



RADIO WORLD

APRIL 12, 2017

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“Trusted Currency”: A Chat With Nielsen

At the center of the U.S. radio ecosystem, Nielsen Audio pursues the total audience

RADIO RESEARCH

BY RANDY J. STINE

Nielsen Audio continues to tweak the technology behind its radio ratings process. The research company plans to expand Portable People Meter panels by 10 percent and enhance watermark-

ing in steps to improve its audio “currency” in the top 48 radio markets in this country.

Nielsen executives believe growing the size of the PPM panels combined with an improved monitoring process for radio stations will boost ratings and lead to higher advertising revenue for radio clients. However, there is some skepticism within radio circles about how cross-platform measurement, including podcasting and streaming, will work.

Some observers point to the bigger picture that includes measuring digital and competitors like Pandora and Spotify — not to mention SiriusXM satellite radio — in order to get a true representation of radio’s value to advertisers.

Nielsen’s radio business, acquired when it purchased Arbitron for an estimated \$1.3 billion in 2013, had revenues in 2016 of \$500 million with some minor slippage (0.8 percent) from 2015, according to earnings reports.

Radio World spoke to Kelly Abcarian, senior VP, Nielsen Product Leadership, and Arun Ramaswamy, chief engineer for Nielsen, about the challenges fac-

ing the measurement company in a consumer environment that is ever more complex.

The discussion touched on recent PPM technical concerns, enhanced critical band encoding technology (CBET), improved station monitoring capabilities, the Total Audience Measurement product, the Voltair controversy and the impact the \$560 million acquisition of Gracenote’s metadata business might have on Nielsen technical operations.

Radio World: How would you characterize Nielsen’s current role and business standing with its U.S. radio customer base?

Abcarian: Nielsen remains the trusted
(continued on page 12)

oWOW Lives Local Radio Dream Via the Web



John Gorman and crew bring a Cleveland sensibility to their online operation. **Page 22**

oWOW listeners at private Grace Potter soundtrack concert

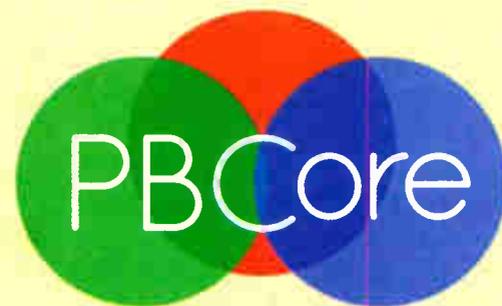
PBCore: Saving Public Radio History

“Public Broadcasting Metadata Dictionary” is at heart of preservation effort

BY KEN DEUTSCH

Organization is what you do before you do something, so that when you do it, it’s not all mixed up. — A. A. Milne

When the creator of “Winnie the Pooh” wrote that sentence, he probably was not thinking about metadata. But the phrase rings true for WGBH, Boston’s public radio and TV outlet, as well as for the Library of Congress.



(continued on page 8)

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World Radio History



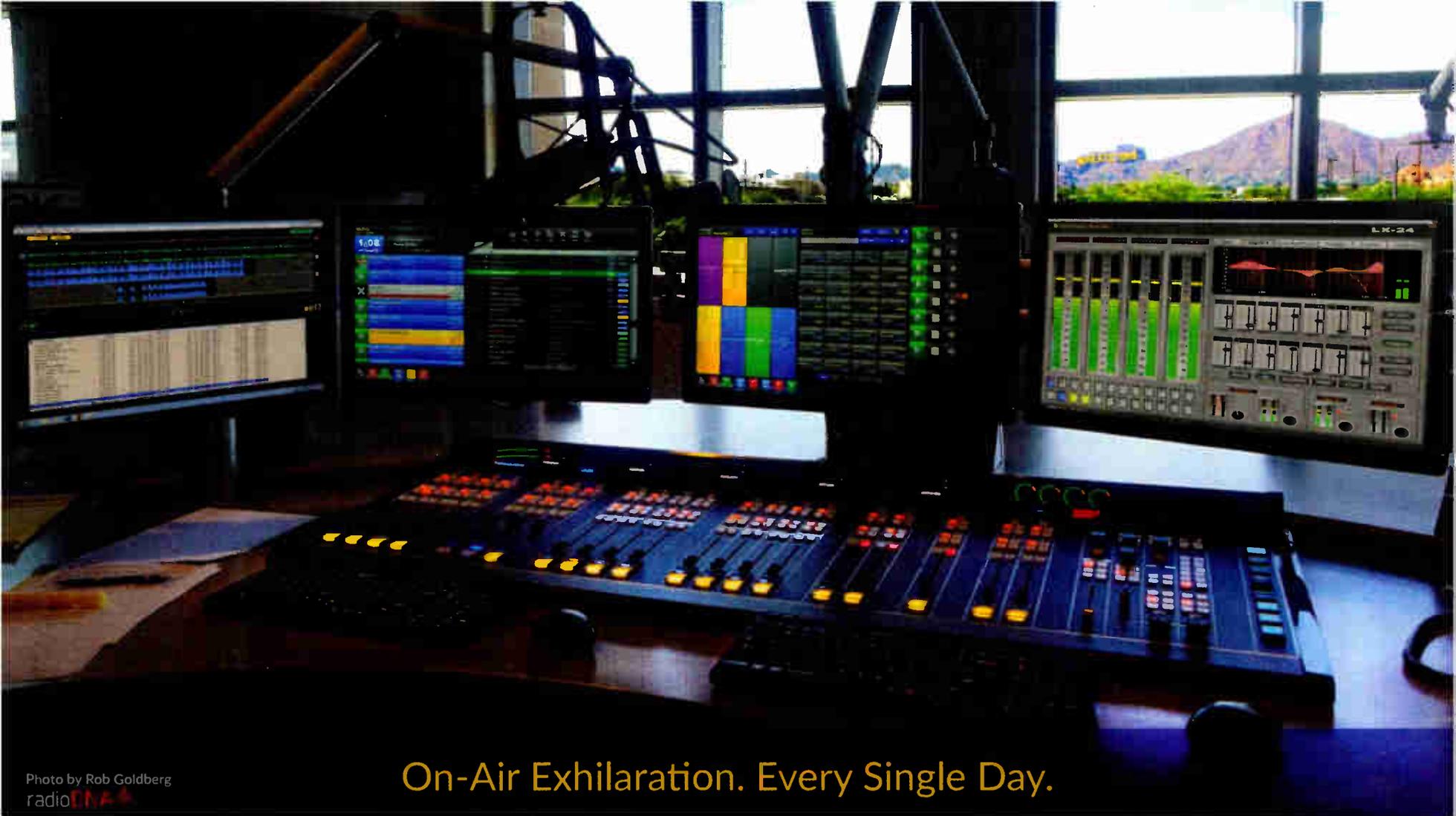


Photo by Rob Goldberg
radioDNA

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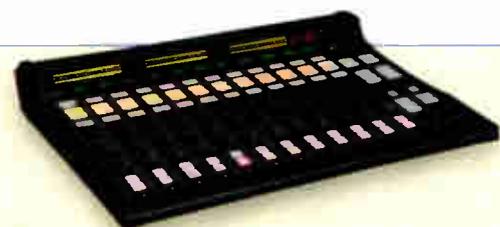
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.Radio Domain to Launch Soon

EBU seeks potential pioneers to be ambassadors for the "dot-radio" program

BY MARGUERITE CLARK

Do you want to be a "dot-radio" pioneer?

The European Broadcasting Union has updated its plans for the launch of the top-level ".radio" domain to the global radio community; and it is seeking a limited number of entities to act as ambassadors for the effort.

The global launch consists of three phases: a pioneer program, for which the EBU is accepting applications; the primary launch later this year; and a general availability segment using a "first come first served" approach.

The first batch of some 80 .radio pioneers will work with the EBU and the wider radio community; they will be selected for what the EBU describes as "variety, promotion efforts and visibility," and already include addresses such as *lesindes.radio* for a French group of private radio stations and *theaibz.radio*. The Association for International Broadcasting.

The EBU said it seeks pioneers to develop awareness of .radio. "What we want is buzz, visibility, credibility with diversity among people, radio activities and territories," said Alain Artero, EBU's .radio domain manager.

"Of course, we also expect that these .radio pioneers will actively utilize the new domain for their internet services, such as websites, web radios," he said. "Our main goal is to make .radio visible and alive now — we are particularly interested in those who will immediately switch from their existing domain to a .radio domain and use it actively."

Artero said the EBU expects potential pioneers to promote their domains

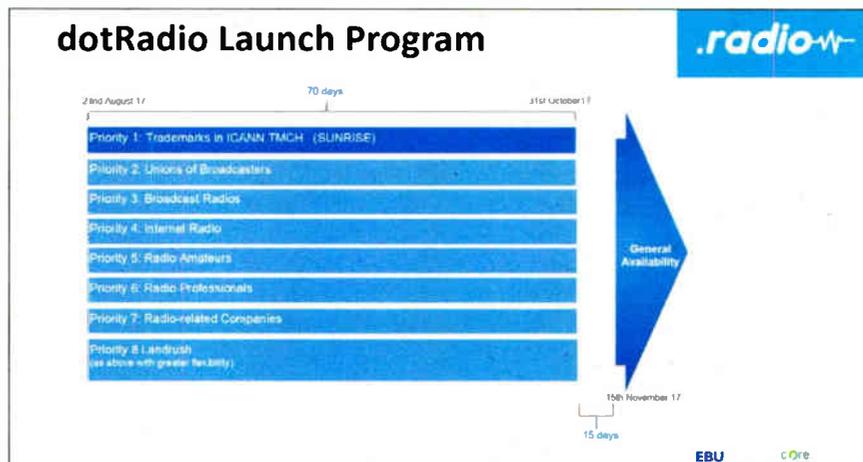
through marketing efforts such as newsletters, use of the .radio logo and on-air communication. The EBU will provide a .radio domain to the pioneers, publish the list on its website and include participants in its .radio communication plan.

"We are offering these forerunners significant exclusivity for six months, with only 80 such domains available worldwide," said Artero. "For those selected, this will give them high vis-

to take place Aug. 23 to Oct. 31 (pending validation by ICANN); and it will be open to all radio industry categories, though with a priority system.

"It is not legally possible to provide an earlier application period that prioritizes radio stations over trademarks, because the deviation from the normal ICANN process is seen as too considerable; we have thus updated the .radio timeline and priority," Artero said. "This makes the pioneer program much more attractive due to the delayed launch of the other categories."

The order of priority within the launch



This EBU graphic shows how various types of organizations will receive priority during the main sunrise and launch phase, Aug. 23 to Oct. 31. A limited number of pioneers will have advance access.

ibility and distinguish them as leaders in this new digital radio world."

The pioneer program is open to anyone in the radio community. For information, email pioneers-program@register.radio.

REVISED SCHEDULE

EBU originally intended to open the main launch phase in May and reserve it for radio stations. It is now scheduled

is as follows: Trademarks in ICANN (meaning officially registered trademarks stored in the ICANN's Trademark Clearinghouse database); broadcaster unions; broadcast radio stations; internet radio stations; radio amateurs; radio professionals like DJs and newscasters; and radio-related companies including those selling goods and services.

Within the main launch, the EBU also will run a "landrush" period, in which it says rules to register a domain will be slightly more flexible. Artero said all domains created in this context need to be related to radio but can, for example, comprise radio programs or other ancillary services even if they are not directly linked to a radio company name.

Finally, beginning mid-November, the EBU will start accepting requests in the general availability category. Applications for this phase will be accepted on a first-come, first-served basis.

Domain prices are expected to run between €200 and €250 per domain each year for companies (roughly \$215 to \$270), with prices much lower for individuals — about a tenth of that per domain per year. To benefit from the lower price, the domain designation for individuals must derive from their

(continued on page 5)

MORE INFO

From Alain Artero at EBU:

You may wish to consider securing the integrity of your web presence by requesting appropriate .radio domains for defensive reasons initially. The TLD will be focused on content and matters specific to radio; this extension will become quickly a high-value internet space for your website, your mail system and other internet applications. ...

To request a .radio domain, you should contact a registrar (company selling internet domains), providing it has signed an agreement to sell .radio domains, or the EBU, which will act as a reseller.

Because during the launch phase, the process is not "first come, first served," it is highly recommended to register your domain during the launch starting Aug. 23. The dotRadio team will seek to optimize domain name allocation to solve contentious issues.

Submitting an application during the launch period offers the best chance to obtain a given .radio domain. The exact time of application/registration request is not decisive as long as it occurs during the launch period.

What You Need to Know About Radio StationID

We asked Gracenote's Brian Hamilton to tell us more about the company's new offering

Gracenote makes products that are used by in-car entertainment systems to identify and display CD titles, relevant metadata and cover art. This winter the tech company — which is now part of Nielsen — unveiled a new offering available to carmakers called Radio StationID.

This software uses "music fingerprint" recognition and a database of stations to provide drivers with station/song information and high-resolution station images. The company says it also can help motorists stay tuned to preferred genres.

"This first-of-its-kind product eliminates the need for drivers to 'scan the dial' as they move outside of radio signal range, by automatically presenting the available stations most similar to their presets based on location and preferences," said Brian Hamilton, Gracenote's general manager of music and auto.

"As the driver goes in and out of radio

signal range, the car's infotainment system automatically tunes to local radio stations following preferred formats and genres. This enables a seamless and safe user experience in which the driver can always find the stations playing the music they're in the mood to listen to, even in unfamiliar areas."

I wanted to learn more so I emailed with Hamilton.

Radio World: This looks like an FM-only enhancement. Is AM not included?

Brian Hamilton: That's actually not correct. Gracenote's Radio StationID and MusicID Radio are comprehensive solutions covering global terrestrial broadcast for analog and digital AM, FM, HD and DAB sources. Using Gracenote Automatic Content Recognition technology, these solutions enable car infotainment systems to quickly and accurately identify what music is playing regardless of the broadcast source

and deliver highly personalized experiences based on preferences, location and other parameters. Gracenote's ACR technology uses audio fingerprinting to match music to our massive database so that relevant metadata such as artist and album name plus cover art for virtually any song can be displayed on the car infotainment screen.

RW: Is an FM subcarrier used to convey the Radio StationID data? Or is

FROM THE EDITOR

Paul McLane



an internet connection. Customers can keep a local cache as well.

As mentioned, Gracenote ACR leverages audio fingerprinting technology to automatically recognize music tracks.

Audio fingerprinting that we use in MusicID Radio is preferable in the automotive use case because it works across all broadcast types in all regions.

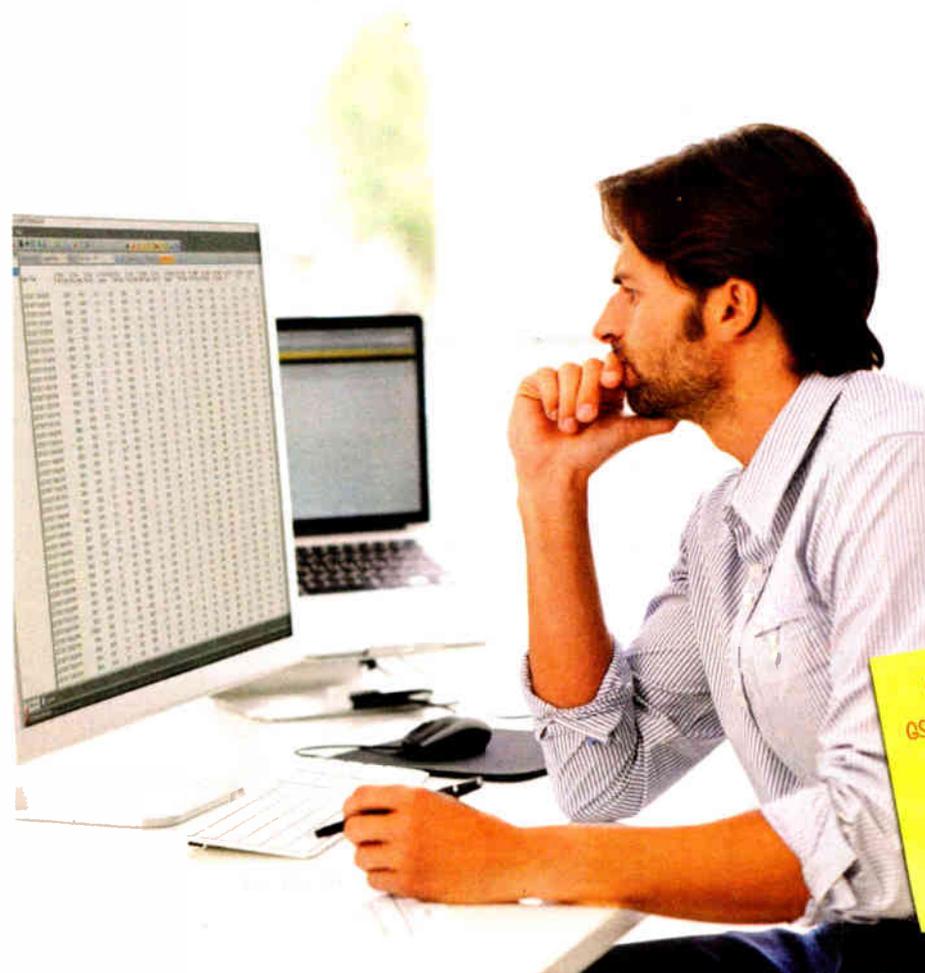
— Brian Hamilton

this an inaudible watermark technology similar to PPM encoding? Watermarks and fingerprints seem rather similar. ... Will future PPM encoders include Radio StationID and the visual album art and logo features in one encoder?

Hamilton: We do not use a subcarrier to deliver metadata to the head unit. With Radio StationID and MusicID Radio, metadata is delivered via

While both watermarking and audio fingerprinting have useful applications, there is an important difference between them. Watermarking relies on a digital identifier to be applied to a file in order for that file to be "recognizable" by the technology. In contrast, audio fingerprinting does not require any special advanced preparation; it works in all

(continued on page 6)



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NEWS

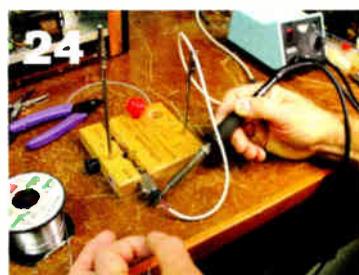
"Trusted Currency": A Chat With Nielsen	1
PBCore: Saving Public Radio History	1
.Radio Domain to Launch Soon	3
What You Need to Know About Radio StationID	4
News Roundup	5, 14

**FEATURES**

Your Eyes Can Trump an ESR Meter	16
Stations Help Wounded Soldiers, Bullied Students	18
oWOW Lives Local Radio Dream Online	22
Review: SolderBuddy ACS-V	24
Introducing NPR's GM of Podcasting	26
People News	28



Courtesy oWOW

**BUYER'S GUIDE**

Wheatstone AirAura X3 Tames Multipath	30
Tech Updates	30-32, 34
Omnia.11 Opens Up "The Fish"	32

OPINION

Broadcasting Faces a Coming Crisis	37
Talkback: Readers Have Their Say	38

.RADIO

(continued from page 3)

name (for instance, *alain-artero.radio* and *arteroa.radio*). In the case of radio amateurs, it should be made up of their call sign (e.g. *JY5IG.radio*).

65,000+ STATIONS

ICANN, which manages internet domain names and IP addresses, granted the .radio top level domain last year with EBU as the principal organizer. As a result of the program, the world will soon see URLs like *www.nrj.radio*, *salsa1.radio*, *podcast.capital.radio* and *WA8UNS.radio*, as well as email addresses like *john.doe@team.radio*, *contact@peter-ellis.radio* and *jane.doe@ebu.radio*.

The EBU is working with a group of broadcasting unions from around the world, including the Asia-Pacific Broadcasting Union, Association Européenne des Radios, Arab States Broadcasting Union and Organización de Telecomunicaciones de Iberoamérica. The North American Broadcasters Association is also a partner.

Organizers hope that their community approach will keep away cybersquatters, with applications for .radio names being checked and reserved for use by legitimate members of the radio community.

An advisory board held its first meeting in Paris in January and elected as its chair Simon Spanswick, chief executive of the Association for International Broadcasting.

Despite a potential 65,000 radio stations and 60,000 web stations in the sector able to apply, Artero is confident all applications will be considered carefully. "We have carefully prepared the launch for many months, and it is our duty for the .radio community to make it successful," he said.

"We will review all applications in a daily basis, as they are being submitted during the launch period. This means that our team will be analyzing all applications from the moment they enter into the system, so we ensure there is no missing detail or formal defect that prevents them from being approved, as well as that there is no invalid application taking advantage of a name over which that applicant has no connection with. This will be done by the .radio staff alongside the staff from CORE, our back-end technical provider, that has managed several TLD launches in the past years."

The website *www.nic.radio* has more information; the EBU effort also is active on Twitter (@getdotradio), LinkedIn and Facebook. Those wishing to apply will be able to do so at *http://register.radio* once the launch commences.

Will Jackson contributed to this story.

NEWS**NEWSROUNDUP**

REPACK: The NAB said repacking hundreds of television stations to new channels will bring "unprecedented logistical and operational challenges for the commission and the broadcast industry." It asked the FCC modify the schedule, grant reasonable requests for deadline extensions and attempt to mitigate disruptions to FM stations and other broadcasters. NAB stressed that there may be "unacceptable effects" on bystander TV and FM stations. It said the plan does not take into account two issues that will affect FMs: that a collocated FM may lose its home on a tower if a repacked TV station has to move or add a heavier antenna; and that FMs collocated or on towers adjacent to repacked TV stations may be asked to reduce power during the process. "The FCC's transition schedule does not appear to take these issues into account at all," the NAB wrote.

FIRSTNET: AT&T was awarded the multi-billion-dollar, 25-year contract to build and maintain FirstNet, the interoperable first responder public safety network proposed by the 911 Commission over a decade ago following first responder communication failures during the attack's aftermath. Commerce Secretary Wilbur Ross said the \$46.5 billion public/private partnership will create 10,000 jobs initially and thousands more down the line. Essentially, FirstNet will have priority use of spectrum whenever it is needed for emergency communications. It was funded through the FCC's AWS-3 wireless spectrum auction.

O'RIELLY: FCC Commissioner Michael O'Rielly told the Hispanic Radio Conference that the "huge problem" of pirate radio in south Florida has had a disproportionate impact on the Hispanic radio community. He cited a deficiency in the commission's enforcement tools, and asked for the audience's assistance in batting down arguments that pirate radio stations are somehow training grounds for those seeking to enter the field, or that these pirate stations are bringing a unique service to minority communities and thus should be allowed to continue.



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GRACENOTE

(continued from page 4)

instances where there's a match between the source and the Gracenote Music database. Audio fingerprinting that we use in MusicID Radio is preferable in the automotive use case because it works across all broadcast types in all regions. And it does so without the need for any special cooperation with the broadcaster or application of the digital watermark.

Over Gracenote's nearly 20-year history, we've developed music solutions that have met the unique needs of the

automotive market. In the "early" days when people listened to CDs in their cars, our music database was embedded in the infotainment system providing local access to information including artist name, track name and even album art for display. Now, with the prevalence of connected cars, we're making the same information immediately accessible through the internet. But we're doing so in a way that minimizes data usage while also expanding recognition to include all music sources available in the car from radio to streaming services to locally stored files to CDs. And that places the utmost importance on driver safety. In terms of numbers, Gracenote data and technology are now in just under 100 million cars around the world.

RW: Will stations have to "register" with Gracenote to get on the database? We presume they will have to install an encoder to enable this technology on their stations. Does it work similar to the PPM encoder supplied by Nielsen and

broadcast technologies — AM/FM/HD/DAB — as well as variations in broadcast implementations and the lack of consistent, reliable station metadata can make for a disjointed and sub-optimal radio experience in the car.

The value of Radio StationID lies in its ability to help car manufacturers deliver a vastly improved user experience, therefore increasing consumer satisfaction and loyalty. The solution enables radio listeners to find the content they want by navigating intuitive menus visually displaying standardized station names, formats and logos instead of lists of nondescript frequencies or inconsistent metadata from broadcasters. With Radio StationID, users can more easily find music, news or talk stations they'll like, especially in unfamiliar areas. In addition, stations enjoy better branding on the infotainment screen.

We're also working to develop enhanced radio station profiles and descriptors that enable consumers to choose stations not just by basic format

loyalty for their products in a highly competitive marketplace.

RW: HD Radio includes the option of displaying album artwork and station logos. Could there be any conflicts with HD stations' displays that employ that feature? And what happens when the HD hybrid reception falls back to analog FM during blending?

Hamilton: Radio StationID is not dependent on RDS or digital radio since it is accessed through an internet connection. Customers including auto manufacturers and infotainment suppliers ultimately decide how to implement HD displays so it is up to them how they integrate our offerings. That said, we offer radio station identification and song identification that enables a consistent user experience across all AM, FM, HD and DAB broadcast types.

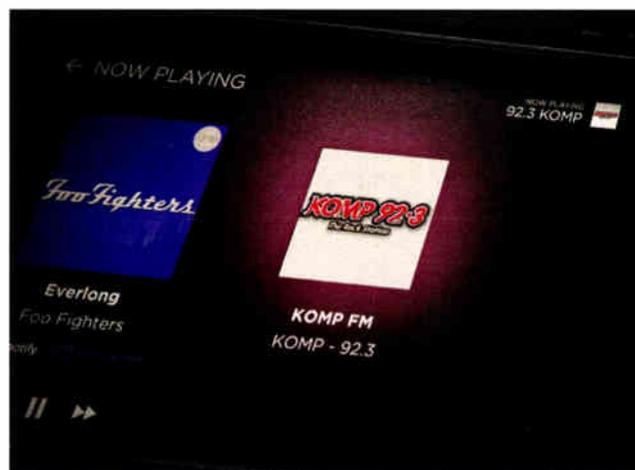
One of the primary benefits of the Gracenote Radio StationID and MusicID Radio products is that they deliver radio station and song identification

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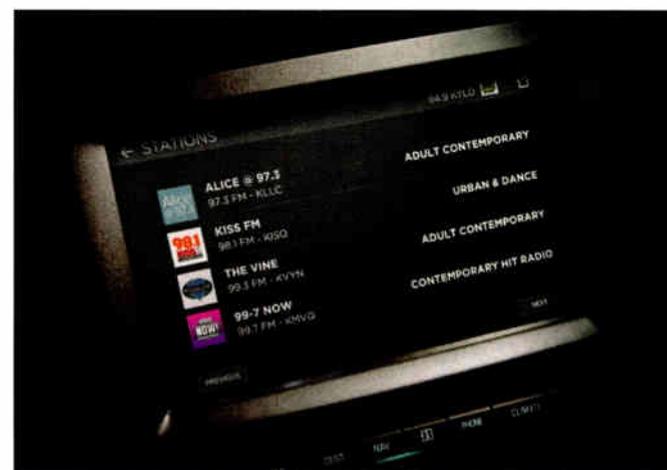
MusicID Radio uses audio fingerprinting technology to identify songs and deliver track and album info plus cover art to the car infotainment unit.

the encoder will be free? Or will there be other suppliers of the hardware?

Hamilton: We are actively aggregating global data on radio stations and formats ourselves. That said, we are open to receiving electronic information submission from stations and are setting up a method to facilitate that transfer. We're looking to obtain everything from station names to website URL to logos and branding elements for display on car infotainment screen.

RW: RDS/RBDS offers a limited version of this technology (without pictures), but its functionality varies and is dependent on the radio design itself. It typically requires the user to initiate manual scanning to find similar and desired formats. Would you agree that the most important advantage of the Gracenote Radio StationID enhancement is that it is fully automatic?

Hamilton: The wide range of radio



Radio StationID enables drivers and passengers to navigate terrestrial radio by station name, logo and format.

but also by musical styles. For example, it's difficult to differentiate between existing radio station formats like Contemporary Hit Radio (CHR), Hot Adult Contemporary (Hot AC) and Lite Adult Contemporary (Lite AC). We're working to go past format information and apply common-language attributes to radio stations to make things more descriptive and useful to end users.

Next, we'll expand further on Radio Station Profiles by applying advanced music analysis to stations' playlists. This will enable an ever-deeper understanding of the styles of music each radio station plays leading to better recommendations and more accurate matching.

Personalization is absolutely key to a satisfying entertainment experience in the car, and the new Gracenote offerings enable an all-new level of it. By helping drivers as well as passengers easily enjoy the content that will best fit their tastes and moods, automakers can build

for both digital and analog broadcasts. This means that consumers can enjoy a consistent user experience when HD hybrid reception falls back to analog.

RW: Will receiver manufacturers have to add additional or modified circuitry in their designs to offer this enhancement? If so, that would preclude its use in existing radios, requiring a user to buy a new radio to get the Radio StationID feature. If not, and existing radios can offer the feature, explain how that will be accomplished.

Hamilton: It is possible to update Radio StationID and MusicID Radio on existing infotainment systems if the system architecture supports integration of the Gracenote GNSDK software and over-the-air updates.

At the spring NAB Show, Gracenote will conduct meetings in a hospitality suite at the Wynn.

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PBCORE

(continued from page 8)

of time and resources identifying what content is significant and unique, and what content is a duplication of something we already have. We are playing catch-up with 60+ years of material.”

“And finding funds to support the work is always a challenge,” added Cariani. “It costs money to digitize, catalog and process audio and video for the archive, and to do outreach and marketing. We are willing to work with our partner stations and help them in any



Casey Davis Kaufman

way we can, including assisting them in writing local grants to sort out their unique material. Funding from NEH for the PBCore Development and Training Project will be used to develop a suite of tools to improve use of PBCore, as well as trainings and outreach to spread the word about using PBCore to describe audiovisual collections.”

The team knows that not everyone is a metadata expert.

“We will develop and provide tools so stations can use PBCore seamlessly,” said Casey Davis Kaufman, senior

project manager at WGBH. “PBCore schema development is a community effort led by archivists and public media people who are committed to continued collaboration on PBCore’s improvements.”

Visit pbc.org for FAQs, attributes, elements and other specifics.

Ken Deutsch is a former broadcaster who in his youth directed live music shows and children’s programs for public station WGTE(TV) in Toledo, Ohio. He says he is sure the station has recovered by now.

Asset ID	Organization	Level ID	Title	Description
0000146	Appalachian Inc. (WMAI) and Appalachian Farm	02701.0	Uppanet 11 Ethel Caffa Austin & Choir Seatings 8.5.94	none
0000730	Appalachian Inc. (WMAI) and Appalachian Farm	02730.0	Uppanet 1 Seatings 5/11/91	Seatings 5/11/91
0000734	Appalachian Inc. (WMAI) and Appalachian Farm	02734.0	Uppanet 1 Seatings 6/1/91	Seatings 6/1/91
0000842	Appalachian Inc. (WMAI) and Appalachian Farm	02842.0	Uppanet 1 Seatings 6/1/91	Seatings 6/1/91
0000738	Appalachian Inc. (WMAI) and Appalachian Farm	02738.0	Uppanet 1 Seatings 6/1/91	Seatings 6/1/91
0000820	Appalachian Inc. (WMAI) and Appalachian Farm	02820.0	Uppanet 1 Seatings 6/1/91	Seatings 6/1/91
0000843	Appalachian Inc. (WMAI) and Appalachian Farm	02843.0	Uppanet 1 Seatings 6/1/91	Seatings 6/1/91

This is the AAPB metadata management system based off of PBCore, where the team ingests, manages, stores and catalogs the 2.5 million metadata records submitted by stations.

PBCORE GLOSSARY

Asset: In PBCore, any piece of content — such as a program, clip or episode — can be defined as an asset. One asset may exist in many different forms (for example, on DVD, on a U-matic tape in English and on a VHS tape in French). If the content is the same, those would all be considered instantiations of the same asset.

Attribute: In XML, an attribute is a structure used to describe or provide more information about the data contained in an element. Attributes are stored within the value of an element, like this:

```
<pbcoreTitle titleType="main">Lassie</pbcoreTitle>
```

Here, the element is pbcoreTitle, and the attribute titleType provides more information about the title.

Class: A high-level group of related elements in XML

Container: A container element in XML is a way to group other elements together. Container elements usually do not hold data themselves, but act as a bucket for sub-elements that do hold data.

Element: An XML element is a way to store data in a self-explanatory manner, according to a structured and specific vocabulary. For example, putting the information “Lassie” within a “pbcoreTitle” element tells anyone (or any machine) looking at the data that “Lassie” is the title of the asset. Attributes may be associated with any element: these provide even further detail about the data.

Instantiation: An instantiation is a manifestation of an

asset that is embodied in physical or digital form, such as a tape, DVD or digital file. One asset can have many instantiations, but generally each instantiation holds the same intellectual content.

Metadata: Metadata is a set of data that describes and gives information about other data. Metadata can include a wide variety of information, and different communities have different uses for metadata. Description (title, subject), technical information or rights information are all types of metadata. Often there are different types of metadata needed for different purposes: structural metadata, technical metadata, preservation metadata. PBCore describes descriptive, structural and technical metadata (and can be considered by some uses to be preservation metadata as well).

Schema: An XML schema lays out rules for structuring an XML document in a specific way. The PBCore schema specifies how PBCore information should be written in XML so that people and machines can consistently understand the information contained in PBCore documents by referencing the schema.

XML: Extensible Markup Language is a markup language that defines a set of rules for encoding documents in a format which is both human-readable and machine-readable. It is defined by the W3C’s XML 1.0 Specification and by several other related specifications.

XSD: An XSD is the document that defines an XML schema. It can be used to validate other XML documents to make sure that they are complying with the rules of the schema.

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NIELSEN

(continued from page 1)

currency for the U.S. radio marketplace. We continue to focus on the solutions that we can bring to our audio clients. We continue to work with them closely to meet their evolving needs and are committed to investing to grow and deliver on innovations in the years to come.

RW: Late last year the Media Rating Council withheld its accreditation for Nielsen's December data in 26 markets following some PPM connectivity issues. You disputed their conclusion. What should radio managers know about that technical problem and the outcome and do you think it has undercut their confidence in Nielsen to deliver?

Abcarian: In the case of the December monthly, I think it was no surprise that Nielsen and the MRC don't always agree on decisions that get made. And we did not agree with their decision to withhold their accreditation for the December monthly data.

Following the PPM connectivity issue, we spent a lot of time across our data science team conducting a rigorous analysis of the data quality. The sample performance for that December monthly book was very much in line with the standards that we have used in which to release data as we had across the first 11 months of the year. As a result we stood firmly behind the December monthly estimates, which is why we chose to release them to the marketplace.

RW: Is there any ongoing discussion with the MRC?

Abcarian: We provided a set of documentation of the analysis that we performed and other details that the MRC requested, and all of that is in their hands now. We will wait to hear what the next step will be from them once they get a chance to review the data we sent them per their request. We'll continue to work closely with the MRC.

RW: PPM has been around 10 years now, and you recently announced an increase in the PPM panel sample target. Nielsen calls the increase important due to the continuing fragmentation of audiences. What can radio managers expect to see? Will it further increase the number of radio stations listened to?

Abcarian: We are excited about that, and our clients are as well. Increasing the PPM sample size has been a priority for our clients. We are currently working through the plans for the increase. It takes a lot of planning to roll out a sample increase and it requires a lot of planning and process to get that in

place. We don't want to do any harm to the current sample while we expand it.

Our goal right now is begin the sample increase mid-year 2017 and then roll it out over a series of a few months so that the complete rollout in every market will be completed in 2018. Each PPM market will receive a target increase of 10 percent increase across all demographics. We think radio managers will be excited that we add more than 6,000 new panelists to the overall panel and that will represent over 65,000 people contributing to the ratings on a daily basis. We'll soon have more than 80,000 meters carried or worn across the 48 metros. [Nielsen's PPM receiver can be worn by participants for up to two years. — Ed.]

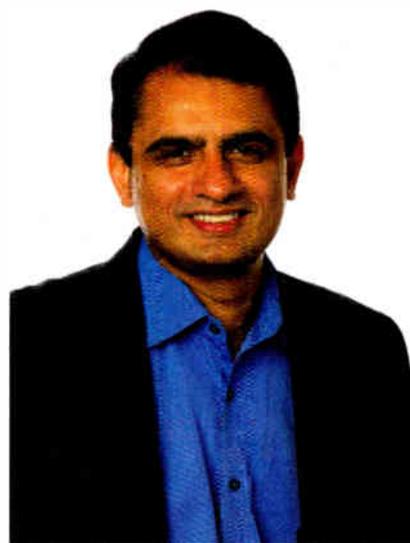
RW: A year and a half ago, trade headlines were all about the Voltair unit. Those developments raised questions about the quality of Nielsen encoding and whether others should be involved in the capture of PPM code in this way. For Nielsen, what is the outcome or result of that entire Voltair debate?

Ramaswamy: One thing I want to emphasize is the continued improvement from a technology perspective. Even prior to that condition, Arbitron and Nielsen had been continuously working on improvements to the algorithm. We are always looking at the environment for media measurement and how the consumers are changing. And one of the areas we targeted was enhancing the watermarking and to help in areas where it is hard to detect due to high background noise and those genres of music that are sometimes harder to encode.

Those algorithm improvements were comprehensive, and once we had development complete we took care to make sure deployments were flawless and seamless. We have worked closely with clients on the upgrade of the encoders for enhanced CBET to make PPM codes stronger and more robust. The nice thing about this technology is that it has brought in uniform improvements across all clients, which was absolutely needed.

In addition to the improvements to watermarking, we also set out to improve the monitoring by radio stations. So since then we have introduced the brand-new encoding monitor, which provide clients a lot more granular information on how the watermarking is performing. It's a connected device so clients have database interfaces and a database backend to look at to give analytical insights on the watermarking.

RW: Update us on the rollout of enhanced CBET and introducing a new encoding monitor. What percent of radio stations in PPM markets have



Arun Ramaswamy

upgraded to enhanced CBET?

Ramaswamy: We began deployment of enhanced CBET in December 2015 and as of now 3,600 U.S. radio stations have been upgraded and about 8,400 encoders have been upgraded. We began deploying the new encoding monitors to clients in the PPM markets in June 2016 and I believe about 60 percent of our radio stations have put those online.

RW: What kinds of things are radio engineers able to pull off the improved monitors?

Ramaswamy: They can pull out logs filed from it. There are alarms that give them a very granular view of how encoding works. Now they can look at what part of the programming did my watermark perform best and what are the analytics around it. And of course the box is connected so we are looking at other enhancements we can do to assist the clients.

RW: What are Nielsen ratings' theoretical margins of error in its radio measurement? Both paper diaries and PPM?

Abcarian: Clients can use the Nielsen Ratings Reliability Estimator to determine the margin of error for demos and day parts reported in our E-Book Service.

RW: One major complaint about PPM accuracy has been that the belt pack receiver can pick up decoded audio and register it as real listening when the carrier is not paying attention to that audio. Is Nielsen looking at ways for PPM to overcome that deficiency?

Ramaswamy: I wouldn't necessarily consider that a deficiency. If you think about PPM as a premium currency grade device that mimics the human ear, every time the human ear can hear audio it is being registered and captured. You have to look at PPM as not just



Kelly Abcarian

an isolated device, but an end-to-end system. We have made improvements to the watermarking, which should help in hard-to-encode environments, and we have made improvements to the detection part to detect those watermarks. We are obviously looking at all the metrics and trying to upgrade the fundamental operation of the PPM.

RW: What about the cost of all the upgrades?

Abcarian: We are putting investment dollars into radio to help continue to support our clients and grow the industry. This is obviously a large investment for this undertaking and initiative. Our goal is to help our clients to continue to advance the radio story in the marketplace. I can't give you an exact figure, but we are investing lots of dollars in radio to help drive measurement forward.

RW: The software development kit or SDK allows Nielsen to measure audio consumption and engagement across devices. What kind of challenges does measurement of on-demand audio and podcasts present as audio publishing grows?

Abcarian: The interesting thing about podcasting is that the technology we have built for our digital streaming services is really fully encompassing across our strategy of our total audience tech, and nicely interplays with what is needed for podcasting. We have had lots of interest from clients to bring this solution to the marketplace.

Thanks to the work of Arun and his team for getting the SDK up and running in the 2013 timeframe, we have over 7,500 client-side software deployments up and ready across the radio landscape. So we are already in the first phase focusing on measuring AM and FM digital streams in a pre-currency preview period, and as we move into

(continued on page 14)



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NIELSEN

(continued from page 12)

the second half of this year we will be expanding this to include all forms of audio podcasting, which will include podcasts and on-demand music streaming services.

This is really using big data to bring this type of measurement to our clients. We have a number of clients deeply engaged with us. We are working with ESPN closely on this. They are heavily committed to podcasting and working with Nielsen in order to test our solutions.

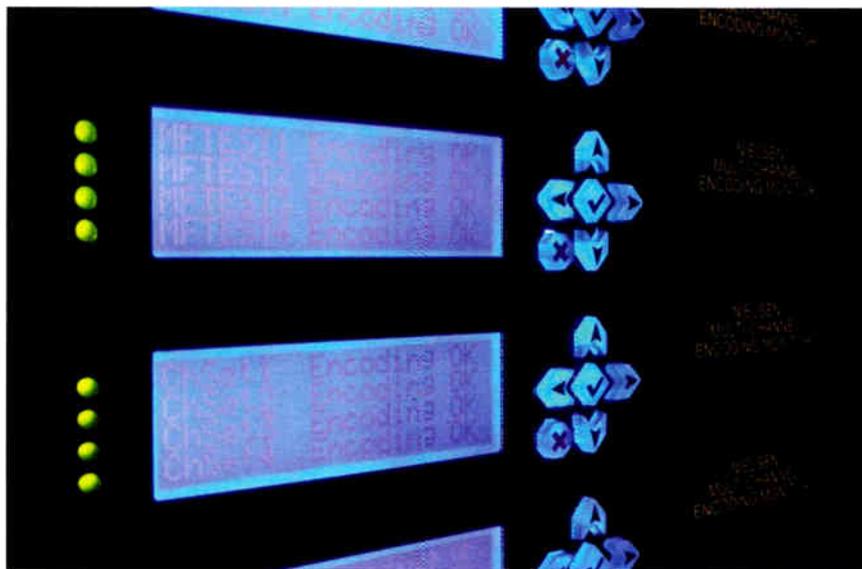
Ramaswamy: The SDK measurement for audio brings in the scale that is needed for this sort of measurement. By being embedded in apps and browsers it can capture and leverage the big data element.

RW: What technical updates should radio managers know about that are coming next?

Ramaswamy: We are continuously looking at all aspects of the audio platform from watermarking, to consumption to measurement. When we talk about PPM, which is a currency grade device and extremely high acoustics to pick up audio around it, the one technical track we are on is miniaturizing the core elements of the PPM that could then be embedded in other consumer devices, including wearables and other devices. We are studying ways the technology can be carried to measure audio consumption.

RW: When might we see more of that research pay off with technology in the marketplace?

Ramaswamy: We do have some working prototype right now. But when you look at the lifecycle of how something like this gets into the marketplace, obvi-



Encoding monitors are seen in closeup.

ously we have to stand behind the currency grade of the device. We have to make sure it meets the market needs, and to do that we have to get the data and product teams involved, making sure it is producing the right kind of data. And human compliance in term of carriage to make sure it is where it needs to be. Then, of course, client feedback and approval. We think this year we will come back with some of the technical feasibilities, but then all of the other steps need to follow in place in order for us to introduce it in the marketplace.

RW: What is the practical impact for the company of acquiring Gracenote? They are known for enhanced media metadata and ACR or automatic content recognition. What should radio customers know about it and your plans for it?

Abcarian: The deal just recently closed. We are actively underway with integration planning now that the deal

has closed. We are excited about what bringing Gracenote into the Nielsen family can do for our audio customers. Gracenote is embedded in over 70 million auto infotainment systems today. So we are excited about leveraging that data and enhancing our audio business, thus evolving audience measurement — having another way to touch the consumer and understand engagement and discovery across video, audio and text. Their in-car audio and in-car digital listening. This will help us share with our customers how their content is being exposed to consumers and guiding purchasing behaviors and other tangible business outcomes to help grow business.

RW: Let's discuss the Total Audience Measurement philosophy and truly integrated, cross-platform consumption measurement. What is the status of Nielsen's efforts in that direction?

Abcarian: Even before we acquired Arbitron they were already measuring the multimedia environment. The PPM technology can measure radio and TV. We plan to formally bring in the PPM data into our local television currency services that will double sample-size and introduce out-of-home measurement in 44 local TV markets. It will bring that true currency cross-platform linkage to help give our radio clients a better understanding of the full view of exposure data across radio and television. Our Total Audience Measurement strategy has been to bring together measurement and activation of video, audio and text across the planning and buying landscape. We have made great progress on that front and we have made sure audio remains featured prominently in that customer storyline. We spotlight radio's strength with our Nielsen Total Audience and Comparable Metric report that we publish on a quarterly basis. That shows radio remains the

top local reach medium in the U.S. The multimedia landscape continues to evolve. Nielsen is always looking at cross-media opportunities for clients.

RW: What is Nielsen's philosophy on total measurement to include things like Pandora, Spotify and SiriusXM to see where radio really stacks up in overall listenership?

Ramaswamy: Providing comparable metrics across all platforms is one of our foundational cornerstones for Nielsen Total Audience measurement. When thinking about audio measurement in particular, we like to think about three fundamental ways of looking at audience exposure and engagement: how many people listened; how often did they listen; and how long did they listen. Nielsen's goal is to provide a bundle of metrics for the industry to use based on the circumstances of their research or the story they're trying to tell.

The key is for each of these metrics to be calculated in a comparable way across platforms and for the industry to be consistent and clear in their use of these metrics when comparing terrestrial stations, satellite or digital pure plays.

RW: Is Nielsen working to aggregate terrestrial radio plus digital measurement to be able to comprehensively measure a radio station's true reach? And how will that work?

Ramaswamy: Digital audio is a critical part of our total audio strategy: measuring a consumer's listening behavior wherever they are, regardless of device and combining that listening across terrestrial and digital audiences into the currency to enable our clients to more seamlessly monetize these audiences. Tremendous progress has been made over the past year. We've achieved alignment on which metrics should be used and how the data should be displayed.

RW: Are there further technical enhancements to existing products you are working on?

Ramaswamy: When we looked at the new monitor we brought out, we were looking for way to add value for our clients. We are collaborating closely with a lot of our technical counterparts at our clients. We are adapting more agile methodologies in order to demonstrate in smaller chunks the improvements we are bringing to the marketplace. And we are going to follow the same principle when we look at new technology. For example when we look at PPM wearables, at the right point we will pull in clients and make sure we are headed in the right direction.

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

NEWSROUNDUP

REVENUE:

Washington's all-news kingpin WTOP again led the nation in estimated radio station revenue, according to a report from BIA/Kelsey. The top four held their rankings from last year. The same 10 made

up last year's list, but WBBM and KBIG each have moved up one ranking, while WCBS fell by two. By format, the list has four all-news stations, two CHRs, a Hot AC, a Lite AC, a sports/talk and a news/talk. By companies it has five iHeartMedia stations, four CBS stations (soon to be Entercom) and one Hubbard (WTOP).

Top Ten Highest Revenue Radio Stations in 2016

CALLS	AM or FM	Format	Owner	Rank	Market Name	Est. Revenue-Station 2016 (\$000)
WTOP	FM	News	Hubbard Radio LLC	7	Washington, DC	\$67,500
KIIS	FM	CHR	iHeartMedia	2	Los Angeles, CA	\$65,900
WHTZ	FM	CHR	iHeartMedia	1	New York, NY	\$48,000
WFAN	FM	Sports/Talk	CBS Radio	1	New York, NY	\$46,500
WBBM	AM	News	CBS Radio	3	Chicago, IL	\$45,000
KBIG	FM	Hot AC	iHeartMedia	2	Los Angeles, CA	\$44,000
WCBS	AM	News	CBS Radio	1	New York, NY	\$44,000
WLTW	FM	Lite AC	iHeartMedia	1	New York, NY	\$42,000
WINS	AM	News	CBS Radio	1	New York, NY	\$40,000
KFI	AM	News/Talk	iHeartMedia	2	Los Angeles, CA	\$38,000

BIA/Kelsey

Source: BIA/Kelsey

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—Stephen Wilkinson, Technical Operations Manager, Hoop Media, Sydney, Australia

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—Chris Tarr, Director of Technical Operations, Emerson, Milwaukee, Wisconsin

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—Mike Modrny, CBT, The Jim Pattison Broadcast Group, Alberta, Canada

“...**dominates** over everything else on the air. The bass is **tremendous**. The mids are very **clean**...and the **depth** is something I've never heard on the air.”

—Daniel Hyatt, SVP Engineer, Max Media, Denver, Colorado

“**Amazing.** No one else is even close.”

—Bas Boone, Technical Director, Radio Nostalgie, Antwerp, Belgium

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Your Eyes Can Trump an ESR Meter

Sometimes the best test equipment is the human eye and nose



Fig. 1: Note the "domed" tops of these "bad" capacitors.

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

Longtime contributor Bob Meister from Hamden, Conn., writes in response to Tom Osenkowsky's recent contribution with respect to equivalent series resistance (ESR) and the Sencore LC-75 Z-Meter being used to check capacitors.

Bob adds that capacitance value, leakage resistance and ESR are the primary measurements for electrolytic capacitors, which seem to go bad much more frequently than smaller capacitors such as disk, Mylar, film and mica.

Besides the Sencore LC-75 Z-Meter, there are alternatives you may already have handy to test these components. Many digital multimeters are able to

measure the capacitance value, and all can measure resistance.

However, Bob has found that auto-ranging DMMs can often give a misleading leakage value because they keep changing range and indicated resistance. In many cases, a good old Simpson 260 VOM does a better job of measuring the leakage.

ESR, however, requires something a bit more sophisticated.

Bob uses the Peak Electronic Design ESR-70 (available for less than \$150 on Amazon), which fits in your hand, operates on a single battery and can test just about every electrolytic capacitor you may run across.

Readings are fast and simple: turn the unit on, connect it to the capacitor and it automatically senses, discharges

and begins analyzing the part, displaying the value in microFarads from 1 to 22,000 and the ESR in Ohms from 0.00 to 40.0. It can also measure ESR in-circuit, which is a great timesaver when

troubleshooting. The ESR function can also be used to measure the resistance of things like transformer windings and coils. It shuts itself off 15 seconds later, conserving the battery.

Capacitance and ESR are not the only things that can indicate a failed capacitor.

Fig. 1 shows a capacitor bank in a QSC MX1500A amplifier. Each cap is .15,000 μ F, 50 VDC. Note that there's a black fiber cover over the top of each cap and most are slightly domed upward (convex). These all measured perfectly fine on every meter Bob had, but the domed top was the give-away. They all were replaced.

This amp also had a shorted bridge rectifier, several open fuses and burned 5 Watt resistors and several broken/burnt circuit traces, but it all was repaired and worked fine.

Fig. 2 shows another QSC MX1500A amplifier, but all of the capacitors have pushed their tops upward, as in Fig. 1.

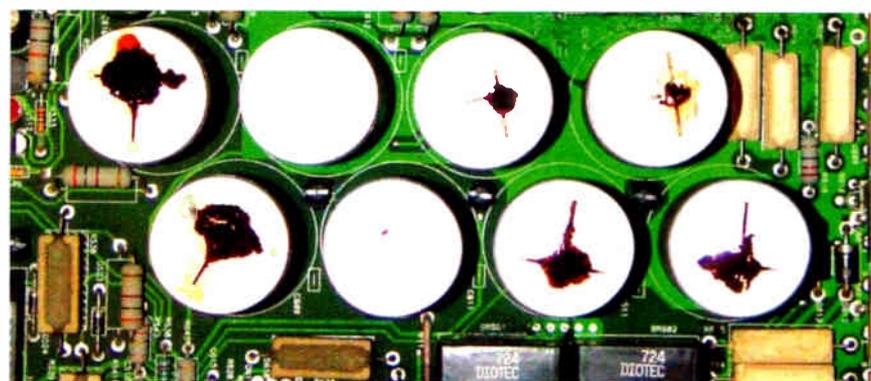


Fig. 2: Domed tops and leaking electrolytic.

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Capacitance value, leakage resistance and ESR are the primary measurements for electrolytic capacitors.

Additionally, they have leaked electrolyte out the vent slits at the top. The "goo" at the top stuck to everything — the workbench, papers, Bob's hands, you name it. These, too, had black fiber covers on them, but the caps got hot and the vinyl wrappers shrunk and pulled down the sides, releasing the black covers which got sucked up by a vacuum cleaner before Bob got the amp. A few loose covers remained lodged under the main board.

(continued on page 19)

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♥ **RADIO DOING GOOD**

BY MARK LAPIDUS

Anyone involved with nationally syndicated radio knows how difficult it is to make it sound spontaneous and compelling, while injecting enough local elements to engender familiarity and create loyalty.

"The Bobby Bones Show" is first-in-class when it comes to delivering the goods.

Here's more proof of how the show stimulates goodwill: During his third tour in Afghanistan, U.S. Air Force Capt. Nathan Nelson was paralyzed from the chest down. After sharing Nelson's story on-air, Bobby announced that proceeds from a special T-shirt would help to build a customized "smart home" for Nelson and his family. Listeners responded quickly, helping to raise \$100,000!

Since 2014, apparel sales have enabled "The Bobby Bones Show" to raise more than \$1 million for great causes. In an announcement about the program, Bobby was quoted: "Our listeners have shown us again just how big their hearts are."

In another example of "Radio Doing Good," look what radio can accomplish in just 12 hours:

In Manchester and Portsmouth, N.H., WGIR(AM) and WQSOO(FM) with WNN(FM) and WEMJ(AM) teamed up for the third annual "Make 12 Hours Count" radiothon. They raised \$140,000 for Veterans Count, which provides financial aid and resources to

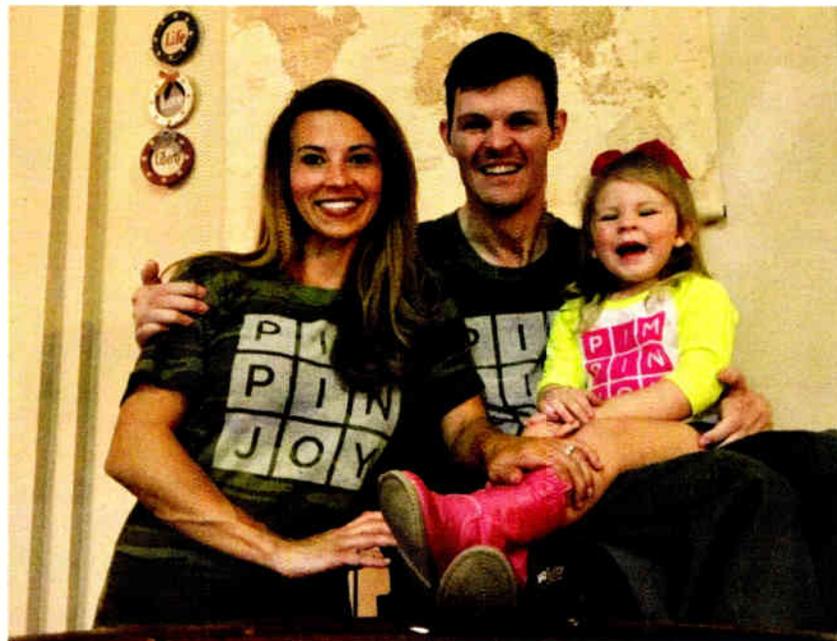
New Hampshire veterans, service members and their families.

"The effort that our listeners and sponsors put into this event is truly remarkable," said Joe Graham, market president for iHeartMedia New Hampshire, in a press release. "It's great to see the New Hampshire community come together to help our local veterans."

And when New York's Education Department reported a 19-percent increase in bullying in the city's public schools and a 31 percent increase in charter schools, WINS(AM) jumped into action.

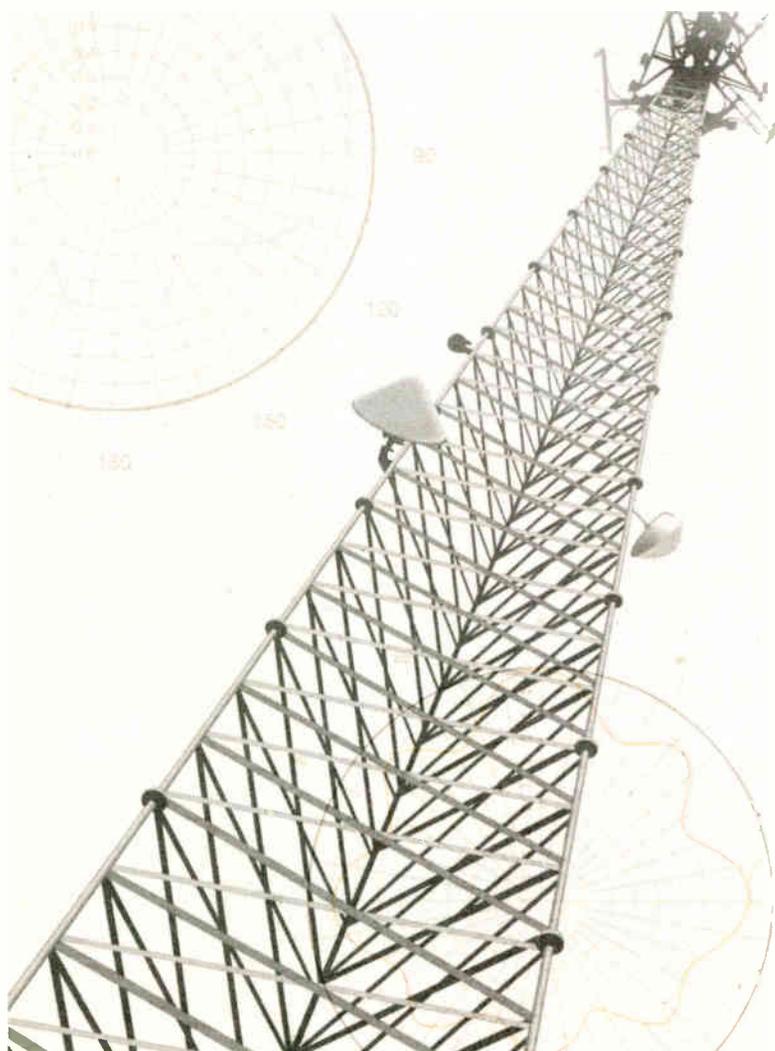
The station produced an eight-part series called "Living in Live Time" and a related campaign called "I Decide Today," addressing cyberbullying. Listeners will hear from dozens of experts, kids and celebrities. Two young women who had plastic surgery specifically because of how they looked in selfies were also interviewed concerning the subject.

News Director Ben Mevorach believes "Living in Live Time" could be used in schools as a discussion starter in families with teens and tweens.



"The Bobby Bones Show" built a home for wounded Air Force captain Nathan Nelson and his family.

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WORKBENCH

(continued from page 16)

Each of these caps measured between 14,000 μ F and 14,500 μ F and the ESR was 0.01 ohms, about as good as you can get for a 15-year-old 15,000 μ F capacitor, and better than the brand new ones.



Fig. 3: The capacitor bank after replacement, with a "bad" capacitor on the right.

Fig. 3 shows the above amp after the capacitors had been replaced with identical parts. The extra cap on the right is one of the ones that had leaked and pushed its top upward. Notice that the tops of the eight new ones are slightly concave (indented/depressed), and they don't have black fiber covers on them anymore.

For comparison, the brand-new caps measured between 13,500 μ F and 14,000 μ F, and the ESR was 0.01 ohms. At 20-percent tolerance, all the caps were within spec.

A bulging leaking cap is a good indication that it must be replaced, even when all the test equipment in the world says, "Electronically it's fine because it still has its rated value of capacitance and ESR."

Sometimes the best test equipment is the human eye and nose.

Think your computer has a virus? Newman-Kees RF Measurements principal Frank Hertel suggests that engineers carry a couple of useful Norton utilities found at <https://security.symantec.com/nbrt/overview.aspx>.

These will help you to recover or restore infected browsers and computers, he says. Frank saved days of work using these utilities, when a "paid for" virus protection software failed to protect a computer.

There seems to be an upsurge of sites that download malicious Trojans and similar viruses where the protection programs are missing.

Innocently clicking on a screen element, that has been *purposely mislabeled* within a site page, can initiate the problem and render all your browsers virtually useless.

Resident programs may work properly, but your internet browser(s) become useless from overwhelming pop-up ads which cripple their function.

In Frank's situation, it appears that what gets unwittingly downloaded is not caught by the virus protection software, as it is structured like a valid executable program, since it is unintentionally downloaded when one clicks on a purposely mislabeled page element.

At the Symantec site, you will be able to download two separate small and effective repair elements from Norton. Most of the time, you'll only need to

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use the Norton Power Eraser; however, severe cases will require the use of the Norton Bootable Recovery Tool.

Frank admits there are other programs that one can use, but this one fixed his problem quickly — and it was free.

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oWOW Lives Local Radio Dream Online

John Gorman and crew bring their Cleveland sensibility to Web operation



STREAMING RADIO

BY JAMES CARELESS

Tune into the web stream of Cleveland station oWOW and you'll hear solid local content — live DJs who reside in northern Ohio, local musicians and talent, and local advertisers.

But search Cleveland's AM and FM bands for oWOW, and you won't find its signal, because this hyper-local station is web-only.

Even though oWOW works out of a broadcast-style studio and office complex at 1305 West 80th Street in Cleveland's Gordon Square arts district, this adult alternative station delivers its content exclusively on the internet.

"We have everything that goes along with an AM or FM station except the transmitters and towers," said John Gorman, oWOW's co-founder and chief content officer. "But since you can get us in the car using the oWOW app on your Android, BlackBerry or iOS smartphone, and either a Bluetooth-connected radio or probable FM transmitter plugged into your smartphone, this isn't such a big deal."

oWOW is also available at www.owownow.com, Roku streaming media device and on other streamers such as Pandora or Spotify.

WHY WEB-ONLY?

Gorman is the former program director and operations manager of WMMS(FM), vice president and operations manager of WMJI and VP of programming for OmniAmerica Group; he also had his own radio consultancy, all

there really is no place left for people who preferred personality-oriented local radio to do it on air."

Another benefit of not having a transmitter and antennas is the cost.

"The operating costs of traditional radio broadcasting are prohibitive, especially to new independent stations who would have to carry a massive debt load to get started," Gorman said. "We saw no need to go that route, when the web offers so many ways to reach local listeners."

Below: John Gorman with the oWOW airstaff: Ravenna Miceli, Steve Pappas, Charlotte DiFranco, Chuck Matthews, Chrissie Louder.



Above: oWOW is using billboards to raise its profile with Cleveland radio listeners.

based in Cleveland. oWOW co-founder and Director of Sales/Marketing Jim Marchyshyn, now an investor, also was an employee of WMMS.

Collectively, this pair is well-versed in the ways of local Cleveland radio. So why did they decide to launch a web-only station in 2015?

"It can be traced to the devolution of U.S. radio by large conglomerates, where 'live and local' was replaced by voice-tracked shows and syndication from distant locations," said Gorman. "Add the fact that creativity and DJ personalities have been replaced by safe, faceless, cookie-cutter content, and

Tune into oWOW online, and you'll hear a AAA station with an emphasis on a vast playlist, smooth production and lots of local content. The schedule features live personalities with deep Cleveland radio roots during the dayparts. They are Ravenna Miceli on air 9 a.m.–2 p.m. weekdays and Saturdays, who is familiar to listeners from work at WMJI(FM) and WNWV(FM); Steve

Pappas 2–6 p.m. weekdays and Saturdays (WQAL); and Chuck Matthews Monday to Thursday 6–9 p.m. and Saturday 6 p.m. to midnight (WMJI and WMMS).

"This is local contact and content that people can't get over the air anymore," said Gorman. "It's gotten so bad that when the Eagles' Glenn Frey died, oWOW was the only local Cleveland station that was live and able to announce the news — and adjust our playlist to focus on his work."

Such local content is also not being provided by the computer algorithm-driven playlists on Pandora and other streaming services, he added. "For live and local in Cleveland, we are the only commercially-driven choice."

PAYING THE RENT

oWOW sees localism as the station's defining edge against its AM/FM competition. This is why the station emphasizes local news and sports, weather and musical talent in its schedule, and also does its best to play a big role in the greater Cleveland area.

"We are working into the fabric of the community and serving as media sponsor of events like the Cleveland Beer Week, Cleveland Comedy Festival [multi-day, multi-location], the Cleveland Independent Film Festival and regional business expos," said Gorman. "We were also sponsors of two major music festivals, LaureLive in June and The Burning River Festival in August."

To pay the rent, oWOW is focusing its ad sales on the 17-county area surrounding the Cleveland, Akron and Canton markets, including sponsors from Akron and Youngstown. This is why the station goes the extra mile to promote its local advertisers not only in its stream, but also on a dedicated "Keep It Local. Cleveland" Sponsors page.

"In addition to sharing in our local identity, being an oWOW advertiser means that your message doesn't get lost eight to 14 unit sets," Gorman said. "This is because we have a maximum of three spots per unit set, and only three sets per hour which are run between music; not announcer breaks."

Despite this pro-advertiser bent, oWOW is having a tough time wooing over-the-air advertisers to its web-only feed.

"One reason is because a few potential advertisers are unfamiliar with how much over-the-air radio has moved away from being local, and how much internet radio has improved its reach to listeners," said Gorman. "Another factor is the scarcity of experienced advertising salespeople and account managers in



oWOW staff selling T-shirts and hats at BAYarts, a gallery and arts center.

(continued on page 24)

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Review: SolderBuddy ACS-V

The author puts a new soldering aid through its paces

PRODUCT EVALUATION

BY JAMES E. O'NEAL

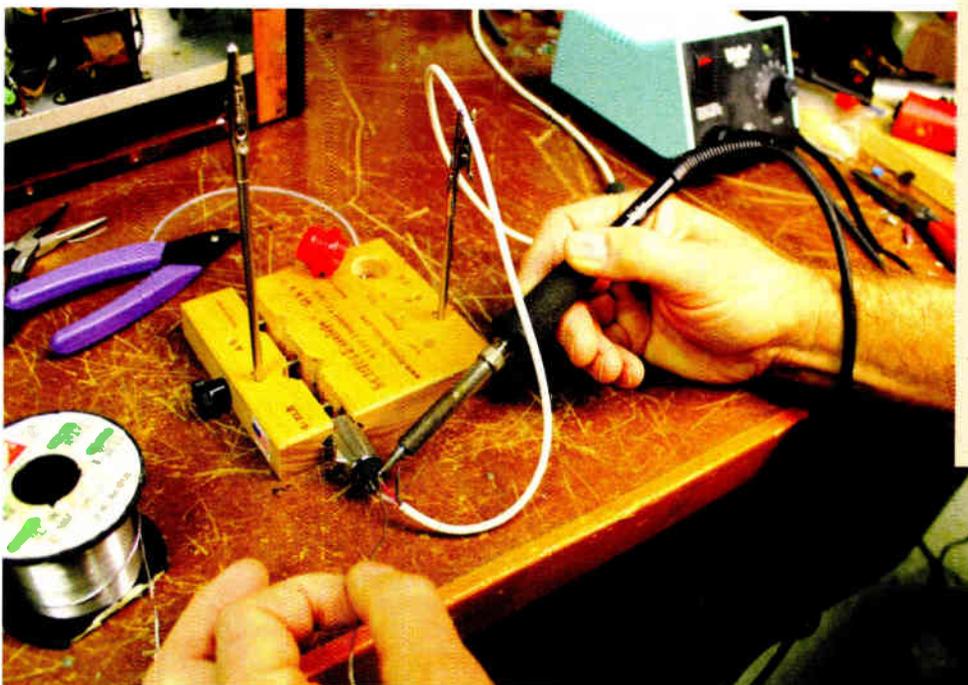
If you're not familiar with Lee Tingler's "SolderBuddy" products, they are a family of rather inexpensive devices designed to assist in the installation of solder-type audio connectors. I'm no stranger to the SolderBuddy, having reviewed Tingler's first such product in the Oct. 1, 2008, issue of *TV Technology*, and another slightly different model in the Dec. 21, 2011, issue.

The SolderBuddy ACS-V allows XLR and other connectors to be secured in the horizontal plane for easier soldering.

Tingler has recently added a new SolderBuddy to his growing lineup of soldering aids, the ACS-V. It was designed as a replacement for the previous SolderBuddy ACS and))SPK((models, which have now been discontinued. Tingler is always open to feedback from users of his products and based on such information, reworked the ACS to incorporate some of these. The result is the new ACS-V.

FEATURES

Just like earlier SolderBuddy products, the new ACS-V is constructed from a solid block of hardwood (European beech) with "labels" precisely created via laser engraving. When fully closed, it's approximately 4x4x1/2-inches. The block is divided into two sections, a 3-inch front with precisely drilled openings for 1/4-inch phone plugs, RCA phono plugs and a 3.5mm male connector. There's also a 5/8-inch "well" with a screw cap for small screws, solder lugs and the like. The rear-most 1-inch



section of the ACS-V is equipped with a long thumbscrew and pair of guide pins that allow it to move away from the front section to create a "vise" for accommodating XLR, Speakon, D-sub or other large connector bodies (there are three "diamond" cutouts for such items; two on the top surface and one on the left side). When fully extended, the opening between the front and rear sections is about 1.5-inches.

The ACS-V is also equipped with holes to accommodate the alligator clips affixed to long posts that Tingler calls "Post N Clips." These are used to keep cables in place while soldering operations are going on. Two of these are included with the ACS-V and additional "Post N Clips" can be purchased if needed. There's also an insulation stripping gauge engraved into the rear section.

owners had attracting advertisers to their airwaves.

"FM had its teething pains until it became the dominant medium a few decades back, supplanting AM," Gorman said. "Now we're able to offer the same kind of superior value proposition to local and regional accounts that FM did in its day, including more musical choice and more local content at a time when over-the-air broadcasting has abandoned this region. We just have to hold on and keep at it until the market catches up to us — as it did with FM."

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

IN USE

Given the intuitive nature of the device (and having put two other "Solder-Buddies" through their paces), I really didn't need specialized instructions for using the ACS-V.

Actually, this new unit is very similar to the discontinued))SPK((model, with the biggest difference being the previously described "diamond" female XLR connector bodies.

I chucked one in to begin my trial and immediately found that positioning such a connector in the horizontal plane makes it easier to do a neat soldering job, as there are no worries about the molten metal flowing by gravity to the bottom of the connector's metal recesses and clumping there. I'm sure that most of us, when soldering XLRs without a vise or other holding aid, have kept the barrel parallel to the bench or whatever surface was handy, rather than trying to perform the operation with the connector "standing up."

The XLR wiring was easily accomplished and I decided to try out the ACS-V for adding a 1/4-inch TRS plug to the other end of the cable now attached to the XLR. When setting things up for this operation, I noticed something that had escaped me previously; there was a very small horizontal opening in both halves of the SolderBuddy's right-side surfaces.

I was all set to insert the tip of the 1/4-inch plug in the labeled opening and bring in the solder and heated iron, but instead chucked the connector's tip in the slot, thus placing it in a horizontal plane. As with the XLR, I found that soldering the 1/4-inch phone plug while

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it was held "sideways" was more natural than when attempting the operation when it was pointed downwards.

I went back and read the instruction sheet provided with the ACS-V and found that the right-side slot was "borrowed" from the

SolderBuddy RC (a model that I have not reviewed), and was provided in the ACS-V for securing Din, male XLR bodies, 3.5-mm "minnies," and other connectors.

SUMMARY

Like the previous SolderBuddy units I've reviewed, the new ACS-V is well made and will serve the user for many years; provided he or she doesn't accidentally use it for a soldering iron "rest," then all bets are off. However, if you're careless enough to put a hot iron on a piece of wood, you really shouldn't be soldering.

The hardwood block that makes up the ACS-V is nice and dense and stayed put on my scuffed-up Masonite-topped workbench. However, you might want to think about adding an accessory — the NSB-A "non-slip base" — or perhaps some stick-on rubber feet if you're going to be using it on slipperier surfaces such as Formica or metal.

As mentioned in one of my earlier reviews, I find the SolderBuddy soldering aids easier to use than a much more expensive portable metal vise unit I purchased for this purpose a long time before Tingler started his SolderBuddy business. If you're like me, the ACS-V will be seeing a lot of use while the expensive pivoting metal vise continues to collect dust. I could have bought a lot of solder for what I paid for that vise.

This article originally appeared in TV Technology. James O'Neal is a retired broadcast engineer and served as TV Technology's technology editor for 10 years.

oWOW

(continued from page 22)

this space. It's taken us months of searching to find the sales, promotion and marketing talent that we need."

PLAYING FOR TIME

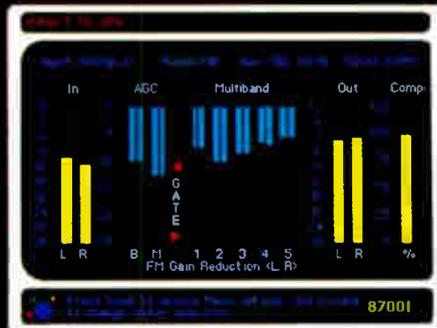
Despite the challenges of selling advertising in the web-only space. Gorman says that oWOW gradually is gaining traction locally; both in terms of ads sold and people tuning in. He also remembers a time when FM radio was the new kid on the block, and the problems that FM station



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Introducing NPR's GM of Podcasting

Neal Carruth's new role solidifies the importance of podcasts for public radio

NEWSMAKER

BY TOM VERNON

Podcasting began over a decade ago, largely as a grassroots, alternative medium. Since then, as has been well documented, it has evolved and recently undergone exponential growth. Sales grew by 48 percent last year, and are expected to continue at 25 percent a year for the next four years at least. More venture capital is also flowing into podcasting.

2016, when Neal Carruth stepped into the newly-created position of general manager of podcasting, dividing his time between the New York and Washington offices. His duties include overseeing all six of NPR's news podcasts, including "The NPR Politics Podcast," "Pop Culture Happy Hour," "Code Switch," "Hidden Brain," "Embedded" and "Planet Money."

BONAFIDES

Carruth has spent virtually his



The thinking behind the creation of my position at NPR was to preserve and extend our competitive stance.

— Neal Carruth

NPR quickly emerged as a key player in the podcast market. With the success of "Serial," the network created a podcast assembly line that quickly churned out "Embedded," "Invisibilia," "How I Built This" and "Hidden Brain." It also launched the "Story Lab" as an incubator for creative ideas about spoken word content and storytelling.

What makes NPR's success with podcasting all the more impressive is that it was achieved with no one person at the helm.

That changed after Thanksgiving

entire career at NPR. He started in 1999 as an intern on the Cultural Desk, where he worked with editor Tom Cole and correspondents Brooke Gladstone and Lynn Neary. After that, he worked briefly as a production assistant on Morning Edition.

From 2000 through 2004, he worked on "Weekend Edition Sunday," booking guests and producing the weekly "Voices in the News" segment. He also worked in the field with former host Liane Hansen.

He joined NPR's election unit right

before the 2004 presidential elections, where he directed live coverage of the Democratic and Republican conventions, the presidential and vice-presidential debates, as well as NPR's nine-hour election night special.

Carruth relocated to Los Angeles after the election, where he became a segment and line producer for "Day to Day," returning briefly to Washington to produce live coverage of the confirmation hearings of Chief Justice John Roberts and Justice Samuel Alito.

In 2006, Carruth moved again, this time to Iraq to join NPR's Baghdad Bureau. He became part of the team that was awarded the 2007 Alfred I. DuPont/Columbia University Silver Baton award for its coverage of Iraq. Before starting

his new position, he was in charge of NPR's business desk.

THE LAY OF THE LAND

According to Carruth, "The podcasting landscape is only getting more intense. There's a fierce competition both for audience and talent. I believe the thinking behind the creation of my position at NPR was to preserve and extend our competitive stance. We can't ever take our position or strength for granted."

Carruth is charged with strategic planning and charting the long-term goals for NPR's podcasts, and while he won't discuss specifics, he does describe the overarching vision: "Our two biggest strengths are great reporting and great storytelling. That is what's brought us the success we've achieved so far. Moving forward, we need to discover new and magical ways to unite these two. I think a lot of our future success will involve amping up the things that we're already doing."

Success in any mass medium depends to a large degree on the metrics, and the statistics for podcasting aren't as robust as, for example, streaming audio. Apple has about a 60-percent share of the podcast downloads, but so far, hasn't been willing to share much data. What kinds of numbers do podcasters need to be more competitive?

"Podcasting is still a young part of the media industry, and the metrics are evolving. I think commercial and non-commercial podcasters share the same goal, learning as much as possible about both audiences and potential audiences. We can get some sense of what's going on from the download numbers, and glean a deeper understanding of the listener experience from the NPR One app."

(continued on page 28)

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PODCASTING

(continued from page 26)

METRICS, VISUALS AND NPR ONE

By way of example, Carruth said the time spent listening metric from NPR One can be matched with the podcast to learn at what point listeners tuned out, and perhaps gain some sense of why. These generalized lessons may lead to tweaking of content or presentation style, with the hope of achieving higher time spent listening metrics in future podcasts.

The coming of ATSC 3.0 in 2017 will bring video to mobile devices. Will podcasting develop a visual component, and if so, will that come at the expense of some of its intimacy? NPR may be ahead of the curve on that count, according to Carruth.

"We are already using video. Our Tiny Desk Concert Series, which features intimate video performances, recorded live at the desk of 'All Songs Considered' host Bob Boilen, has been very successful. We've used NPR Live to put our branded video out on Facebook, while maintaining the production values of NPR. I believe that we can have both audio and video experiences that complement, rather than harm each other."

Critics of commercial radio often point to issues of automated programming, tight playlists and lack of personalities. Some also suggest that as a result, a lot of the creative energy has shifted over to podcasting. Carruth is quick to point out that NPR has an entirely different strategy.

"First off, we don't put our talent in silos. Our podcast team, for example,

also does special events on the radio side. We take the lessons that we learn from on-demand media back to the terrestrial news. And the NPR Live experiment has helped us as well, because the longer format is more conversational. On both sides, we believe that listeners respond well to our talent because they come across like friends that you can relate to."

The podcasting business has an enormous thirst for good talent. Carruth explains that fulfilling that need involves both active recruiting and keeping the door open.

"We consider pitches for new podcasts originating from both inside and outside of NPR. The NPR Story Lab makes it easier to pitch an idea, with an online hub and submission process." He adds that aspiring podcasters can go to nprstorylab.submittable.com to down-

load a packet of information and create an online account to enter a proposal.

It is also important to hold on to the talent that NPR already has.

"You've always got to be on the offensive. It's important to keep track of your most talented people and discover new ways to keep them creatively engaged."

Scale eventually drives media to global markets. Will small players, local and public media be able to compete in this space?

"It definitely helps to have an institutional affiliation such as NPR, which can lend a lot of branding and marketing muscle. However, it's still possible for a small player to succeed because the barrier for entry into podcasting is so low. Anyone who wants to publish a podcast, can. It is also good to remember that what type of podcast will become a hit isn't always predictable, and that a niche program can attract a substantial audience."

A recent trend in podcasting on the commercial side is sponsored podcasts, where the sponsor essentially commissions a podcast to their specifications. Will NPR be exploring this avenue?

"No," says Carruth, "we don't do sponsored podcasts, in the sense of making branded content for sponsors, but we are proud to have many well-known brands sponsoring our work through underwriting."

Tom Vernon is a longtime contributor to *Radio World*. Recent articles include a profile of WGBH's Bob Kempf and a story about KCRW's VR app for its live music broadcasts.



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San Diego's KSDS gets loud and long with new processor

USERREPORT

BY SCOTT RICE
Chief Engineer
KSDS(FM)

SAN DIEGO — About six months ago I took over as the chief engineer of legendary jazz station KSDS/88.3 in San Diego. KSDS was licensed in 1951 and is the definition of a heritage station. KSDS made the switch to jazz in 1973. Jazz stations in today's homogenized corporate-controlled environment are a true rarity. KSDS is San Diego's radio jewel.

The station had just built brand-new studios, outfitted with four new Wheatstone LX-24 consoles, and had just deployed an ENCO automation system. KSDS had never been automated prior to the new studios. The transmitter site was a well-built facility with a pair of Harris Z FM transmitters, but the antenna ...

Well, the antenna is a five-bay, vertical-only antenna on a 200-foot flag pole. Yes, a 200-foot flag pole.

PROTECTION

The 22 kW signal was set up as vertical-only to protect XETV Channel 6,



which has since signed off. For those who have never been to San Diego: It has some mountainous terrain combined with some deep valleys. Add that to a vertical-only antenna, and the term multipath takes on new meaning.

The old processor was still in place (the only thing not replaced during the remodel). I tried various things to minimize the multipath, but nothing that the old processor could do would help. That processor, now 12 years old, locks up on a regular basis, turns the audio into a garbled mess and just simply isn't loud. It needed to be replaced. After all, this is Market No. 17, and one of the last full-time jazz stations in the country deserves the best!

I started looking at my options. I

was convinced after a visit by Kelly Parker of Wheatstone that I needed to take a look at the AirAura X3. I contacted Wheatstone's Jay Tyler and Darrin Paley, who sent me a demo unit. It happened to be the same time that another manufacturer sent me their top-of-the-line processor.

There was almost no tuning of the X3, I put on a preset, and let it run. It sounded great and loud out of the box. It took a while to set up the competitor's processor, as it showed up with no presets. Once I had them both set up almost identically, I drove to L.A. one weekend while listening to the AirAura X3. I noticed that I had listened crystal-clear to KSDS past Oceanside (where I always lost the station), and for the first time I was able to pick up KSDS even past Oceanside! I called General Manager Ken Poston and he said that for the first time, he listened in his car crystal clear on his driveway in Escondido, San Diego's extreme north east county.

I called Wheatstone, and they confirmed that they had some software that they had written for the X3 that practically destroys multipath. I should say so.

After a week with the X3 on the air, I switched to the competitor's processor and drove the same route to L.A. As predicated from past drives, at Oceanside our audio was completely gone. The GM called me and told me that he couldn't pick up the station well in his driveway either. The weird thing is that to achieve the same loudness as I had with the X3, I had to drive the competitor's box harder, and compress more.

The amazing thing is that the Wheatstone AirAura X3 was \$1,000 cheaper, and fixed KSDS' multipath issues.

KSDS sounds great, has a great signal and it is all because of the AirAura X3. I have never in my many years in broadcasting been so impressed with a processor. With a price of around \$12,000 fully loaded with all the HD options, and the amazing multipath fighting software, this is a bargain.

The amazing thing is that at Wheatstone they have in the audio lab one of every model of audio processor ever made. They listen to the old and new when building these boxes, but unlike other companies they are feeding them into excitors, and listening on tuners as listeners would. I am hypercritical when it comes to broadcast gear. I love the overbuilt RCA gear, and that's what I expect from any broadcasting gear.

The Air Aura X3 is the best processor on the market for any size market. If you have multipath, try the X3. If you want loud and clean, try the X3. The X3 will make a remarkable difference in your station. I don't normally preach about a product; but after the drastic change it made for KSDS, I was astonished.

For information, contact Jay Tyler at Wheatstone in North Carolina at (252) 638-7000 or visit www.wheatstone.com. debar

TECHUPDATE

DEVA DB6400 FEATURES FLEXIBILITY

DEVA Broadcast, manufacturer of monitoring, RDS encoding and IP audio equipment, has expanded its range of products with a line of FM/HD broadcast sound processors.



According to the company, the DB6400 is a compact FM/HD Radio processor that includes numerous functions. It incorporates an RDS/RBDS encoder, a backup audio player and HD Radio diversity delay, as well as SNMP management, BS-412 and a web interface.

DEVA says thanks to the DB6400's wideband AGC input control, a four-band EQ with DJ bass boost and a brilliance enhancer, the unit allows for flexible operation and varied sound potential.

Dynamic control is achieved via four-band processing plus four-band limiting. The key points for all dynamic stages are adjustable frequencies, fidelity control and sound impact, while the FM limiter offers advanced distortion control for optimal loudness, adds the firm.

The model is also available in a more limited and economical version, the DB64-FM.

For information, contact DEVA Broadcast in Bulgaria at +359-56-820-027 or visit www.devabroadcast.com.

WHEATSTONE EXPLAINS ITS MULTIPATH MITIGATION SOFTWARE

Wheatstone's Mike Erickson explains:

The multipath mitigation software is located in the back end of the processing just before the composite domain. It monitors the overall L-R signal before it heads to the stereo generator. Based on the user settings, it can tactfully reduce stereo separation on cuts that have excessive L-R information. This provides a more predictable signal to the receiver and helps mitigate aggressive blending.

This smart algorithm is available in all Wheatstone processors currently on the market. Another aid to reception issues (especially in extreme competitive situations) is a composite processor that allows users to switch between clipping and look ahead limiting. If users are in a region that has multipath issues and up against high-octane audio, switching from composite clipping to the look ahead limiter option can help reduce the choppy, clippy audio that is a hallmark of processors that only rely on composite clipping.

TECHUPDATES

WORLDCAST ADDS PROCESSING EXPERTISE TO ECRESO FM TRANSMITTERS

WorldCast Systems is rolling its audio processing know-how into the Egreso range of FM transmitters as a software feature.

The latest software version of the Egreso range will feature a digital, multiband sound processor with two levels of processing available. The wideband version features a gated AGC, an improved FM limiter and an MPX power limiter while the multiband version offers a full processing chain that also adds stereo enhancement, five-band processing, five-band limiters, HF and final limiters.

This new software audio processor is fully digital and hosted within the direct-to-frequency digital modulator of the Egreso FM transmitter range. The company says this approach ensures the reliability and signal quality of the new processor. In terms of audio quality, the signal is processed from audio to RF in a single digital step which leads to a significant increase in quality.

The audio processor is supplied with presets for many formats and requirements, ranging from maximum transparency to high loudness and including several "sonic signature" settings. Control is integrated with the web interface of the Egreso transmitter and designed to ensure ease of adjustment as well as advanced fine-tuning when required. VU meters show the status of the multiband processor chain at each stage and in real time.

Also included in the software update is a scheduler function which, when applied to the audio processor, enables the user to schedule specific audio preset changes depending on date and time. This feature also enables any transmitter setting to be scheduled, from program sources to RF power enabling electricity savings during off-peak listening hours.

For information, contact WorldCast Systems in Florida at (305) 249-3110 or visit www.worldcastsystems.com.



INOVONICS LAUNCHES NOVIA AUDIO PROCESSOR LINE

The Inovonics Novia series is described as a compact and economical solution for a host of broadcast audio processing requirements, including FM stereo, AM and stereo utility processing.

The DSP-based three-band processors offer intuitive, menu-driven setup, with IP interface for remote web access. IP connectivity provides local and email alarms and support for SNMP.



The Novia 272 gives the FM broadcaster comprehensive program and audio air chain processing. It includes a stereo-multiplex generator and a full-function dynamic RDS/RBDS radio data encoder (compatible with most automation systems); analog and AES digital streaming in; MPX/streaming out; 10 factory and 10 custom presets; adaptable HF limiting and variable composite processing.

The Novia 262 is a dual-mode device that makes a great utility processor placed ahead of STL and codecs. The FM mode provides comprehensive program audio air chain processing when multiplex encoding is built into the exciter/transmitter. Equally at home in the studio, the flat mode serves a variety of general production-studio audio conditioning needs. Features include analog and AES digital streaming in; MPX/streaming out; 10 factory and 10 custom presets; selectable 20 kHz-wideband and FM-specific processing.

The Novia 236 is tailored for medium-wave monaural AM broadcasting. It combines the functions of slow, gain-riding AGC, "syllabic" consistency leveling, four stages of parametric EQ, three bands of dynamic range compression with variable crossovers, brick wall bandwidth restriction and a final no-splatter peak controller that supports asymmetrical carrier modulation.

Features include analog and AES digital streaming in; MPX/streaming out; 10 factory and 10 custom presets; selectable U.S. and international cutoff filters; and asymmetrical final limiting. It is NRSC-compliant.

For information, contact Inovonics in California at (831) 458-0552 or visit www.inovonicsbroadcast.com.

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BUYER'S GUIDE

Omnia.11 Opens Up "The Fish"

G-Force plug-ins extend processor power for Atlanta station

USERREPORTBY **CJ JACKSON**Director of Engineering
Salem Media Group Atlanta

ATLANTA — When I joined Salem Atlanta, I installed an Omnia.6 on WFSH(FM)/104.7 The Fish. It gave us great service over the years and is still a backup, but when I heard the Omnia.11, I knew that this was a big step up and I had to have one.

We deployed an Omnia.11 on The Fish, and suddenly we were on another planet in terms of sonic improvement. It made the station jump out of the dial even greater than the Omnia.6 did, which is saying something. Not only did we not lose any clarity and definition with the loudness boost of the Omnia.11, but we improved our overall sonic integrity. It was easy to set up, and the presets were designed so that I could choose one that got me 95 percent of the way there; then I sat in the car with the remote access and eventually tweaked it right where I wanted it.

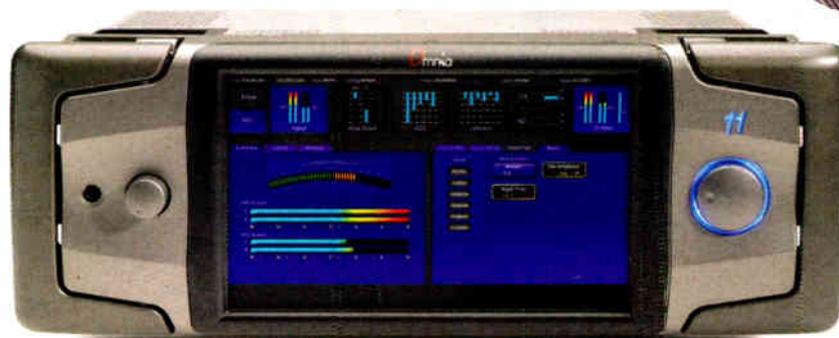
PLUGGED IN

Now along comes the Omnia.11

G-Force plug-in.

Let me describe my reaction when I switched the Omnia.11 over to G-Force. There are two holy grails so far in my life in the broadcast audio processing realm. The first was many years ago

that I liked and just listened for about an hour and was blown away. G-Force has something in there that I have never had, dynamic equalizers that allow me to



when I heard the Gregg Labs Black Box, not a mass-produced product but a sort of underground unit known mostly by word of mouth. The second holy grail so far was when I rebooted the Omnia.11 and it came up in G-Force mode.

G-Force made it like I'd just fired up a brand new audio processor that was way above the original Omnia.11, which was already outstanding. It was the difference between night and day. I picked a preset

set a signature station sound without overusing the processing. It's like you have a little guy sitting inside the processor constantly adjusting the EQ to maintain your signature sound without overusing processing or limiting. That is a huge plus with Omnia G-Force, a nice feature to have when you program heavily to female demos and want long TSL times. If your audio sounds fatiguing, your TSL absolutely will suffer.



I added the Perfect Declipper plug-in, which works in conjunction with Omnia.11 G-Force, and immediately noticed that some of the songs that we play that are already insanely clipped were opened up. I could hear snare drum hits that I had never heard. Mike Blakemore, the 104.7 The Fish program director, was blown away.

One of my "go-tos" is to put on the Switchfoot song called "Stars," which is heavily processed right off the CD, but when you run it through G-Force with the Perfect Declipper it opens the song up again. Christian contemporary music is the hardest music format that I've had to process in my career because the source material is so diverse. And to ask a processor to assimilate that into your station's signature sound is a pretty tall order. I can recommend to anyone who has an original Omnia.11 to spend roughly one-tenth of the cost of a new, high-end processor and invest in the G-Force and Perfect Declipper plug-ins to experience the dramatic improvements for yourself. You can even try before you buy with the free G-Force demo that is embedded within the current, free software update (v3.0).

For information, contact Dave Collins at Omnia Audio in Ohio at (216) 241-7225 or visit www.telosalliance.com.

TECHUPDATES

SOUND4 PROCESSOR RANGE AIMS FOR EFFICIENCY

Sound4 Impact, Sound4 Pulse and Sound4 First are new FM/HD audio processors from Sound4.

From the company's two-band unit to its six-band processor, the Sound4 product line features non-PC-based in-house-designed hardware, an advanced emergency player, diversity delay, RDS/RBDS UECP-compatible encoder, audio IP codec and six independent internet streaming encoders.



The Sound4 range offers HLS streaming, audio patch points for watermark (PPM) insertion and BS-412-compliance. The units also feature a number of I/O options, including two stereo analog, two digital AES/EBU, two AES67/Livewire, two IP codec, two MPX outputs and two SUB inputs.

Sound4 processors fit into a 1RU configuration, can be booted in three seconds and have dual redundant power supplies.

The price range for its three processors runs from \$2,400 to \$5,600.

For information, contact Sound4 in France at +33-4-13-41-55-40; sales@sound4.biz or visit www.sound4.biz.

DM BROADCAST VIBE OFFERS VERSATILITY

DM Broadcast highlights its Vibe audio processor with an integrated MPX and RDS encoder.

The three- or six-band Vibe processor is fed by a wideband AGC, while DSP manages the audio processing and RDS/MPX encoding. The system, which DM Broadcast says out gives a radio station a natural and clear sound, allows users to implement new functions and upgrades through software updates.

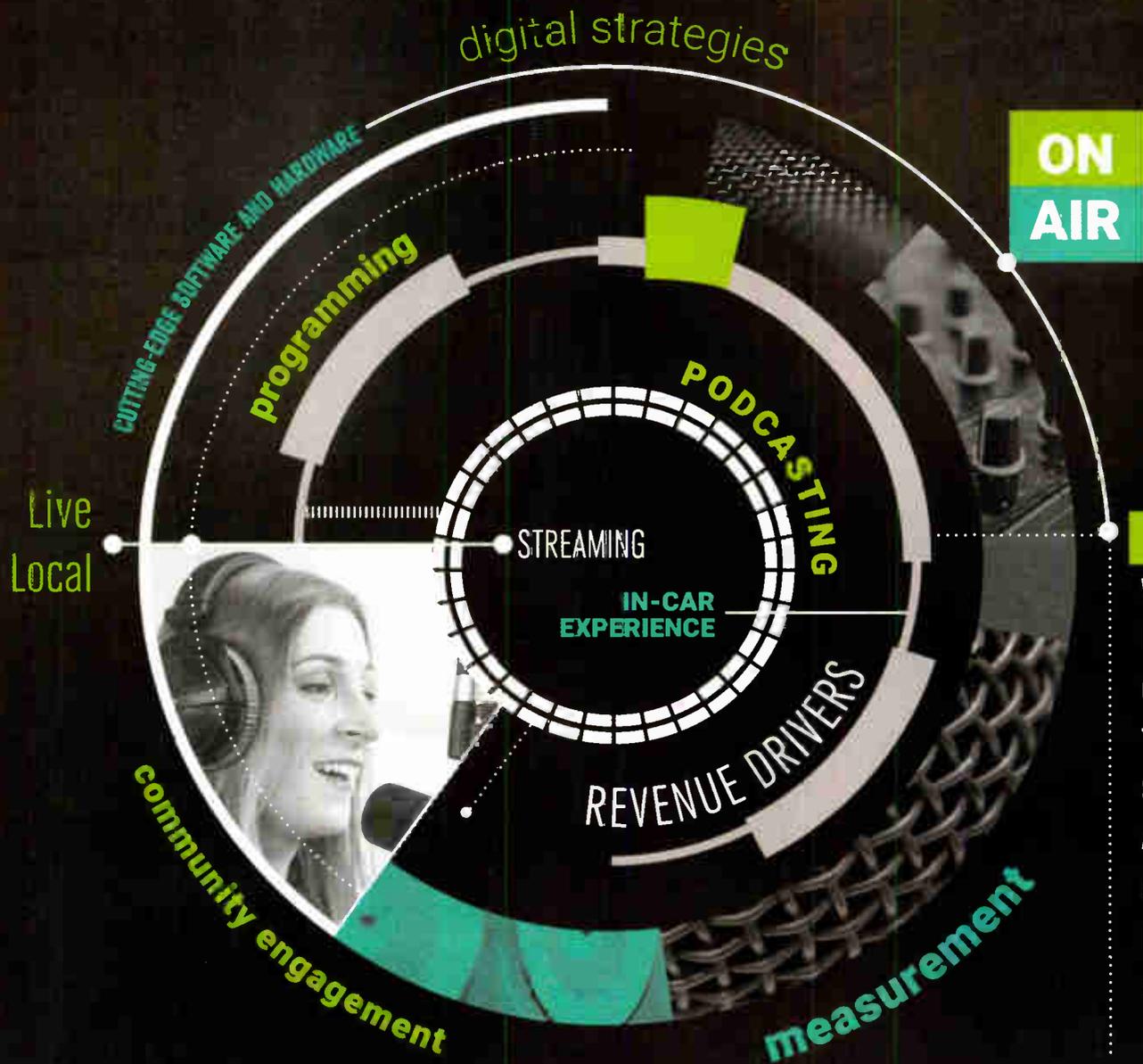


In addition, an optional Ethernet streaming card lets users play MP3/AAC+ streams and files. It forms a complete stream to the MPX and RDS receiver for use as a spare audio source or STL network. In this configuration, the audio signal coming from the network is processed by the DSP and converted to analog through the MPX output, thus creating an entirely digital processing chain.

For information, contact DM Broadcast in Italy +39-051-817657 or visit www.dmbroadcast.it.

ABOUT BUYER'S GUIDE

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



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TECHUPDATES**BW BROADCAST SHIPS
DSPXMINI ENCORE PROCESSOR**

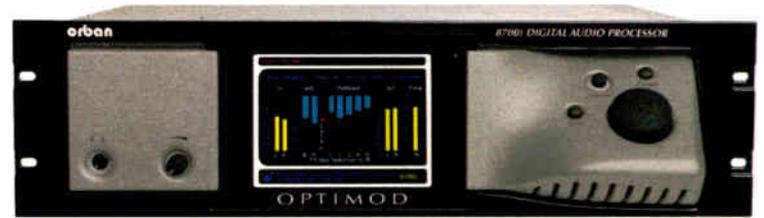
BW Broadcast announced that its first DSPXmini Encore audio processor units are in use in various facilities including at radio stations in the United States and Japan.

The company says the DSPXmini Encore audio processor is an evolution from its award-winning DSPXmini ST audio processors. It calls DSPXmini Encore an audio processor for the 21st century. It has a four-band AGC and four-band limiter within for broadcast or webstream processing. With flexible hardware and firmware, users can select between optimized processing for FM, AM and digital radio, including internet radio streams, DAB and HD Radio.



For FM, there's a stereo encoder and RDS generator, for AM — a transmitter EQ section, while for digital broadcasting the lookahead limiter promises users clean, consistent level. There is also BW's Plan B audio backup, remote control and monitoring, factory presets, wide-ranging RMS leveling, stereo generation and peak limiting, HTML, FTP, Telnet, SNMP and RS232 connectivity and a 10-year international warranty.

For information, contact BW Broadcast at (866) 376-1612 or visit www.bwbroadcast.com.

**ORBAN STREAMLINES OPTIMOD-FM
PROCESSORS LINE**

Orban said it has revised its Optimod-FM audio processing product line to incorporate often-requested features into certain products.

The Orban FM processor product line now includes the 5500i, 5700i, 8600Si, 8600 FM/HD and the company's latest flagship product, the Optimod-FM 8700i.

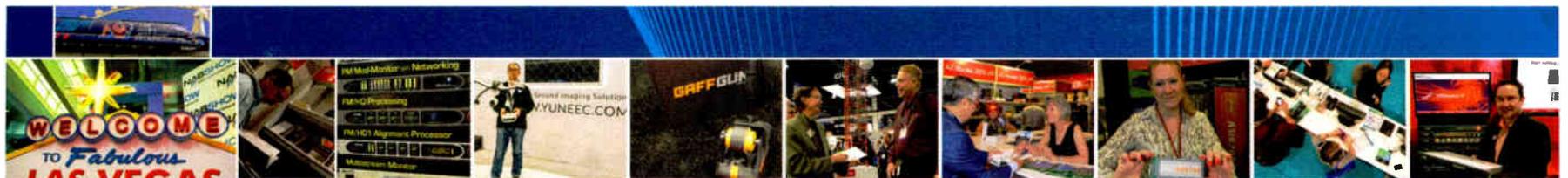
Some notable features of the updated models include a feature-dense RDS/RBDS generator with PS scrolling and dual FM/HD outputs.

The Optimod-FM 8700i (pictured) comes equipped with a specially processed low-latency headphone output, Dante AoIP (AES67) and Orban's Xponential Loudness algorithm.

The 8700i is expected to ship in May.

The company said the current Orban Optimod-FM product line eliminates several older models, based on input from users and dealers, while improving the feature set of the most popular units.

For information, contact Orban in New Jersey at (856) 719-9900 or visit www.orban.com.

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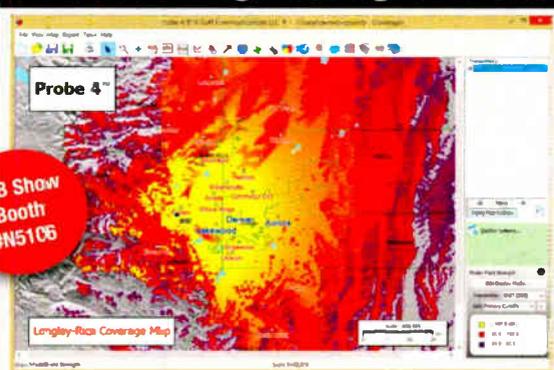
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WYBG 1050, Messina, NY, now off the air is selling: 8-channel Harris/Gates console; 250' tower w/building on 4 acres; collection of very old 78s dating back to 1904; 12' satellite dish on concrete base; prices drastically slashed. 315-287-1753 or 315-528-6040

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

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

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

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5KW	1988	BE FM5A
5 KW	1995	Harris HT5 w/DIGIT
5 KW	1992	BE FM5B
10 KW	1988	BR FM10A, Dual 5
10 KW	2002	Harris Z10CD, solid-state
20 KW	2002	Harris Z20CD, 2x Z10 Combined
21.5 KW	1990	Continental 816R2B, SS IPA
25 KW	1982	Harris FM25K with DIGIT
35 KW	1991	BE FM35B

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Broadcasting Faces a Coming Crisis

Without IT skillsets, broadcast engineers could become irrelevant

COMMENTARY

BY SHERROD MUNDAY

It's nearly that time of year again. You know what I'm talking about; it's time once again for the annual pilgrimage of lots of engineering-type folks and a bunch of their management out to Las Vegas for the next NAB Show. As we prepare for the event this year, we're all no doubt looking forward to drool over the latest new technology, meet up with our old friends and make some new ones as we share war stories and plans to upgrade gear.

It's no secret that broadcasting faces a growing list of competitors:

- Pandora-type services
- Digital downloads
- Streaming video-on-demand OTT providers like Netflix and Hulu
- Government regulations
- Generational shifts to social media sources of news and entertainment

Like a furtive figure lurking in shadowy dark streets, though, is a threat sometimes mentioned among engineers, but often overlooked by broadcast management. While industry pundits, NAB

you make money if your transmitter is down and you don't have someone to fix it? Can your station warn the public of an emergency when the newfangled IP-based STL (which a consultant said would save the company a bunch of money) starts dropping Ethernet packets and your engineer doesn't know how to fix it — or even where to start looking?

A DAUNTING TRIFECTA

The coming crisis in broadcasting is a daunting trifecta:

1. Current engineers lacking skills to work with modern IP-centric broadcasting infrastructure
2. Older engineers approaching retirement
3. Lack of qualified younger people interested in entering broadcast engineering

For all the benefits that the internet protocol offers to broadcasters, it requires a new set of knowledge and troubleshooting skills that many legacy broadcast engineers don't historically hold.

Those skills can make employees more valuable — if they master them. But some really great broadcast engineers just can't grasp the new technologies or learn them fast enough (or find enough



Sherrod Munday

come in and take us off the air by asserting their ownership and management rights over anything that talks IP?

It's time everyone realizes that all broadcast engineering positions should — and already do — require hybridized skill sets encompassing both conventional engineering and IT practices, and that those two departments must overlap greatly.

RETIRING RESOURCES

An important characteristic of the threat sneaking up on us is that we're losing more and more valuable engineers to retirement. It's likely that most of the current engineers who will attend this year's NAB Show probably know at least one engineer who soon plans to retire, and more who have. One engineer spoke last year of an SBE meeting where nearly every single member present was planning to retire within the next decade. Another national radio network's engineer mentioned that several of their senior engineers would likely retire within the next few years. The stories like this are plentiful.

But the real problem with retirements is that nobody is stepping up to replace the outgoing engineers, and they often don't have anyone to mentor in their waning years.

Let's be honest: Broadcast engineering just doesn't hold the glamour it used to before the explosion of technology over the past two decades. Computers, programming, IT jobs, etc. are now "all the rage" among high schoolers and college graduates. Oh, sure, there are some young people interested in broadcasting — but

when they find out how much it pays vs. the starting salary for other technical jobs like computer programming, broadcasting often doesn't stand a chance.

THE BOTTOM LINE

We shouldn't see so many job listings soliciting an experienced engineer to maintain multiple stations for a paltry \$30,000 to \$40,000 salary. Aren't the stations' annual revenues worth more than that? How much is your downtime worth per hour? Or per minute? Can you really afford to not have a highly trained engineering team to keep your stations on the air?

As with any job in any business, hiring for increased skillsets, training and retaining highly qualified employees will obviously cost more money. But the coming crisis of high numbers of retiring broadcast engineers and low interest among qualified potential replacements leaves little alternative but to take a long, serious look at compensations attractive enough to bring new talent into the industry and retain key employees who may already possess the requisite skills.

Additionally, it's critical that broadcast management recognize that it will also cost them to keep their engineering staff learning throughout their career. Yes, engineers should be personally motivated to acquire new skills to stay relevant, but management shouldn't hesitate to pay for training that will directly benefit their operations and help keep the facility technically updated.

Realize that training isn't just an expense. It's an investment — both in the employee (who will surely be grateful for the training) and for the company (which gets the tangible benefit of keeping the facility on the air). If your station doesn't have a regular recurring budget line item for continuing education and encourage it, add one. It will prove to be worth its weight many times over in the long run.

It may sound like a cliché, but it can't be denied: The future of broadcasting depends on you making these changes, whether you're an engineer or in station management. It's time to make changes, together.

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

Sherrod Munday is vice president of engineering for Sky Angel, a three-channel TV network found on Dish Network. His experience includes full-time and consulting services in television and radio, delivering live and preproduced content over the airwaves, building syndicated satellite networks and broadcasting to viewers/listeners over the Internet. Reach him at smunday@ieec.org.

Don't expect your IT department or millennial office IT "dude" to provide the solution to this problem.

panelists and public prognosticators debate what to do about external threats, they often miss the single biggest internal weakness and its effects, to which any career broadcast engineer will attest.

WEAKNESS WITHIN

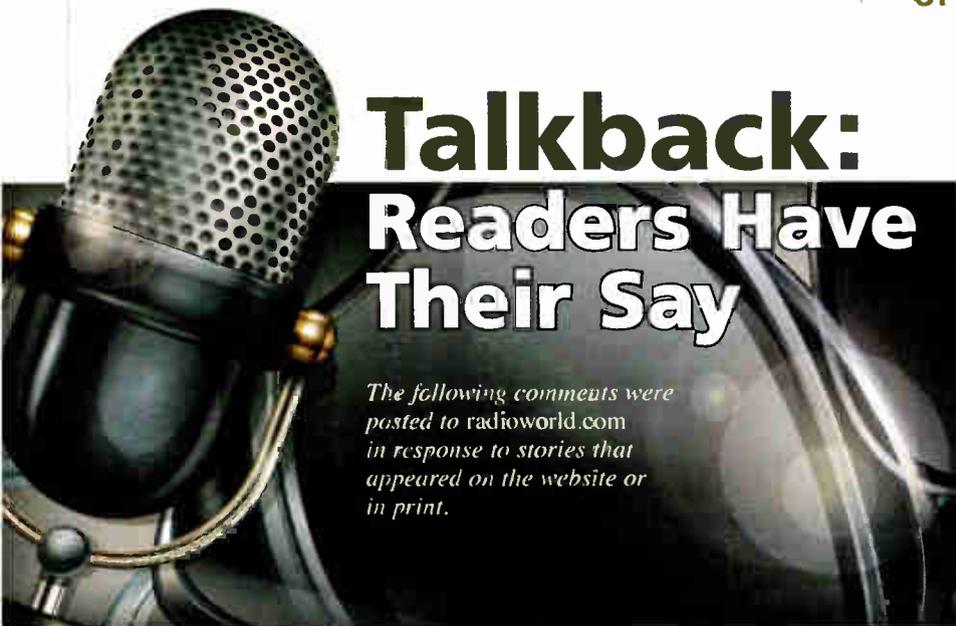
That shadowy figure is sneaking up on the industry, often recognizable by three characteristics: He seems to know how to design and fix anything. He's getting older. And he doesn't seem to have many peers or apprentices.

Who is he? He's the disappearing engineer.

Consider: Without someone who knows current broadcast technology, can your operation compete successfully and stay up to date into the future? Can

time) to keep up. Worse yet, some engineers simply don't want to learn anything new and would rather instead just relive their analog glory days (while loudly proclaiming analog's virtues and dismissing anything digital).

Don't expect your IT department or millennial office IT "dude" to provide the solution to this problem, though. How many of us have heard IT personnel emphatically state that they aren't going to support computers or anything else that pertains to on-air broadcast equipment? Does your IT department try to handle the always-on 24x7 broadcast department's on-air IT needs just like a normal office worker's complaint about a flaky mouse ("put in a work order!")? Or worse yet, how many of us have had an arrogant and completely ignorant IT department



Talkback: Readers Have Their Say

The following comments were posted to radioworld.com in response to stories that appeared on the website or in print.

istockphoto/creator76

In response to "International Crystal Will Close" (Radio World online, March 13)

There are at least some of us working with microwave and millimeter-wave amateur radio frequencies. Doing weak-signal work (CW/SSB) requires local oscillators that are accurate, stable and low phase-noise. Original crystal frequencies can be multiplied over 800X. Any instabilities, inaccuracies and phase noise are also multiplied. A phase-locked crystal oscillator in a good low-noise circuit far surpasses any synthesized LO in all these regards.

It is true that ICM will be missed, but if there is a market, someone will step up. As far as broadcast is concerned, a Mom-'n'-Pop cottage industry might just be the thing.



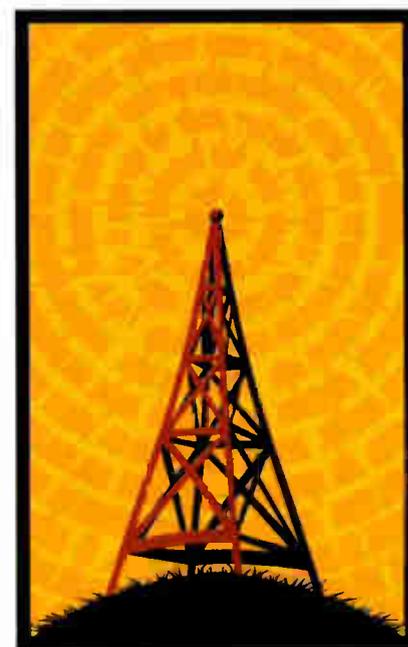
There will always be a need for cut-to-order quartz crystals. Something has to go in those increasingly precise TCXOs and OCXOs needed out there. Special designs and special applications will need special frequency crystals. You can't do everything with a synthesizer, and indeed, the phase noise of a crystal oscillator/multiplier chain is generally better than all but the best synthesizers.

The loss of ICM is a terrible loss to small-market radio and will likely have a terrible effect on them.

In response to "Media Bureau Says AM Rule Change Will Be Effective April 10" (Radio World online, March 20)

AM radio will be FM radio. I know: FCC says you can't just turn off your AM and use the translator, but AM will die if enough folks turn to FM translators. My first station had 500 watts at 1590. Thank goodness, though, ground conductivity was so great, I really had great coverage.

How about the FCC revitalizes the AM broadcast band by rolling back the last three decades of regulation, which hamstrung AM broadcasters? Require, as a condition of license renewal, that stations adopt DRM. Give daytime-



istackphoto

only AM stations a meaningful nighttime signal, perhaps 10 percent of the daytime power? I know that this will increase interference to the clear channel stations outside of their cities of license, but there is little locally produced programming available on the AM band anyway outside of the local news or high school sports.

My FM translators have dead spots due to mountains and multipath. My AM goes everywhere, into every valley and mountain peak in the Inland Empire of southern California.

I'm glad to see AMs get to have translators, especially in small towns without an FM there to serve the community.

My AM stations always did better on listenership, as I was so local on the AM. So many AMs are automated, etc., so why listen; you might as well have satellite radio, which I do, now that so many AM stations are syndicated talk or satellite-fed. If the local station is not local, might as well hear music without commercials.

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