulk from companies like Grainger or others online, prices can be very reasonable.

If you’re fortunate enough to have snagged a summer engineering/remote intern, task them with logging the number and size of all the filters you use. Then, as the filters are changed, make sure they are dated, as seen in Fig. 1.

It’s also important that the filters are inserted properly — the arrow on the side of the filter points to the direction of air flow — make sure filters aren’t installed backwards!

With the humidity being sucked out of the air during the summer, now is a good time to check the condensate drains. Big box stores and HVAC suppliers sell condensate drain brushes that can be used to keep the drain lines clear, as well as tablets that can be placed in the drain pan to prevent algae formation.

If you’ve ever cleared an algae plug, you know how strong the fibers forming the plug can be. A little preventive maintenance will avoid flooding problems later. Preventing a flood is crucial if your air handler is mounted directly above a studio or transmitter.

And while we’re on the subject of studio air, let’s face it — studio air can get especially rancid, so you might want to try Filtrete’s new filter air fresheners.



Fig. 1 (above): Don’t forget air handler filters — and make a notation when the filter was changed.

Fig. 2 (right): Filtrete has these air fresheners that clip on the filters — freshen up your studios!

Seen in Fig. 2, these fresheners clip onto the air filter to provide a more pleasant scent for these rooms.

Got other air conditioning system tips or suggestions? Send ideas for inclusion in a future column to johnpbisset@gmail.com.

Wayne Eckert is with the Florida Rural Communications Cooperative and is no stranger to Workbench.

Over the years, Wayne has read a number of questions and laments by broadcast engineers trying to locate a source for FM band receive-only Yagis, commonly used to feed off-air trans-

mitter monitor receivers. Once upon a time, this product was marketed by most TV antenna manufacturers, but with the growing popularity of satellite, cable and streaming TV services, many of these companies have gone out of business.

Wayne discovered that the few broadband Yagis on the market are either aimed at audiophiles, which equates to over-the-top pricing, or CATV Yagis, which also have a price tag that will

likely make your GM hit the roof. But all is not lost! Wayne found a product made by Stellar Labs and sold by Newark.

Wayne lives in the middle of nowhere in southwest Florida; he needed an FM Yagi, since the transmitter site he wanted to monitor was about 55 miles away. The Stellar Labs product did a very good job for a very fair price (single quantities available for \$32.54), according to Wayne.

The antenna is a four-element Yagi, consisting of one driven element, one reflecting and two directing elements. The result is tremendous directivity and forward gain.

Wayne adds that another really nice feature that engineers will like about this antenna is that a mast mount is included, and the mount can be tilted either up or down to match the elevation between the transmitter and the studio. On www.newark.com, enter part number 30-2460 to obtain more information.

Frunk Hertel, consultant with Newman-Kees RF Measurements, has discovered yet another inexpensive method of labeling cables.

Manufactured by Mr-Label, and available from Amazon, these letter-sized sheets of self-adhesive cable labels are waterproof and tear-resistant and come in five assorted colors. Laser-printable or hand-printed with a Sharpie, a packet of 10 sheets (300 labels) is under \$10.



On the Amazon, search for “Mr-Label US letter sheet self-adhesive cable label.”

Contribute to Workbench. You’ll help fellow engineers and qualify for SBE recertification credit. Send Workbench tips and high-resolution photos to johnpbisset@gmail.com.

Author John Bisset handles western U.S. radio sales for the Telos Alliance. He is SBE certified and is a past recipient of the SBE’s Educator of the Year Award.



SUPPORT MATTERS
Great support means finding the right support person at the right time

nautel nautel.com

Remote monitoring from
hundreds of miles away,
all in a smartphone.

You got this.

SOFIA 568

FM / HD Radio SiteStreamer+™



The new SOFIA 568 FM/HD Radio SiteStreamer+ takes it up a notch combining remote off-air monitoring with a host of features to ensure that you are the first to know when there is a problem. You've got the tool to listen to the off-air programming and confirm that Artist Experience graphics are displaying correctly.

It's a SiteStreamer PLUS.

The elite SOFIA SiteStreamer+™ (plus) series includes additional features to the SiteStreamer product line.

- Internet listening stream for up to 10 listeners
- Displays HD Radio Artist Experience graphics and station graphics on Web interface
- Adjustable Audio Outputs in L/R Analog, AES digital, and Dante AES67 AoIP
- Monitor multiple transmissions sequentially with StationRotation™
- Alarms & notifications sent via email or SMS messaging
- Remotely monitor fulltime off-air FM and HD Radio signals
- Easy set up and operation; full SNMP support



WHY INOVONICS?

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



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

Grant Helps Dunnellon Tigers Growl

A reading for radio program promotes confidence for students



Layout of the production studio

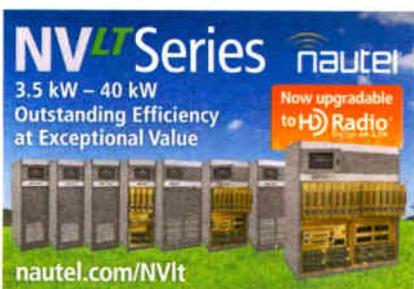
STUDENTRADIO

BY BARRY CARRUS

A media professional since 1972, I eventually found myself in south Florida in the new millennium, working as an audio engineer for the Miami Dolphins and the Florida Marlins. A move to central Florida several years later forced me out of the media business and into education, where I have been ever since.

At Dunnellon High School, I teach intensive reading to seniors and AP world history. The reading students who motivated me to create a “reading for radio” program about five years ago.

I had been searching for an incentive to motivate students to improve their technical reading skills and, of all things, a 250-foot radio tower on our campus sparked the process. Although used by the transportation department, I looked into an LPFM license for the school and was encouraged, until I started the budget — *no way!* As most readers will know and understand, we in education barely have enough money for essentials, not to mention trying to fund a project like that.



But the idea of combining radio with the academic needs of my reading students still seemed like a great concept. Imagine, having a school radio station run by students and then opening the on-air auditions to students who are struggling as readers.

I started researching internet radio, and suddenly this idea had legs. Still, funding would be a challenge, but it would be nothing like the cost of trying to implement an over-the-air presence.

This is where CenturyLink Communications entered the picture. The company sponsors an annual grant competition through its Clarke M. Williams Foundation. These grants are open to public school teachers who blend technology and academics to benefit their students.

It seemed like a perfect fit. However, as a traditional broadcaster, I had a significant learning curve ahead, trying to wrap my head around a new-to-me, method of delivery.

I applied for the grant in the fall of 2015 and received word that I had been successful in April 2016. My first reaction was: “Now that I have the money, you mean I actually have to do this?!”

GETTING OFF THE GROUND

I spent the entire summer of that year doing the research; and there was plenty of it.

First, investigating what the technical

aspects of putting a station on the internet was all about. What, if any, were the government regulations; what licensure was required; how are royalties covered — basically learning how all the pieces fit together.

Next, of course, came a design and a

support streaming within the school (bandwidth being the potential problem). I explained that we would be sending our outbound signal to a web hosting company for streaming and that our IT requirements were minimal. One potential problem eliminated.

Next, I had to survey and select equipment that would meet our needs at a reasonable cost. I enlisted the help of Guitar Center Pro and found them to be very helpful in the selection process.

Finally, I needed to find a software automation system that would fit our needs and our budget. You probably know that this market has become very active in the last few years, and there are dozens of products to choose from in every price range. I was fortunate to come across a talented young developer in Texas who has created a program called NextKast Pro. The program is sold as a download with program key and is incredibly reasonable and both powerful and flexible.

The studio is broken into two halves utilizing two Windows-based PCs. One is dedicated to running the NextKast software and is our “broadcast” computer. The other is our “production station,” utilizing an Allen & Heath analog mixer, Shure and AKG studio mics and Audacity editing software for our production needs.

The last piece of the puzzle was our access platform. We have chosen TuneIn Radio utilizing either their mobile app or their internet presence at www.tunein.com.

At the beginning of the 2016-17 school year, students first were recruited to join “The Growl” (We are the Dunnellon Tigers, hence the name). Our goal was to get on the air prior to Christmas break. On Dec. 13, 2016, “The Growl” went live for the first time and has been on 24/7 since. Our format is eclectic as we attempt to provide both music of all genres and some very creative original student programming (written, produced and performed by our students).

For information contact Barry Carrus at readingforradio@gmail.com. Radio World welcomes stories about the creation and building of your radio station or media facility. Email radioworld@futurenet.com.



Principal Wade Martin records one of many messages produced by staff members in support of The Growl.



Two student producers work on their new show.



A student-produced segment called “That’s a Rap” allows students to record their own raps.

location within the school. The administration came through with an unused office, and I designed the equipment configuration around that space.

Next came a meeting with the school system’s head of IT to explain the project and learn if the infrastructure would

Introducing The Über-Node.

Power Core is designed with flexibility in mind. So you can combine AoIP streaming with device administration on a single Ethernet port... or place them on separate ports. Power Core lets you design your network your way.

Power Core can handle up to 128 MADI channels, standard. 4 front-panel ports (two dual-redundant pairs) with SFP make it easy to bridge your AoIP and baseband digital signals.

Think Power Core looks awesome outside? That's nothing compared to the sheer processing might inside, with a 1920*1920 routing matrix, 96 DSP channels and 80 summing buses. All your friends will be so envious.

Information please: high-resolution color display with rotary encoder provides easy front-panel access to network information and settings.

Power Core is 100% standards-compliant - because proprietary AoIP is so 2003. Up to 256 channels of true AES67 and RAVENNA streaming, on two front-panel Ethernet ports. Even complies with the ST2110-30 standard. Because you can't be too future-proof.

Power Core supplies 64 channels of GPIO via standard RAVENNA and open-source Ember+ protocols. Need physical connections? Use the front-panel interface. Highly logical.

The Lawo logo. Your assurance of meticulous engineering and premium components, uncompromisingly crafted to the highest German standards.



Power Core is the only broadcast AoIP node with ST2022-7 Seamless Protection Switching, giving you dual discrete links to your network core. Completely redundant, with automatic, inaudible switching. Now that's what we call peace of mind.

Connect your AES / EBU devices. Expansion card has 4 digital stereo inputs with broadcast-grade sample rate conversion, and 4 digital outputs.



Everybody's got a few analog sources. Line input & output cards with 4 stereo (8 mono) channels make connections a snap.

Lots of talking to do? 8x Mic/Line card with Phantom power does the trick.

Studio I/O card is perfect for on-air rooms. 2 Mic/Line inputs, 2 Line outs for speakers and 2 headphone feeds.

Got DANTE®? No problem. Power Core equipped with a DANTE expansion card gives you access to a whole world of pro-audio devices. Two mirrored ports with onboard SRC provide 64 channels of I/O.

If four front-panel MADI ports aren't enough, you can add more. Dual-port MADI expansion cards give you two SFP ports with 64 channels each.

Power Core is already the highest-capacity AoIP node + console engine in the world. 8 rear-channel expansion slots make it capable of even more.

Dual-redundant power, of course. Our hardened internal auto-switching power supply is backed up with an inlet for external power too.

As proof, we present Power Core: the modern, super-compact AoIP audio interface that packs hundreds of stereo channels into just 1RU. Handles AES67, MADI, analog, AES3 – even Dante®. You'd need 24 rack units of old-style nodes to equal all the I/O available in just one Power Core.

Impressive, yes? But audio I/O isn't the end of Power Core's capabilities. There's DSP; a lot of it — 96 channels of EQ, dynamics and mixing. AutoMix, too. Plus routing: 1,920 crosspoints, enough to switch an entire multi-station broadcast facility.

Power Core is flexible, too. Pair it with our award-winning Ruby radio console and it's the most powerful mixing engine ever. Put it in your rack room and presto! it's a high-density audio interface with built-in routing. Remote-control it with our VisTool GUI Builder software, and it's the heart of your TOC.

Power Core. The Über-Node has arrived.

See it live @
IBC
#8.B50

www.lawo.com
World Radio History



Power Core is the perfect AoIP supernode. But it's also a powerful mixing engine. Pair it with our award-winning Ruby – the beautiful, powerful, intuitive surface your talent will be clamoring to get their hands on. Or control your Power Core with Lawo VisTool for a custom "virtual console" with context-sensitive multitouch controls.

PEOPLE NEWS



Brian Philips

Cumulus Media

Succeeded Michael McVay as executive vice president of content and audience

Trish Johnson

National Association of Broadcasters

Raised to chief financial officer and senior vice president of finance



Chris Moreau

Cumulus Green Bay

Upped to vice president/market manager

Kareem Chin

iHeartMedia

Named SVP and head of investor relations

Giovanni Galvez

SyncWords

Named vice president of business development



Glenn Johnson

Cumulus Pensacola

Selected as operations manager

Andrew L. Dahm

iHeartMedia

Added title of chief privacy officer



Michelle Duke

NAB Leadership Foundation

Promoted to president

Adam Ralston

iHeartMedia Boston

Tapped as vice president of marketing

Sue McNamara

PodcastOne

Named executive vice president of eastern U.S. sales



Matthew Malone

Entercom Orlando

Tapped as program director WQMP(FM)



Mary Sandberg Boyle

WGN Radio

Chosen as director of news and operations



George D. Prayias

Premiere Networks

Promoted to vice president of digital for "The Rush Limbaugh Show"

Shosh Abromovich

iHeartMedia Toledo

Selected as market president



Stacey Schulze

Entercom Greenville

Added responsibilities as general sales manager

Peter W. Burton

Beasley Media Las Vegas

Named vice president and market manager



Heidi Raphael

Beasley Media Group

Raised to chief communications officer



Jim Howard

Marketon

Appointed CEO

Charley Connolly

Cumulus Youngstown, Ohio

Selected as operations manager

Send information to radioworld@futurenet.com with *People News* in the subject field.

Studio Items Inc.

Mic Booms
On-Air Lights
Speaker Mounts
www.studioitems.com

TORPEY TIME
(The Good Time People)

Clocks
Up/Down Timers
www.ram68.com

Dixon Systems

News Mixers
Line Matchers
USB Audio Codecs
www.ram68.com

RAM Systems

Broadcast Furniture
Systems Integration
Sound Absorption Panels
www.ram68.com

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

We've **NEVER DISCONTINUED SUPPORT** on any of our products

nautel.com

BEST of SHOW

at NAB SHOW 2019



RADIOWORLD

WINNER

RCS

Zetta Cloud

RCS Zetta Disaster Recovery

RCS, the world's largest broadcast software company, is excited to announce the first-ever, cloud-based disaster recovery system for the radio industry. We simply call it Zetta Cloud.

With this unique Zetta feature, a station's content is automatically uploaded to the cloud, ready at a moment's notice for playback. From natural disasters to viruses taking down IT infrastructure, whatever the emergency, Zetta Cloud is a high-tech, cutting-edge insurance policy that gets broadcasters back on-air, easily, efficiently and quickly.

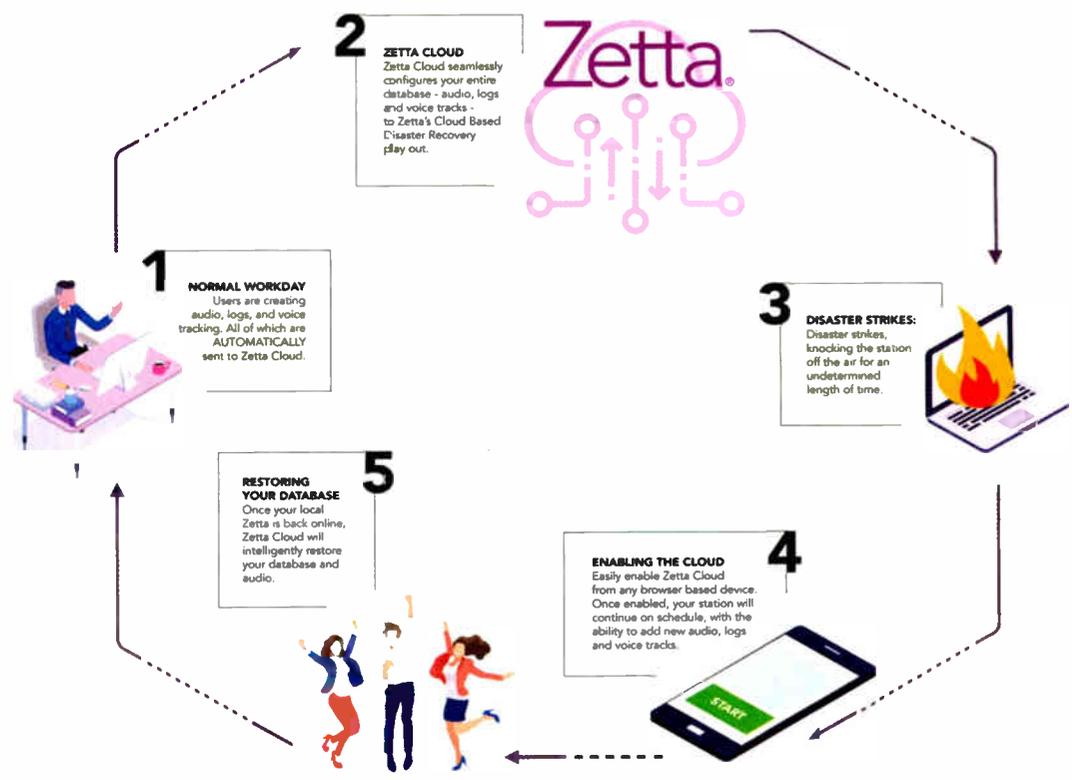
In minutes, not days, Zetta's cloud-based Disaster Recovery tools will seamlessly backup all audio, schedules and metadata. When the station is ready to return to its normal live output, Zetta Cloud rapidly restores all of the original data, as well as any changes made in the cloud environment.

"Once the issues at the ground level are taken care of, the local Zetta system will back itself up from the cloud and rebuild itself," said Neal Perchuk, RCS senior vice president of sales for the Americas. "So you have continuity in playout and then continuity that will rebuild once the problem is over. There's no other system out there that can self-recover from a disaster."

"The most important thing is the brand and your content being delivered uninterrupted during a major event," Perchuk said. "We're offering extremely high value service at a very low cost."

As ransomware joins natural disasters as a threat to business continuity at radio stations everywhere, broadcasters need every possible option in their tool kits to keep their programming and brand identity going, no matter what's going wrong at the station or in the community.

Zetta Cloud may be the smartest insurance policy your radio station ever signed up to.



www.rcsworks.com

Røde's PodMic Puts Emphasis on Sound Quality

This new mic designed for podcasters can hold its own against competitors with heftier price tags

SHORT TAKE

BY FRANK VERDEROSA

Heavy. That's the first word that comes to mind when unboxing the new Røde PodMic, a broadcast-grade dynamic microphone designed for podcast applications. The first time you hold it, you'll realize you're holding something that's built to last, especially when compared to similarly priced microphones. It's an all-metal construction with a solid, stainless steel mesh grille. While its appearance evokes the EV RE20 style broadcast mic, its shorter profile, built-in mounting system and \$99 price tag set it apart.

As a podcast producer and engineer, I'm often asked by people looking to try their hand at it what equipment to buy — particularly microphones. The answer always boils down to budget. The podcast industry seems to be covered by the ubiquitous Shure SM7B, but as reasonably priced as it is, it's often still out of range for beginners, especially those who will need more than one. With that in mind, Røde's price point allows newcomers to purchase four PodMics for the price of one SM7B.

But how does it sound?

As a starting point, I brought the PodMic along to a podcast session for a show I produce. The co-host has a smooth, rich, "radio-friendly" voice, so I chose to put it side-by-side with the Shure SM7B in front of him. Both mics were recorded flat. On playback, I was pleasantly surprised to hear that it truly held its



own against a mic that costs four times as much. The PodMic had a pleasing high end and tight mids, but lacked a bit of bottom, though in fairness, I think this mic is made to benefit from proximity effect, and the co-host doesn't stay that close. An EQ boost in the low

PRODUCT CAPSULE

RØDE PODMIC

Thumbs Up

- + Excellent sound quality for voice
- + Great value

Thumbs Down

- Needs windscreen or pop filter
- Poor nonvocal sound quality

Price: \$99.99

Contact: Røde Microphones in California at 1-562-364-7400 or visit www.rodemic.com.

end put it right up against the SM7B, but with a natural brightness that gets lost in the Shure, probably because of its foam windscreen.

Where the PodMic disappointed, somewhat expectedly, was with its built-in windscreen. The marketing of the PodMic mentions it as a selling point, but unless you're a seasoned voice actor with really excellent mic control, this mic most definitely needs a windscreen to block plosives. I worry that a foam cover might take away from some of its pleasing top end, and would personally opt for pop filter on this mic. But that's certainly not a deal-breaker when you're talking about a mic in this price range.

I was impressed enough with the PodMic to do a more ambitious test. The next day, I brought it to Digital Arts in New York, the recording studio I work

(continued on page 26)

PRODUCTS & SERVICES SHOWCASE

SPACE IS AVAILABLE!

To advertise, call

212-378-0400

ext. 512

In stock, available for immediate delivery

WEATHER RADIO

Model CRW-S With Same Decoding

Price \$740



Sensitivity .28 microvolts for 12 dB quieting. All seven frequencies. SAME decoding demutes receiver, closes relay and gates audio to 600 ohm rear terminals. Another set of rear terminals has continuous 600 ohm audio output. Double conversion crystal controlled, crystal filter in first I.F., ceramic filter in second I.F. Dual gate MOS FET front end. 50 ohm coaxial input. Adjacent channel (± 25 kHz) down to 70 dB. 19" rack mount, 1.75" H, all metal enclosure. In stock — available for immediate delivery. THE WEATHER RADIO WILL NOW DRIVE A REMOTE SIGN BOARD

GORMAN REDLICH MANUFACTURING CO

257 W. Union Street Athens, Ohio 45701

Phone: 740-593-3150 jimg@gorman-redlich.com

www.gorman-redlich.com

**BEST of
SHOW**

at NAB SHOW 2019



RADIOWORLD

WINNER

DJB RADIO

DJB ZONE

Radio. Automation. Reimagined.

- Simple and elegant-looking user interface on the Play Stack with all relevant information for live assist is easy to read at a glance (Current Time/Current Temperature/Countdown Timers and Hour Time remaining vs scheduled item time).
- DJB ZONE can operate on Windows Server with workstations, on a standalone workstation as its own server or on a peer network.
- DJB ZONE Multi Instance OnAir running on one workstation is fully supported. Licensing per additional instance required. No virtualization software is required.
- DJB ZONE Play Stack features were designed with input from users — very “live assist” friendly.
- Each function or “ZONE” of the Automation system can run in its own resizable window for total customization.
- With access to the Production Suite interface from the DJB ZONE OnAir workstation, no need for two computers in the control room.
- DJB ZONE is fully compatible with wav, MP3, MP2, ogg vorbis, FLAC, AAC audio formats and plays, edits and records in each without any transition or decode/encoding.
- The DJB WEATHER ZONE shows current and forecast information for any zip or postal code — updates the weather and forecasts automatically.
- DJB ZONE can schedule directly in the main play stack a URL or back-to-back URLs with breakaway in between and URL rejoin as well, and URL program end (very similar to scheduling a satellite feed).
- DJB ZONE has a flexible in-studio Voice Tracker with adjustable user control over out and in segues; prompts for best voice track record time; easy pre-listen, record, start next keyboard or mouse functions.
- Simple setup and industry-proven reliability, DJB ZONE Remote Voice Tracker interface delivers the perfect voice track every time using the internet for remotes.
- DJB ZONE offers “Real-time” traffic or music manager connection to the OnAir schedule for immediate Air Log updates.
- A “Web Brainz” interface to the scheduled log element is provided for talent to instantly view key information about the music they play — it’s built in Show Prep!



- Scene Recall for DJB ZONES — Each user can set up their workspace as they like it then “SAVE” and recall that DJB ZONE setup with a simple mouse click.
- iTunes™ Compatible — DJB ZONE software can Record, Edit and Playback m4a files.
- Built-in Scheduler for music formats, IDs, automation codes, satellite formats, news talk formats and URL stream scheduled formats eliminates the need for a scheduling program in small to mid-sized markets.
- Full reporting templates for BMI/ASCAP as well as Traffic reporting and reconciliation functions.
- An industry-tested and robust Satellite Programming Integration system with Multi Carts.
- Remote/Sports log for live broadcasts removes the need for an operator at the studio; allows operation of OnAir by remote; and gives full return to current log time event for unexpected cancellations or rain delays.

DJB RADIO

For more information, please call sales@djbradio.com | 702-487-3336 x1

djbradio.com/djb-zone

PODMIC

(continued from page 24)

at for ad agency, film, animation and television clients. I took the bold step of putting it side by side with a Neumann U 87 during the recording of a TV commercial, with both mics' diaphragms behind a single windscreen. No, I didn't expect the \$99 mic to sound as good as the \$3,200 mic, but I've been using U 87s for over 30 years, so it gives me a good point of reference.

Given its affordability and quality, I started to wonder how the PodMic might handle non-voice recording chores. For fun, I put it on my acoustic guitar. Sadly, it didn't do much. For comparison, I recorded the same instrument with my Røde NT1A, which gave a clean and rich sound with very little effort. I placed the PodMic in several positions, and I just couldn't get a great sound. Keep in mind that this mic is designed for a specific task, so this was really just a test to see if there

I don't think you'd fool anyone by trying to pass PodMic off as a U 87, but the fact that it can deliver that large-diaphragm sound with some EQ know-how is impressive.

While it didn't sound like the Neumann out of the gate, some quick EQ work brought it into the neighborhood, which really surprised fellow engineers that came into the studio to check it out. I don't think you'd fool anyone by trying to pass PodMic off as a U 87, but the fact that it can deliver that large-diaphragm sound with some EQ know-how is impressive.

was any bonus usage, because honestly, I could see having a number of these on hand at this price point.

So who is this mic for? It's a definite for podcasting beginners looking to hit the ground running with solid sound on a budget, but for \$99, it's a solid backup mic to have on hand for professional studios. The PodMic has an entry-level price point for a mic that will

last a lifetime.

Frank Verderosa is a 30-year veteran of the audio industry, fighting the good fight for film studios, ad agencies and production companies, but secretly loves mixing music most of all. These

days, he plies his trade at Digital Arts in New York City, but you can also hear his podcast engineering work weekly on Gilbert Gottfried's "Amazing Colossal Podcast," which he's handled since 2014. www.frankverderosa.com



BROADCAST EQUIPMENT EXCHANGE

RADIOWORLD June 19, 2019

ANTENNAS/ TOWERS/CABLES

WANT TO SELL

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

AUDIO PROCESSING (INCLUDES ON-AIR)

WANT TO BUY

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

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

**SPACE IS
AVAILABLE!**

MICROPHONES/ HEADPHONES/ SPEAKERS/AMPS

WANT TO SELL

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

WANT TO BUY

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

MISCELLANEOUS

WANT TO SELL

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

number is 925-284-5428.

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

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

WANT TO BUY

Collector wants to buy: old vintage pro gears, compressor/limiter, microphone, mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric,

Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035 or ilg821@aol.com.

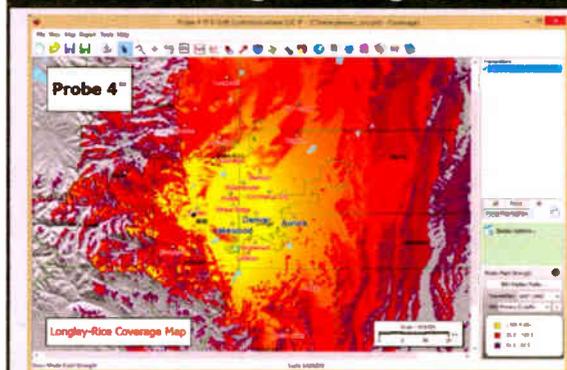
2" plastic "spot" reels 6.5 or 8" diameter, as used for quad video. Wayne, Audio Village, 760-320-0728 or audiovlg@gte.net.

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.

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

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

Broadcast Engineering Software



- Create stunning "real-world" coverage maps, interference studies, and population reports with Probe 4™
- Find STL broadcast auxiliary and Part 101 microwave frequencies and generate PCN letters with Microwave Pro™
- AM Pro 2™, used daily by FCC engineers, performs skywave and groundwave allocation studies and AM coverage mapping
- Map FM stations and discover upgrade possibilities using FCC minimum separations and contour-to-contour methods with FMCommander™

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

www.V-Soft.com

(800) 743-3684



Rebuilt Power Tubes 1/2 the cost of New!

Se Habla Español

ECONCO

Se Habla Español

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



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 web: www.surcom.com

TUNWALL RADIO

SWITCH AND TRANSMITTER CONTROLLERS



AM/FM/MULTI-SWITCH AND CUSTOM DESIGNS

330.995.9642

www.tunwallradio.com

Buying Or Selling
Used
Equipment?

You're in the right place!

RADIOWORLD

Broadcast Equipment Exchange

MISCELLANEOUS

WANT TO BUY

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

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

Looking for a broadcast excerpt of a 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 home-run by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

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

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

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

RECEIVERS/ TRANSCIVERS

WANT TO SELL

Johnson Electronic SCA880 module, 67/92 Khz, 417-881-1846.

WANT TO BUY

AM Stereo radio. Call 417-881-1846.

RECORDING & PLAYBACK HARDWARE

WANT TO BUY

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

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

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

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

(2) LPFM radio stations for sale, located in the NW part of central Florida on the gulf coast, covers the county, get out of the cold weather, come

to Florida, call or write for particulars, 352-613-2289 or email boceey@hotmail.com or Bob, PO Box 1121, Crystal River, FL 34423.

RF CONNECTORS

WANT TO SELL

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

TAX DEDUCTIBLE EQUIPMENT

Donate your broadcast facility; IRS approved 501(c)(3) non-profit charitable organization. Fair market value. License (AM/FM/FV), land, building, tower, equipment, etc. Contact (409) 359-3326.

TRANSMITTERS/ EXCITERS/ TRANSLATORS

WANT TO SELL

BE 35kW FM, BE 5kW FM, and QEI 3.5kW FM. Make an offer on any or all. All working when removed. Steve Tuzeneu 704-973-0438 or stuzeneu@bbnmedia.org.

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

**ADVERTISE YOUR
EMPLOYMENT AD ON
OUR WEBSITE 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

Contact John for all the details at

john.casey@futurenet.com

EMPLOYMENT

POSITIONS WANTED

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

SITUATIONS WANTED

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

Seton Hall Student TAPped for Apprenticeship

Rachel Haggerty was one of a handful of students selected for the program

COMMENTARY

BY OLIVIA LASON

This article was originally published on the website of Seton Hall University's college of communication and the arts.

Rachel Haggerty, a student in the visual and sound media program within the Seton Hall University College of Communication and the Arts, was recently accepted into the National Association of Broadcasters' Technology Apprenticeship Program, a competitive opportunity that accepts less than 10 applicants nationwide.

Over six months, students in the program are exposed to the broadcast engineering and technology industry through a series of activities that refine their skills and prepare them for successful careers post-graduation. Key highlights include placement in a two-month, hands-on apprenticeship at a radio or television station and educational training for the Society of Broadcast Engineers' exam, taken to become a Certified Broadcast Technologist.

"I was beyond excited when I found out I was accepted to the program," said Haggerty. "I applied right away when the applications were sent out. The program is incredibly detailed, and I'm



Rachel Haggerty in Las Vegas at NAB Show is pictured on the show floor, where she spoke with vendors about new technology in the broadcast field.

looking forward to really understanding the field and figuring out how I will best fit in the role of a future engineer."

She is one of four students selected

for this year's cohort. TAP was an ideal fit for Haggerty, who is heavily involved in the technical operations department at WSOU(FM) 89.5, the university's radio station.

"One of the most important parts of radio is the technology. If something goes wrong, the engineer steps in to troubleshoot. This program will help me become that person in one of my favorite environments, the radio station," said Haggerty.

OUT IN THE FIELD

In April, Haggerty traveled to Las Vegas for the NAB Show, an annual gathering of over 90,000 industry professionals discussing the latest happenings in the industry. There, she joined

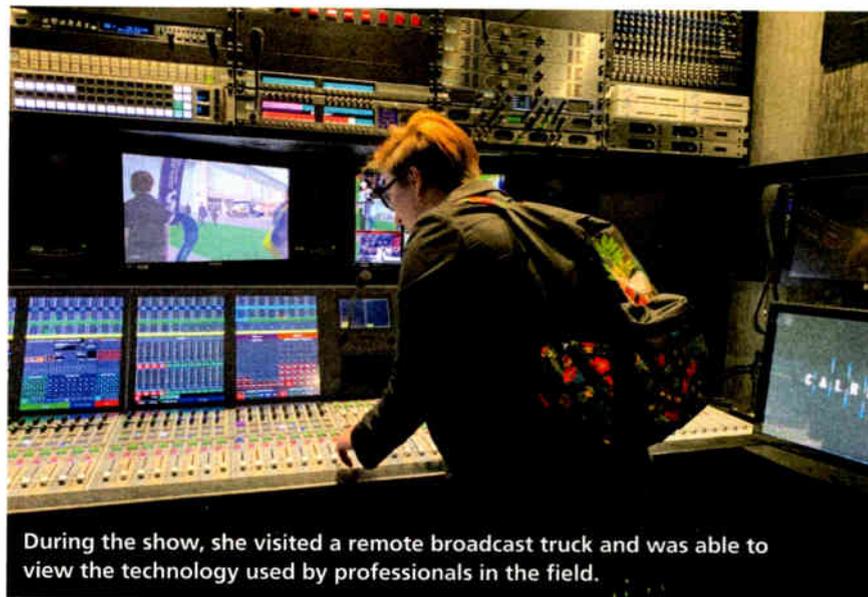
including networking.

At present, Haggerty is participating in a summer apprenticeship, where she will work hands-on at WAXQ(FM) in New York. In the past, participants have worked in organizations including iHeartRadio, Sinclair Broadcast Group, Ion Media Networks and more.

During the show, she also visited a remote broadcast truck and was able to view the technology used by professionals in the field.

While Haggerty has already gained experience in the field through her work in the station at WSOU, as well as in the classroom and television studio during her visual and sound media classes, she's eager to learn more.

"One thing that sets me apart from the engineering field is the sheer amount



During the show, she visited a remote broadcast truck and was able to view the technology used by professionals in the field.

of communication work I've done," she noted. "I've entered the program with the education of someone in news and sportscasting, rather than just a technology education. The hands-on training is going to be my favorite part because I'll be observing established engineers and trying things myself."

The program will conclude in September, finishing with a two-day learning conference at the NAB headquarters in Washington, D.C., with educational sessions from the NAB's technology department, active broadcast engineers and the Leadership Foundation.

For more information about the visual and sound media program in Seton Hall University's college of communication and the arts, contact Associate Dean Thomas Rondinella at thomas.rondinella@shu.edu. For information about WSOU, email General Manager Mark Maben at mark.maben@shu.edu.

Outside of the show, Rachel also toured the studios of NBC with her fellow TAP participants.

"Radio and TV stations, as well as networks and production companies, are all facing a shortage of broadcast engineers and broadcast technologists and TAP is helping to address this problem," said Mark Maben, general manager of WSOU. "I am extremely proud of Rachel for being accepted into this prestigious program. She is bright, creative, hard-working and exactly the type of broadcast engineer our industry needs right now and in the decades ahead."

The program also exposes students to various professional opportunities,

READER'S FORUM

WHPC

I was very pleased to see an article on my old college station WHPC(FM) in the May 8 issue ("Inside the 'Best Community College Station"). I was an on-air talent there from 1977-78, under the inadvertent air name of "Stan Paterson" — caused by someone misreading my signature on the signup sheet.

Lots of credit goes to Shawn Novatt for the station's visibility and success, and of course all the accolades at the IBS conference.

When I was a jock back in the day, the old general manager "Ralph" was content to keep the station a deep dark secret. So much so that, when the campus newspaper mentioned me by name in an article — along with the station's calls — I actually got a dressing down for it. "Unnecessary publicity," he told me. Glad that's over.

Shawn and I run into each other every year at the IBS conference in New York City, where I've been a panelist since 1992, and every year his accomplishments get more and more impressive. Thanks for taking care of my old station, Shawn, and keep being brilliant.

Alan Peterson
Radio America Network
Former columnist, "From the Trenches"
Arlington, Va.



DRM+: A Solution to the AM "Problem"

That is, if "they" are really looking for a solution

COMMENTARY

BY LARRY TODD

The author is vice president of WRNJ Radio.

WRNJ, Hackettstown, N.J., will be filing a petition with the FCC requesting that it explore moving AM band stations to the near-vacant 45 to 50 MHz VHF band.

The AM band is no longer capable of providing a quality service to its communities for several reasons. Noise, skip, overly expensive antenna systems, varying hours of operation and directional patterns are just a few of the immediate issues. And lack of listeners!

WRNJ suggests that the FCC consider the digital transmission DRM+ system, along with a simple vertical-only, non-gain antenna. The VHF 1 band is ideal for local/regional coverage. Exactly the local service that was expected during the early days of AM would return.

The two-way radio licensees of the 45-50 MHz band have all but fled the band for either trunked or cell service. This ended the expense and maintenance of low-band FM mobile radios for the many users. Also, Motorola and Kenwood, it is reported, no longer manufacture low-band equipment. A scanner covering 45 to 50 MHz at a tower with reception from New York City to Philadelphia can go days before hearing a single carrier.

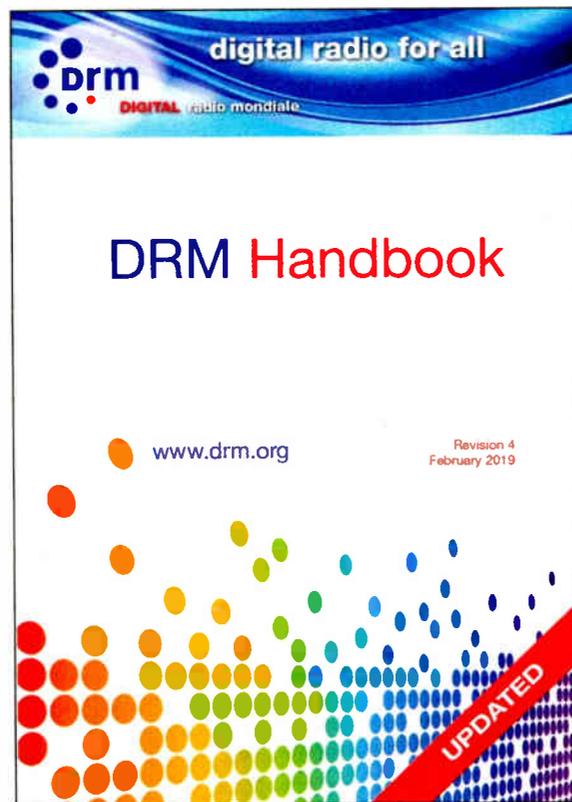
International regulations for ITU Regions Two and Three already call for broadcasting between 47 and 50 MHz. As mentioned, the band is ideal for local/regional coverage and can provide Americans with the latest technology from their local stations.

That was 12 years ago, and nothing has been done about it.

With this proposal, we would avoid AM noise, nighttime interference, adjacent channel issues and eliminate the awful fidelity issues. There is occasional skip on the proposed band. Adjacent TV channel 2 survived it for 50 plus years. Skip is infrequent and probably won't have the deleterious effects experienced with analog. There is skip on the AM band every night!

Additionally, DRM+ channel efficiency is more compact than present channel spacing. Spectrum efficiency vastly exceeds anything we're using today. The implications of that efficiency are evident. Far more information can be packed into DRM+ in much less space.

A basic explanation of DRM+ can be found at



It would be wise for broadcasters to familiarize themselves with all the capabilities of the DRM+ modulation scheme; it's far from just an audio transport. Many countries in ITU Regions Two and Three are already embracing the DRM+ standard, which is so far superior to anything we're using in the USA. Why should we wait any longer?

THE CASE FOR DRM+

In July 2008, the Broadcast Maximization Committee published the results of its study on AM and proffered the concept of converting the Channels 5 and 6 to digital AMs, LPFM, NCEs et.al. (See <https://tinyurl.com/rw-broadmax>.)

It would be wise for broadcasters to familiarize themselves with all the capabilities of the DRM+ modulation scheme.

<https://preview.tinyurl.com/rw-DRMplus-explain> and a more technical explanation can be found at <https://tinyurl.com/rw-what-is-drm>.

Note in the video that 1 kW ERP of DRM+ equals the same coverage as

a 5 kW conventional installation. An efficient system lowers the electric bill. The proposed vertical antenna of unity gain reduces tower loading and or rent.

OVERCOMING DRM+ OBSTACLES

There are no receivers! Right. However, the state of the art in chipsets is such that most new receivers could be capable of decoding both DRM+ and HD Radio systems.

In light of this, we propose a transition period of years for this to come to fruition. American broadcasting has spent tens of millions on moving TV facilities, and the market responded to the shifts in frequency and modulation schemes. The AM band, too, was extended and radio manufacturers responded. Simply stated, if not now, when?

The AM band is beyond practical, economical use at this juncture. The transmission systems are onerous, to say the least. We have to live within the bounds of physics, and that, simply put, eliminates today's AM band as it is structured.

Japan will soon be amongst the nations that terminate AM radio — at the request of AM operators! Italy is converting to DRM+, too.

We propose that AM operators simulcast the new and old band until

the market dictates the AM shutdown of dual facilities. We propose the system be local and that any who might wish to stay with AM be free to stay there.

Also, with this migration, we expect the AM band may again have a chance for wide area service from those who can increase power and coverage upon spectrum availability resulting from the migration to DRM+ VHF. The FM band would be relieved of the congestion it's now experiencing from translators. We would hope that the ownership remain local and avoid the dereliction of local community service that came with ownership-consolidation.

Is there any better time to start than now? I can't think of one real negative, can you?

We look forward to your input if and when the FCC moves forward with the petition for rulemaking.

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

READER'S FORUM

HD RADIO VS DRM+

In response to Larry Todd's article [published online and reproduced above — Ed.]

I can only question why he would want the United States to adopt yet another incompatible digital radio standard — especially one for which receivers are not currently being manufactured.

Millions of radios in this country already decode the HD Radio standard, and one of the many all-digital configurations of that technology could occupy the same spectral footprint as DRM+, providing the same number of channels in Todd's proposed band.

It's a fairly easy task for receiver manufacturers to expand the tuning range of a receiver, and so the same HD Radio digital decoder could receive both the existing digital FM stations and Todd's proposed new band. But asking receiver manufacturers to incorporate multiple digital decoders in a single receiver would be a non-starter.

Many of us recall the utter failure of the AM stereo marketplace decision. Let's not repeat that mistake.

*John Schneider
Quincy, Ill.*

READER'S FORUM**TERRESTRIAL RADIO'S FUTURE**

Every now and then, I get a quiet moment to ponder. This one has been on my mind a lot, perhaps because the AM improvements that I have been hoping for haven't happened. In fact, I am starting to doubt that they ever will.

I am starting to believe that the translator move is all AM owners are going to get.

I've been kicking the following "what if" scenario around for years. I have bounced it off of my FCC attorney as well as other friends in the industry. If I had to guess, this is where I see terrestrial radio going, 10 years or so from now.

Analogue FM will likely sunset, leaving only FM digital HD Radio.

In that scenario, we'll probably have four good digital channels with each FM allocation. Imagine that FM license and facility being like a condominium — a four-unit building, if you will. There could be four channels with four different owners. Each would shoulder their own costs plus one-quarter of the maintenance, utilities, etc.

I envision the sunset of AM and the FCC moving those displaced broadcasters to this type of setup. Each AM owner would buy into co-ownership of an HD Radio FM channel. Naturally, the original owner would reap the benefit of the sale of part of his license.

If you're an owner of multiple AM stations in a market and you are lucky enough to own a good FM, you should be all set.

A big downside to this is a potential loss of coverage should your AM feature a good dial position and power, because I highly doubt that the FCC will compensate any AM for migrating over to an auxiliary HD FM signal.

I'm pretty sure that the commission has no use for the senior band.

Furthermore, receiver manufacturers need to change the way HD FM appears

on their respective screens. As it is now, the chief analog station enjoys a prominent place on the screen while all of the auxiliary channels appear as small buttons below it, a disadvantage to them. These newly occupied HD subchannels will need to have a more equal appearance in the future — showing the call letters of the other stations.

Something needs to happen here. I would really like to see the existing AM stations operate with reduced interference, either through elimination of man-made interference or power increases. Should this not happen, then we need a pathway for these station owners to serve their markets, with a quality signal and good coverage. The above plan may just be our way forward.

Jonathan Yinger
President and CEO

Christian Broadcasting System and Broadcast Properties
Flint, Mich.

**DON'T KILL MY
FM TRANSLATOR**

Question: Why would honest and normally clear-thinking FCC Chairman Ajit Pai, along with the other commissioners, be poised to vote on new interference remediation rules that could lead to elimination of up to 90% of FM translators, which they have proudly touted as being the crowning achievement of the AM Revitalization proceeding by virtue of having saved thousands of AM stations from extinction? Frankly, I pray that this is an honest oversight which can be remedied before they vote. [The commission subsequently enacted the proposed changes. — Ed.]

Having literally saved my small AM station from extinction, I have always worried that a lone radio enthusiast, using special antenna and receiver, could force my translator, serving thousands of listeners, off the air just to continue picking up a more distant signal for fun.

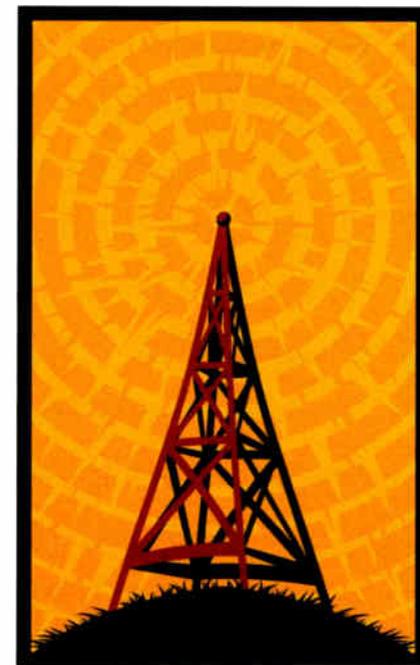
The good news is that the proposed rules specifically prevent this specific potentiality. However, the bad news is that the new rules are more open-ended and are decidedly stacked against FM translators. Furthermore, they provide opportunity for a great deal of mischief.

My nightmare scenario is that five years or so from now when I'm ready to retire, some cutthroat competitor with deep pockets and underworked lawyers on retainer will entice a distant station, on the same or adjacent channel as my translator, to run ads seeking listeners who want to make a quick buck or get valuable station swag. All they have to do is fill out a simple complaint form online and let the station do the rest. A simple map showing that my translator might send out a weak signal to their far fringe listening area will be enough to prove interference exists. The only action I will be able to take then is to reduce power to a totally insignificant level or shut off completely. Like most larger markets there are no alternative frequencies available to move to. Mercifully, the FCC has provided that execution will take place swiftly.

This scenario could still be prevented by adopting a reasonable policy that would exempt existing translators with no history of complaints for over a year from these new rules unless they made major changes.

Pete Schartel
Owner

KCXL(AM) and K275BQ(FX)
Liberty, Mo.

**ADVERTISER INDEX**

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

PAGE	ADVERTISER	WEBSITE/URL
12	Acoustics First Corp	www.acousticsfirst.com
8	Arrakis Systems Inc.	www.arrakis-systems.com
11	Axia - The Telos Alliance	www.telosalliance.com/axia
4	Burk Technology	www.burk.com
7	Comrex Corporation	www.comrex.com
13	Crown Broadcast	www.crownbroadcast.com
25	DJB Radio	www.djbradio.com
1	ENCO	www.enco.com
24	Gorman Redlich Mfg	www.gorman-redlich.com
5	Henry Engineering	www.henryeng.com
19	Inovonics Inc	www.inovonicsbroadcast.com
21	Lawo	www.lawo.de
16	Moseley Associates	www.moseleysb.com
3, 8, 16, 18, 20, 22	Nautel Ltd.	www.nautel.com
31	Radio Show	www.radioshowweb.com
22	Ram Broadcast Systems	www.ram68.com
23	RCS	www.rcsworks.com
9	Tieline Technology	www.tieline.com
2, 15, 17, 32	Wheatstone Corporation	www.wheatstone.com

ADVERTISING CONTACTS**THE AMERICAS:**

JOHN CASEY
212-378-0400 x512
john.casey@futurenet.com

EURDPE, MIDDLE EAST & AFRICA:

RAFFAELLA CALABRESE
+39-320-891-1938
Fax: +39-02-700-436-999
raffaella.calabrese@futurenet.com

SEND MATERIALS TO:

NICOLE SCHILLING nicole.schilling@futurenet.com

**Write to RW**

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

ALL NEW!

September 24-27, 2019 - Dallas



radioshow

RADIO | STREAMING | PODCASTING

TECH TUESDAY

Sept. 24, 2019

Radio engineers and station technology teams, this full-day program is tailor-made for you!

Jump start your career development with:

- Hands-on knowledge to improve overall station efficiency and performance
- Insights from subject matter experts
- Exclusive networking events
- Free access to the Radio Show exhibit hall Sept. 25-26

FREE for NAB and RAB members!

Visit **RadioShowWeb.com** to learn more and **register today!**

HURRY! SPACE IS LIMITED.



ANALOG...WITH DIGITAL BENEFITS

Audioarts Lightning strikes that brilliant balance between analog and digital. Four stereo buses for easy routing. Dual-channel phone module for trouble-free remotes and call-ins. Bluetooth and dual USB ports for direct access to laptops, tablets, and mobile phones, as well as applications such as editors and automation.

Plus, assignable AES input for connecting a digital source to any fader, and built-in A/D conversion for digital or analog program out. And while it looks and feels like its Wheatstone cousins, this digitally controlled analog console operates as a full stand-alone board. Cue thunderous applause.



LIGHTNING

audioarts.com/lightning-rw

Audioarts Engineering - Designed and Built in the USA by Wheatstone

phone 1.252.638-7000 | | sales@wheatstone.com