



RADIO WORLD

MAY 8, 2013 | The News Source for Radio Managers and Engineers | \$2.50 | RADIOWORLD.COM

INSIDE

VA-VA-VU(M)

• Oliver Berliner recounts the history of the 'vu' meter, John Miller's ingenious invention. — Page 16



SPOTLIGHT ON THE MIC

• 'Teen Day' radio program encourages budding broadcasters. — Page 22



MORE THAN A HOBBY

• Reaction from LPFM broadcasters to 'FM Translator Roulette Begins,' Reader's Forum. — Page 36

Radio Ponders Its Tech Future

NAB Show themes include integration of content, and data on a display

BY LESLIE STIMSON

LAS VEGAS — The future of radio in the dashboard. The appearance of program content descriptions on various receivers. The outlook for AM radio. These are big topics in the industry, and they certainly were as well in the sessions, exhibit floor and hallway buzz at the 2013 NAB Show.

The show came as the FCC faces a big change at the top. Meanwhile, so-called "sequestration" budget cuts left many commission staffers, and all FEMA personnel, who'd planned to attend at home.

Here are selected highlights; future issues will feature further in-depth analysis of show themes.

FM TRANSLATORS A-GO-GO

More than 1,000 pending FM translator applications from the Auction 83
(continued on page 8)



Radio's involvement in platforms old and new was a theme of discussions at the NAB Show. The outlook for AM radio was another.

All-Digital AM Signal Called 'Solid' in Testing

Early results favorable; participants emphasize that work is preliminary

More details emerged about the all-digital field tests at CBS Radio station WBCN(AM), Charlotte, N.C.

NAB Senior Director of Advanced Engineering David Layer said "solid" all-digital coverage was received, on average, out to about 40 miles daytime and 11 miles nighttime.

"It doesn't matter which all-digital recording you've got. They all sound exactly the same. It's clear to me after

this test it doesn't matter where you take the all-digital recording. It's a noise-free signal," he said during a session at the NAB Show, emphasizing that the results should be considered preliminary.

FCC Commissioner Ajit Pai said in a separate session he was able to listen to a test recording and that the all-digital AM audio "was incredible."

(continued on page 12)

#BXNN7QJ *****AUTO**SCH 3-DIGIT 856
#0009883 1# KDW 0009883 81303
TOM MILLER
ASSISTANT CHIEF ENGINEER
KOHN
2033 S AUGUSTA BL
TUCSON AZ 85710-7905
P0002

Big where it counts, baby.

New DESQ AoIP console. Just \$4,990.
From Axia, of course.



VORSIS

ULTRA HIGH RESOLUTION PROCESSING



it always starts out as music...

only Wheatstone makes
sure it ends up that way.



Wheatstone

AIRAURA X3 PROCESSING LIKE YOU'VE NEVER HEARD

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

World Radio History

Analog 'Sunset' Grabs AM Debate

It was one of several suggestions made in Vegas; another is a receiver mandate

BY LESLIE STIMSON

The mention of an AM analog "sunset" in favor of an all-digital sunrise in the United States received quite a reaction at the spring NAB Show.

At least one HD Radio proponent thinks a "date certain" to go all-digital would help AM broadcasters; and the option of someday going all-digital has been implicit in the hybrid design of HD Radio from its start.

But serious discussion of such an outcome is new, and it comes as industry leaders seem serious about broad questions of AM's survival. The idea of all-digital AM is provocative, even without the addition of a mandate, as implied in the phrase "analog sunset." Several engineers told RW at the show that they believe an all-digital solution won't work and/or cannot imagine stations actually turning off their analog signals, voluntarily or otherwise.



Photo by Jim Peck

FCC Commissioner Pai, standing, moderated a session on ideas to revitalize AM. Panelists, from left, are John Garziglia of Womble Carlyle; Glynn Walden of CBS Radio; Ben Downs of Bryan Broadcasting; Melodie Virtue of Garvey Schubert Barer; and Diane Warren of BounceOlogy.

**Get off your can
and check out
BSW's codec sale!**



Commissioner Ajit Pai moderated a panel at which participants debated possible steps to help AM operators. These include an across-the-board power increase; expanding AM use of FM translators; eliminating skywave protection; and establishing all-digital transmission, among others.

'BIG FAN'

The fact that an FCC commissioner moderated the panel was a first, according to NAB.

Pai described himself as a "big fan of AM radio" since growing up in Parsons, Kan. In Washington, he said, sports station WTEM(AM) on 980 kHz is one of his favorites; and he recently sat in on a taping of "The Tony Kornheiser Show."

"It's high time we revisited the AM rules. You know as well as I do that AM still matters," said Pai, to thunderous applause.

Womble Carlyle attorney John Garziglia recited a litany of items that

contribute to a rising noise floor for AM, such as "dirty" light bulbs and computers, as well as the plethora of electronics now found in a car dashboard.

But CBS Radio Senior Vice President of Engineering Glynn Walden made the most dramatic suggestion. He said many suggested solutions "nibble around the edges" without getting to the root, which he described thus: "The AM band is a hostile environment."

"It's time for the FCC to declare an analog sunset" and for radio to move to an all-digital service, Walden said. The so-called "hybrid" mode currently authorized for HD Radio, in which analog and digital signals share the same licensed channels, was not meant to be permanent, he said.

Walden — considered one of the fathers of IBOC and HD Radio — said an all-digital mode for AM can be noise-free.

As RW has reported, NAB Labs, iBiquity Digital, Harris and Kintronic Labs recently participated in all-digital testing of the HD Radio transmission system on

a CBS Radio expanded-band station in Charlotte, N.C. Preliminary results look promising, according to participants, though more testing is needed to validate the results. (See story, page 1.)

Walden observed some of the testing and said all-digital AM audio, if not perfect, was impressive.

FURTHER TESTS

NAB Executive Vice President/Chief Technology Officer Kevin Gage told RW that participants are still working on a further all-digital AM test plan. The next test will involve more stations, across the whole AM band, as we've reported.

Several panelists agreed that any move to all-digital should be accompanied by a government mandate that manufacturers include good-quality AM tuners in receivers as well as an HD Radio component in all radios. Reactions afterward ranged from, "The FCC will let the marketplace decide" to engineers

(continued on page 5)

broadcast gear from people you trust



**Lowest Prices and
Largest Inventory on
EVERYTHING
For Broadcast**



Screamin' Streamin'

This professional IP Audio codec is great for streaming, STL applications, general audio routing and more.

BARIX EXSTREAMER 500 **Just \$595!**



**Guaranteed
ACCESS**

This acclaimed IP codec is the perfect field remote for places you just can't get to with a rack of gear.

- Convenient handheld operation
- Built-in Ethernet port; two USB ports
- MPEG-4 and AAC algorithms included

ACCESS-2USB List \$3,800.00

Only \$3,495!



Power Pack



Get the legendary Electro-Voice RE20 and must-have accessories at a price that looks like a typo!

RE20PKG List \$1,021.00 **Only \$549!**

**BSWUSA.COM
800-426-8434**

Spring Show Sets Tone for the Year

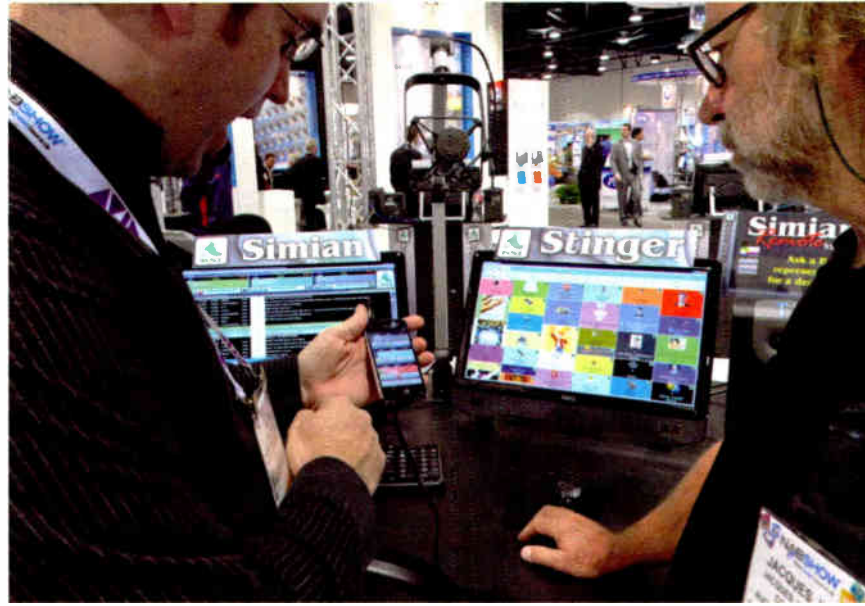
A few things that struck me during the NAB Show this year

Thoughts and impressions from the NAB Show, complementing our coverage in this and coming issues:

Will AM radio go **all-digital** any time soon? That question seemed to take a big step forward, though the possibility of doing so has always been part of the HD Radio model; **Glynn Walden** talked with me about this a decade or more ago. But his remarks at this convention about an analog sunset were notable because industry leadership is asking about big ideas right now. Dramatic change seems more plausible than in the past.

I think the all-digital option is worth at least serious debate — we need to ask ourselves where AM will be in 10 or even five years, and how to get there — but one leading director of engineering told me over breakfast that the costs of an all-digital transition make such a change highly unlikely. **“That’s not what owners are focused on.”**

Nevertheless, the mood for AM action of some kind was evident in the session room where Commissioner **Ajit Pai** led discussion (and cemented his standing as radio’s favorite commis-



Alex Roy, left, of Broadcast Software International demos the Simian iPhone remote for Jacques Jean Canot, a consultant with Audio Video Solutions.

sioner since James Quello).

As usual the engineering team at the NAB put together an outstanding series of sessions. I wish more engineers could get to this show. I commend com-

panies that support staff in attending. Unfortunately not all do (for a recent blog post about an extreme example, visit radioworld.com and type “kidding me” into the search field). ...

FROM THE EDITOR



Paul McLane

I enjoy seeing good manufacturers do well; a vibrant equipment marketplace is important for all of us. Numerous examples jumped out on the exhibit floor.

Inovonics has been perky lately, introducing four new products including an Internet radio monitor. **Nautel** has given off a strong vibe for several years now and made news with a new TV line as well as a partnership with **Omnia** to create a digital composite interface from Omnia processors to Nautel transmitters.

RCS impressed me with its focus on mobile, putting more control of its music selection and automation products into hands of managers with smartphones. **Omnirax** has an intriguing new idea for maximizing office space with its eDesktop furniture series. **Tieline** keeps pushing the codec envelope.

Elenos is fired up about the improvements in its transmitter designs and had one of the more clever displays, playing on the name of its Icefet technology. **Yellowtec** keeps reimagining

(continued on page 12)

Kintronic Laboratories, Inc.

PUT THE INNOVATIVE TEAM AT KINTRONIC LABS TO WORK FOR YOU!

CUSTOM DESIGNS FOR GREAT PERFORMANCE

ENTERCOM DIPLEXED AM DIRECTIONAL ANTENNA SYSTEM, VANCOUVER-WA

CHECK OUT OUR NEW WEBSITE AT

WWW.KINTRONIC.COM

KINTRONIC LABORATORIES, INC
P.O. BOX 845, BRISTOL, TN 37621
PH: 1-423-878-3141
FAX: 1-423-878-4224
WWW.KINTRONIC.COM
kti@kintronic.com

MODEL KSA-VCTB-10 KINSTAR LOW PROFILE ANTENNA ON THE AIR IN COLOMBIA, SOUTH AMERICA

THE HIGHEST EFFICIENCY LOW PROFILE AM ANTENNA AVAILABLE

50KW DA-2 PHASOR, PORTLAND-OR

Model DL-50WP-318EIA Outdoor 75kw AM/MW Dummy Load

THIS ISSUE

MAY 8, 2013

NEWS

- Radio Ponders Its Tech Future 1
 All-Digital AM Signal Called 'Solid'
 in Testing 1
 Analog 'Sunset' Grabs AM Debate 3
 Spring Show Sets Tone for the Year 4
 DPR, iBiquity Are Talking 6
 News Roundup 12

**14****FEATURES**

- Under Pressure: Nitrogen,
 Watch Out 14
 The 'vu' Meter Legacy Shines On 16
 Marketplace 19
 'Teen Day' Turns Young
 Broadcasters Pro 22
 Surprising Stats for Radio DVR Site 26

**26****28****BUYER'S GUIDE**

- Audio-Technica Headset
 Impresses 28

OPINION

- Reader's Forum 36
 I Unfairly Took Aim at LPFM
 Proponents 38

AM REVITALIZATION*(continued from page 3)*

who speculated, "I don't think CEA would allow a receiver mandate" to pass.

Several engineers spoke with Radio World after the panel, and described the concept of analog sunset/digital sunrise as a trial balloon. However one head of engineering for a major radio group, who declined to be identified, agreed with the panelists that a receiver mandate would make the HD Radio transition viable. "Everybody wants a date certain for an analog sunset. We're still fighting amongst ourselves on an HD decision that's already been made."

Another source said he's "had a hard time" believing the FCC will sunset analog AM, which would disenfranchise lots of smaller radio groups and standalones.

One panelist, Ben Downs, vice president and general manager of Bryan Broadcasting, said the noise floor has exceeded AM's ability to overcome impairments. Downs also said that sky-wave protection has outlived its usefulness, and that in order to "protect 47 stations," hundreds of local AMs currently sign off at sundown.

Garvey Schubert Barer attorney Melodie Virtue said one thing the commission could do to help AMs is remove the rule that requires 80 percent of an audience to receive an interference-free nighttime signal.

However, panelists shot down the concept of an across-the-board AM power increase. Walden said this would entail larger transmitters, new transmission line and larger electric bills. "Your air conditioning bill" for the transmitter would also go up by a factor of 10, he

said. "I don't think it's practical."

FCC Audio Division Chief Peter Doyle was cool to the idea of the across-the-board AM power increase as well. In a separate session, he agreed that the technical challenges involved would be "difficult," and he said there could be treaty issues as well, presumably referring to current agreements with regulators and industry in Canada and Mexico.

MORE IDEAS

The idea of moving AMs to spectrum used by analog television Channels 5 and 6 was discussed. One engineering consultant told Radio World that this option remains viable, working around the few TV stations that intend to remain on those channels.

In general, Downs said, AM operators "have done everything we can. The next steps have to come from the FCC."

Allowing more AMs to operate on FM translators, and easing restrictions on existing ones, would also help, several panelists agreed.

The Cromwell Group, a client of John Garziglia's, has a waiver request pending at the commission to move an FM translator farther than is now allowed. The so-called Tell City waiver would allow an AM operator to move an FM translator to the location where it serves the AM station community — as long as it's within the interference contour of the AM station.

Downs supports the concept of easing rules on the use of translators, including the Tell City waiver, saying "allowing AMs to define themselves with an FM translator" solves many of the noise floor issues. If that waiver is granted, Downs said he'd follow up by requesting a "one-

per-customer" FM translator window for AMs.

"We don't have to work with the TV people," he said; radio need not seek AM allocations on Channels 5 and 6. Allowing more AMs to operate on translators "would extend the shelf life for many years for AM stations."

Noting the tough business environment for AM owners, Virtue said two of her clients sent licenses back to the commission in the first quarter because they couldn't make money from the stations. Downs said there are 52 fewer AMs on the FCC's roster than there were in 2009. "Those are the ones who couldn't find a buyer. They just gave the license back to the FCC because that was the only exit they had." There were 4,736 AMs licensed by the FCC at the end of the first quarter.

Another reason the FM translator waiver would be important, said Garziglia, is that advertisers don't believe people listen to AM radio anymore.

"We recognize not all cities will benefit" from the waiver, he said. "We're saying if you can find a translator and need to move it, the FCC can eliminate that barrier."

While automakers have no plans to eliminate radio options in the dash, he said, AM has suffered through their "benign neglect. For years, automakers have looked for ways to get rid of the stick antenna. Now cars are built with composite materials that don't serve as good ground planes for AM reception," he said.

Pai asked broadcasters to continue to send him ideas for helping AM. His call for an improvement initiative sparked the idea for the panel. An aide to Pai said the commissioner "hopes to get something started soon at the FCC."

YOUR ULTIMATE
SUPPLY & SERVICE SOLUTION



From our Facility to yours



Design & Integration



Repairs & On-Site Service Calls



LIGHTNER ELECTRONICS www.lightnerelectronics.com
 Toll Free 1-866-239-3888 Shop online www.broadcastavsales.com

DPR, iBiquity Are Talking

Digital PowerRadio will provide a technology briefing for iBiquity engineers

BY LESLIE STIMSON

Digital PowerRadio's chief inventor, George Washington University professor Dr. Brana Vojcic, will brief iBiquity Digital engineers in Columbia, Md., about his HD Radio receiver chip technology.

That meeting comes after much "he said/she said" drama leading up to and during the NAB Show.

Representatives of the companies met with NAB Executive Vice President/Chief Technology Officer Kevin Gage at the convention. Sources said Gage was trying to figure out what was going on and nudge the parties to talk.

But that, too, caused some observers to ask why NAB was even involved in what appears to be a spat between two companies over whether to do business together.

Indeed, the situation is potentially politically sensitive, given that a former FCC chairman and a member of NAB's executive board are part of the DPR effort.

Subsequently there was another show meeting, without Gage, that included iBiquity President/CEO Bob Struble and General Counsel Al Shuldiner; Digital PowerRadio Chief Inventor Brana Vojcic; its Managing Member Mark Fowler, the former FCC chairman, and his Fowler Radio Group partner Bruce Lederman; and Beasley Broadcast Executive Vice President/Chief Financial Officer Caroline Beasley, who's a member of the NAB Executive Committee. DPR also met



iBiquity Digital's Gereon Joachim with Eduardo Oliveira, center, owner, CACEG Tecnologia, Brazil and another attendee in front of the receiver wall in the tech developer's booth.

with Commissioner Ajit Pai at the show.

Prior to the convention, Digital PowerRadio laid out its case in coverage on the Radio World website. iBiquity then replied with a guest commentary of its own, saying that what DPR is proposing "doesn't offer significant improvement" over the HD Radio system now in the field; DPR replied that it stood by its technology.

iBiquity declined comment about the subsequent discussions between the companies for this story.

Sources close to the situation told me after the show that all sides agreed to tone down the public rhetoric; indeed, I heard the word "statesmanship" used.

"We're trying to address this in a factual way," said one individual close to the discussions, which is good because a few engineers at the show said to me something along the lines of: "They need to get to the bottom of this."

The gist of the dispute: DPR claims its technology, parts of which were developed for the cellular phone industry, will make an HD Radio receiver more sensitive, and extend the coverage of the AM and FM digital signal, whether it's all-digital or in the hybrid mode.

Beasley is an investor in DPR. Fowler previously characterized Beasley to me as a "minority" investor in the technology. He said he invested some of his own money too, after being approached by Vojcic a couple of years ago.

When asked to characterize the size of its investment, Caroline Beasley said the broadcast company was not a majority owner but that it takes "any investment" it makes "seriously." Indeed, the entire Beasley contingent attending the show sat together to hear Vojcic's BEC presentation.

HD COVERAGE

Asked why the broadcaster invested in DPR, Beasley told me: "We would like to see HD Radio coverage improve."

iBiquity President/CEO Bob Struble says he agrees with her, and that the company has been implementing improvements to the digital radio system over time. For example, one of those periodic improvements that automakers were interested in for AM included antenna changes, as well as enhancements with the blend back and forth



between the digital and analog signals, which I've reported.

The company frequently vets ideas to improve the system, both from inside and outside the company, Struble told me earlier. Typically what's proposed is not cost-effective, won't work with its technology or both.

DPR wants iBiquity to release its receiver chip source code to a third party, one of the chipmakers that manufacture HD Radio chips, for testing. Only a limited number of people would handle the code and it would be destroyed after the testing to protect iBiquity's intellectual property, DPR has told me.

Fowler previously told me one chip maker is "very interested" in testing and potentially could get updated HD Radio receiver chips out in 2014. Manufacturers of HD Radio chips include Intel, NXP, Silicon Labs, STMicroelectronics and Texas Instruments.

I asked Vojcic early in the show whether implementing the new chip would make HD Radio receivers in the field obsolete; he said it depended on how the manufacturer implemented the change.

The point of testing would be to validate DPR's claims of coverage improvement and subject them to peer review.

There was no agreement regarding sharing of the source code in April. Several engineers I spoke with don't anticipate that happening.

DPR discussed its technology with the NAB Radio Technology committee earlier in the year and with the National Radio Systems Committee at the show. The standards-setting NRSC is not involved in the dispute.

One source described the upcoming meeting, which will likely happen in May, as a "good first step."

Aspects of the DPR technology were developed previously with the wireless industry in mind; DPR officials believe if not used in digital radio, other industries could be interested in their technology. "We have one major TV group that has approached us. If we can't do a deal here, we have other ways to go," one source told me.

I've heard other radio groups were asked to invest as well. A source close to the talks confirms two other groups were asked and declined to invest.

"They blew us off," said the individual, thinking the groups, whom he declined to name, either didn't understand the DPR technology or didn't want to "deal with it."



YOU MIGHT HAVE Missed
at the **NABSHOW**

Wednesday
May 15
12:00 PM NOON EDT

A FREE WEBINAR
COMING TO A DESKTOP NEAR YOU

TO REGISTER, VISIT:
<http://radioworld.com/webinars/11/>

Brought to you by:









IP • 3G • Wi Fi • 4G • BGAN / VSAT • PSTN • DSL
<ACCESS>
 2USB

COMPLETE REMOTE STUDIO **ON TWO WHEELS**



We are pretty sure this is a first – an open-air moving studio broadcast on two wheels (well, six, technically).



All audio was fed to a Comrex ACCESS Portable, complete with optional mixer, which Dan used to mix the live



Dan Jackson, engineer for 92.9 FM in Perth, Australia was faced with a unique challenge. Breakfast hosts Paul Hogan and Lisa Fernandez would be cycling for hours in strong winds and pouring rain as part of the 92.9 Kids Appeal for Telethon.

The unique solution was to equip Dan's bike as a mobile production facility. The talent wore wireless mics AND in-the-ear monitors which communicated with receivers and transmitters in a rack bag on Dan's bike.



on-air feed as the trio traversed the winding roads of Perth. How did it all work out? Absolutely flawlessly – the show went on without as much as a speed bump!

ACCESS Portable lets you send studio-quality live audio, real time over IP using 3G, 4G, Wi Fi, BGAN/VSAT, PSTN or DSL to make any remote broadcast really stand out. Connect with your audience from anywhere, live, with the easy to use, handheld ACCESS Portable!

comrex.com

19 Pine Road, Devens, MA 01434 USA Tel: 978-784-1776 • Fax: 978-784-1717 • Toll Free: 800-237-1776 • e-mail: info@comrex.com

TELL US HOW YOU USE YOUR ACCESS AND WE'LL POST IT AT OUR ROAD WARRIOR BLOG:

remotes.comrex.com

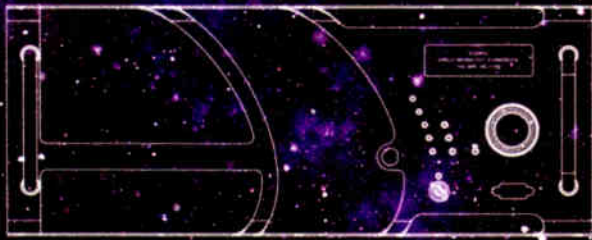
COMREX

ELENOS

World Broadcast Experience

THE FALLEN HUMAN NATURE

NEW SERIES # SMART_TRANSMITTER



SMART #FM TRANSMITTERS FROM 20w to 50.000w

SMART_ New and Advanced features
 REMOTE CONTROL_ Smartphone, tablet and desktop Apps
 ECOSAVING_ Save your money and the environment
 SCALABILITY_ Flexible system growth
 ICEFET_ Very low temperatures
 LIFEXTENDER_ Operate in extreme environmental conditions
 GREEN ENERGY_ Respect for the environment



www.elenos.com

North
America
Headquarters
Europe
Headquarters
Latin
American
Headquarters

ELENOS USA LLC
1315 NW 98th Ct., Suite 9, Miami, FL 33172-2774
T: +1 (855) 3536670 / ussales@elenos.com
ELENOS SRL
Via G. Amendola 9, Poggio Renatico, 44028 Ferrara, Italy
T: +39 053 282 9965 / sales@elenos.com
305 BROADCAST LLC
1315 NW 98th Ct., Suite 10, Miami, FL 33172-2774
T: +1 (305) 406 3560 / sales@305broadcast.com

NAB 2013

(continued from page 1)

window will survive FCC processing, according to experts. And Wilkinson Barker Knauer attorney Peter Oxenford believes that figure is low.

He praised the commission for working to balance the spectrum needs of those who want FM translators as well as non-profits who plan to file for new LPFM licenses.

The FCC has been winnowing the remaining pending FM translator applications, and the agency is "close to announcing a settlement window" for the remaining apps, according to Audio Division Chief Peter Doyle.

consumer today to use various files. But our ability to fix problems in the future, or whatever we might want to do — we might not be able to do in the future."

As Radio World first reported, the FCC wants to extend the online public file requirement to radio. But Lake told Radio World that this won't happen anytime soon. "We just don't have the technical capability."

METADATA, MDCL GUIDELINES READY

Metadata distribution — and how the data displays on devices fed by analog

We talk to car companies. They love radio.

— Paul Jacobs
Jacobs Media and JacApps

Speaking to attendees via Skype, Doyle said the agency is on track to open a window in October for non-commercial entities to apply for LPFMs. The Audio Division hopes to release LPFM applications electronically, with the goal of getting non-profits to begin completing their station applications in June, he said.

And what's next for FCC Commissioner Ajit Pai's call for an AM revitalization initiative? That's "ultimately an 'Eighth Floor' call," according to Doyle. He ticked off regulatory barriers the agency has lifted over the years to help AM owners, like allowing AMs to retransmit their signal on FM translators.

ONLINE PUBLIC FILE PLANS DELAYED

It appears that sequestration will have at least one unexpected effect, delaying a rule change that would affect radio station public files, RW learned.

The across-the-board federal budget cuts went into effect in March. As a result, many FCC personnel who had planned to attend the show had to do so via Skype or phone.

Sequestration also has "greatly reduced" the commission's IT budget, according to Media Bureau Chief Bill Lake, who did attend. He didn't delve into specifics. But asked during a session about the effect of sequestration on the agency's relatively new online television station public file system, Lake said, "It won't affect the ability of the

transmission, HD Radio and Internet streams — was a big topic.

The National Radio Systems Committee adopted a metadata distribution guideline. It contains recommendations for the creation, packaging and delivery of program metadata for receiver displays.

During an engineering session, Alan Jurison said the NRSC-G301 guideline is meant to give stations an easy way to maintain a consistent display of their program information on all types of receivers, from the car to handheld devices.

Jurison is a senior operations engineer for Clear Channel Media + Entertainment's Engineering and Systems Integration Group. He led the NRSC working group for the metadata distribution guideline. KQED Public Radio Director of Engineering Dan Mansergh chairs the NRSC RBDS Subcommittee that adopted the document.

Following the vote, NRSC Chairman Milford Smith told Radio World that the use of metadata is proliferating, and stations need a way of handling it unattended.

Another guideline adopted by the NRSC concerned AM Modulation-Dependent Carrier Level usage.

The AM and FM Analog Broadcasting Subcommittee adopted a guideline that outlines MDCL technologies used by AM stations to reduce electrical power consumption at their facilities. When used carefully, MDCL has little or no impact on the audio quality of AM transmissions, the NRSC says.

(continued on page 10)

SIX REMOTES IN EVERY BOX



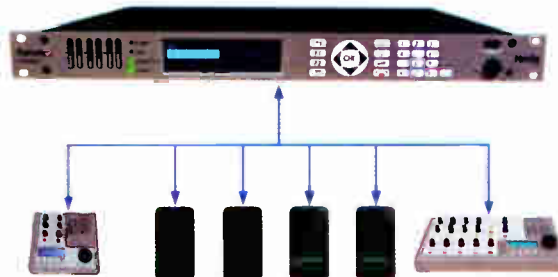
Merlin PLUS



Rapidly expand your remote capability with 6 simultaneous bidirectional mono connections to IP codecs or smartphones using Report-IT, saving money on hardware costs and reducing rack space requirements.

- * SmartStream PLUS dual IP streaming
- * Dual Ethernet ports
- * Dual Power Supplies
- * IPv4/v6 Ready

Merlin PLUS at the studio



6 bidirectional mono remotes

Tieline[®]
The Codec Company

1-317-845-8000

sales@tieline.com

www.tieline.com

NAB 2013

(continued from page 8)

Implementation of MDCL can reduce power consumption by as much as 20 to 40 percent, according to Garvey Schubert Barer.

Hammett & Edison Senior Engineer Stan Salek and Cumulus Broadcasting Senior Vice President/Corporate Director of Engineering & IT Gary Kline co-chair the AFAB subcommittee.

Look for these documents on the NRSC website, www.NRSCstandards.org.

NRSC guidelines aim to help radio broadcasters, equipment manufacturers and receiver makers in the operation and implementation of local AM and FM systems. The Consumer Electronics Association and the National Association of Broadcasters co-sponsor the NRSC.

RAIN ON RADIO TRENDS

How can radio remain relevant in a world in which everyone wants what they want, delivered when they want it, coupled with the open dashboard and near-infinite bandwidth? Radio and Internet Radio Newsletter Publisher Kurt Hanson offered some ideas.

In his annual "State of the Internet Radio Industry" remarks, Hanson pointed to a Netflix trend of releasing all episodes of a video program series at once. He said this is a reminder to both traditional AM/FM as well as Internet radio that they need to step up their game to compete.

Hanson also noted the morphing role of the smartphone, which, for many people, has replaced their camera, alarm clock, voice recorder, address book, calculator and navigation unit.

The Arbitron and Edison Research report's "Infinite Dial" data suggests that weekly use of Internet radio is up to 86 million listeners. It has more than tripled over five years, Hanson said.

Will Apple enter the online radio business, as speculated, with its reported iRadio service? Hanson said if so, that "might be great for all of us." He likened it to a battle of the brands that raises the visibility of the entire product category.

AM and FM radio can maximize its value by being live and local; with an Internet stream, a station is "not constrained by a 90-mile signal anymore," he pointed out. But Hanson cautioned broadcasters not to procrastinate. "If you wait too long, the opportunities are taken."

'CAR COMPANIES LOVE RADIO'

The car is radio's "number one listening location and our number one advertiser," says Jacobs Media and JacApps executive Paul Jacobs.

The automobile is essential to radio, which "is no longer two buttons on the dash. In these big-screen entertainment systems, finding the radio is an option." He spoke at the Radio and Internet Newsletter Summit.

Addressing industry scuttlebutt about whether car-makers would someday leave radio out of the dash, Jacobs said, "We talk to car companies. They love radio." He said radio remains a big part of how auto-makers view the dash going forward. However the industry needs to take a "much more intense view of



Among receivers in iBiquity Digital's booth were these tabletop models. The Best Buy Insignia in the middle shows 'Active Alerts.' The HD Radio technology enables stations to broadcast EAS alerts.

our relationship with the car," paying more attention to the dashboard user interface and ultimately the advertiser interface.

"That's what the car companies want" from the traditional radio industry, Jacobs said.

iBiquity Digital President/CEO Bob Struble said in an interview that the risk for broadcasters is not so much being left out of the dash entirely but "being buried down in some menu." Tuneln Vice President of Business Development Carl Rohling said his service allows listeners to hear 70,000 streamed stations ranging from podcasts to so-called "long-tail" content, but he admitted it hasn't been easy to implement the service into the vehicle.

It's difficult to develop an app for "every car stack," said Entercom Director of Digital Operations Amy Van Hook, noting that the cost for developing one app can range from \$400,000 to more than a million dollars. Entercom's strategy is to have every station branded individually. The broadcaster works with JacApps to get its mobile phone applications in the car and with Triton for data integration.

Time-shifted content in the car is important, said Van Hook. "The DVR has changed consumers' expectations." Further, lifestyles change for individuals as they age from their 20s to 30s and 40s, leading to differences in how much time they have to consume radio and how they want to do that.

IBIQUITY TOUTS HD CAR OFFERINGS

iBiquity Digital is seeing significant growth in digital broadcast services and receiver sales. That growth is especially in auto receivers, because in-car is where most listening takes place and where broadcasters make the most money, Senior Vice President Joe D'Angelo told Radio World.

Some 12 million HD Radio receivers have been sold to date, with 10 million in-car, according to iBiquity. Thirty-three automakers include factory-installed HD Radio technology on 170 models. Eighty models include HD as standard equipment.

Twenty percent of new cars sold in 2012 included

HD Radio, and iBiquity expects that figure to grow.

In addition to digital audio, HD increasingly is used to deliver advanced data services. One of the most notable features is Artist Experience, in which visual elements like album covers are synchronized with digital audio. Over the past year, 10 radio groups — including Clear Channel, CBS, Emmis, Entercom and Greater Media — have worked to implement Artist Experience on their stations for a total of some 450 stations total, according to the technology developer.

HD Digital Traffic Services are launching in more cars; the service is available in JVC and Garmin products, and Toyota, Lexus and Mitsubishi will bring cars to market this year with these features built in.

MITSUBISHI HD RADIO NAV PLATFORM DEMOED

The recently introduced Mitsubishi HD Radio Navigation platform with the Nokia/Broadcast Traffic Consortium Service was displayed for the first time. The BTC comprises 24 broadcasters that provide a nationwide digital broadcast distribution platform for advanced traffic and traveler information service.

The new radio is integrated into the 2014 Mitsubishi Outlander, to be available later this year. The automaker is one of the first OEMs to announce the integration of HD Radio Digital Traffic services; iBiquity Digital Chief Operating Officer Jeff Jury said the tech developer expects more such announcements this year.

With the BTC and Nokia's HD Radio service, drivers will have access to real-time traffic information that extends beyond highways to include smaller roads; the service has the same level of accuracy on traffic speed and time delays due to incidents like as road closures or construction, according to iBiquity. Additionally, Nokia's HD Radio service will include weather reports and fuel prices.

A prototype 2013 Toyota radio featuring Clear Channel Total Traffic Network service was displayed in iBiquity's booth as well.

From Devastation Comes New Opportunity



KWKS will use the station's new Pilot console to create internet radio programming and provide real-world training for high school students in the region.

The Media Center is proud to work alongside Logitek to lead the industry in modern technology and education.
- Grant Neuhold,
KWKS

On May 4, 2007, an EF5 tornado 1.5 miles wide leveled the town of Greensburg, Kansas. More than 95% of the buildings in the city were destroyed in the storm. As they began the arduous process of rebuilding their town, the people of Greensburg decided to build a modern, comprehensive media center to house the city library along with a new radio station and TV instruction studio. Now ready to go on-air, KWKS Media is offering video and audio instruction to regional students along with internet radio content.

Logitek is proud to be part of Greensburg's new media center and congratulates the city on its beautiful restoration and "can-do" spirit.

Logitek Electronic Systems, Inc.
Phone: (713) 664-4470
Toll Free: (800) 231-5870
www.logitekaudio.com

Logitek
Networked Audio Systems

NEWS ROUNDUP

DIELECTRIC: SPX-owned Dielectric Communications is closing, exiting the radio, television and wireless antenna manufacturing business. The company told equipment dealers the decision was made because of difficult global economic conditions in the broadcast marketplace. Dielectric planned to stay open in a limited capacity through June to get last orders completed.

INDECENCY: Public comments on broadcast indecency proposals must be filed with the FCC (GN Docket 13-86) by May 20. The commission said it had cleared about 70 percent of its broadcast indecency complaint backlog. It also asked for comment on whether it should adopt an "egregious cases" policy and how the FCC should treat fleeting expletives.

VERIZON ISDN: Changes to Verizon ISDN services take effect in May. Verizon has offered ISDN Basic Rate Interface service as an overlay on either business lines or Centrex lines. Current ISDN BRI business line subscribers can keep their existing service. However after May 18, Verizon won't allow those customers to add or change their service. After May 18, orders for new ISDN service would be for Centrex ISDN BRI-only.

GALAXY S4: Samsung dropped FM from its Galaxy S4 smartphone. Previous versions had the FM chip enabled. The manufacturer says 100 million unit sales of its Galaxy S smartphone line in less than three years show that the company is addressing what consumers want. The latest device, without FM enabled, is now available for pre-order in the U.S.

ONLINE RETAILERS: The Senate planned to vote on the on the Marketplace Fairness Act on May 6. The bill empowers states to collect taxes for online purchases for buyers who live in those states.



ALL-DIGITAL AM TESTS

(continued from page 1)

For daytime operation, the all-digital signal was solid beyond the 1 mV/m contour, and for nighttime beyond the 5 mV/m contour.

Surprisingly, nighttime performance appeared to be compromised by the presence of co-channel interference, which was not expected on an expanded-band AM station. Layer said the team believes a nearby co-channel station may not have been fully powering down for nighttime operation.

Solid all-digital indoor reception was achieved for daytime and nighttime locations within approximately 13 and 7 miles, respectively, of the transmit antenna site.

WBCN is a 10 kW day/1 kW night non-directional expanded-band station. Its main transmitter is a Harris DX-10 fed by a Harris Dexstar exciter. As Radio World has reported, personnel from NAB, iBiquity Digital, Harris, Kintronic Labs and Meintel, Sgrignoli & Wallace participated in the testing. They drove seven routes during the day and eight at night, in a Ford Focus equipped with a Sync HD Radio receiver. They drove along each route to establish where the digital signal failed.

iBiquity Digital Field Test & Implementation Manager Russ Mundschenk said Layer rented a Ford Edge and followed behind the Focus "so we knew the radio was not impacted by the data collection."

Testers used an Insignia Narrator HD Radio receiver to gather signal strength measurements at 15 indoor locations including steel, wood and masonry construction.

The project team is analyzing the field strength measure-

MCLANE

(continued from page 4)

on-air lights. Sturdy and reliable **Moseley** keeps cranking out fine "station backbone" hardware. **Audion Labs** was in the spotlight again showing a beta of the next VoxPro in the Wheatstone booth.

Speaking of which, **Wheatstone** launched a big TV board but also impressed with a half dozen new radio products include a new L-8 console ("Mini Wheat") and the niftiest talent turrets I've ever seen. ...

I can't help but wonder about the health of the antenna manufacturing marketplace, given that **Dielectric Communications** will shutter. That news emerged after the show, announced by its parent SPX Corp. Dielectric is by no means the only antenna game in town; but this seems a notable loss to the U.S. antenna building sector. I suppose this development could be read as a reflection of the shift in emphasis in our business from big established infrastructure to newer online, streaming and mobile offerings, but I want to hear what others have to say on that. We'll have more on this story and its implications in RW. ...

A positive energy was evident at **Harris Broadcast**, where I sensed general relief and excitement among the radio staff that the sale of the company from Harris Corp. is behind them and they can focus more on their actual business again.

I also am struck each year by the growth in product offerings that can help radio stations create good video. Companies like **Rushworks**, **Orad**, **Comrex** and **NewTek** are among those you should pay attention to if you are ramping up your video content online.

We'll tell you about "Cool Stuff" winners in our next issue, and we will feature many more new products from Las Vegas in our special "Summer of Products" coverage over ensuing issues. ...



NAB's David Layer shared results of all-digital AM indoor and outdoor field-testing.

Photo by Jim Peck

ments and audio recordings obtained during the tests, and said it expects to make this information available to the industry when the analysis is completed.

NAB Labs is also looking for more stations for the next round of tests.

Asked whether HD Radios now in the field could decode the iBiquity all-digital signal, CBS Radio Senior Vice President of Engineering Glynn Walden said yes, except for "pocket-sized radios."

— Leslie Stimson

We've reported on Frank Foti's Excellence in Engineering Award, which he accepted from NAB Wednesday. Out of the spotlight that evening, the Telos Alliance held a touching remembrance for the late **Steve Church**, giving employees and industry colleagues a chance to swap Steve stories. They recalled a man who was curious, passionate and driven. There were a few misty eyes but mostly it was laughs and warm appreciations — along with some killer Church impersonations (winner: **Cornelius Gould**). The party was well done. "Indeed." ...

A member of Radio World's editorial circle received a notable honor in Las Vegas. The **Association of Public Radio Engineers** saluted **Michael LeClair**, chief engineer of WBUR(FM) in Boston and technical editor of Radio World Engineering Extra.

He received the APRE Engineering Achievement Award, given for "outstanding contributions" to the art and science of radio engineering that have made a significant impact on, or improvement in, the state of the public radio industry.

I've had the fortune to work closely with Michael on numerous stories and projects. He's a smart, open-minded, responsible engineer and leader — and a good friend to me and to Radio World.

Other contributors who have received recognition include Cris Alexander, a past recipient of the Broadcast Engineer of the Year Award from the Society of Broadcast Engineers, and John Bisset and Buc Fitch, who have each been saluted in the past as SBE Educator of the Year. Of course, these honors are for work far beyond just their contributions in RW. I'm proud of them just the same.

Michael LeClair is among the presenters in our upcoming webinar "25 Things You Might Have Missed at NAB" on May 15; register for free at <http://radioworld.com/webinars/111>. It's one of the best things we do each year.

If you attended the show and saw a product, session or trend worth noting, write to me at radioworld@nbmedia.com.

IP. It's the new ISDN.

Meet Z/IP ONE: The "Z" stands for Zephyr.



It's the question on everyone's lips: "What comes after ISDN?" The answer: Z/IP ONE, the Telos Zephyr for IP connections. Broadcasters fell in love with the original Zephyr for its rock-solid reliability and superb audio; Z/IP ONE brings those same qualities to IP remotes.

Is IP reliable? TV networks say so - they use it for HD video backhaul. And Z/IP ONE is packed with IP-codec "smarts" to ensure reliability, even over the public Internet. Agile Connection Technology adapts to network conditions, delivering audio quality as good or better than ISDN despite packet loss and jitter. Genuine, high-performance MPEG codecs from Fraunhofer for exceptional fidelity — no lame knock-off codecs. No latency build-up, re-negotiation or fiddly adjustments: Z/IP ONE just works.

There's more: Z/IP ONE incorporates SIP, N/ACIP, and IPv6 standards. The worldwide Z/IP Server connection service helps traverse NAT routers and tricky firewalls. And now, you can do great-sounding handheld remotes using LUCI® LIVE smartphone and tablet apps. All of which makes Z/IP ONE perfect for live remote broadcasts, whether concerts, talk show remotes, off-site talent — even full-time STL links or RPU backhauls.

Experience the convenience and flexibility of IP.
Z/IP ONE: the best way to hear from there.™

High-quality remotes are right in your pocket.
Z/IP ONE now connects to LUCI LIVE smartphone
apps for wideband audio on-the-go.



Under Pressure: Nitrogen, Watch Out

We're all about tips, and there were plenty at the 'IT RF boot camp'

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

Gary and Cindy Cavell of Cavell, Mertz & Associates, Paul Shulins of Greater Media Boston, Mary Ann Seidler of Tieline and I led a day-long RF "boot camp" aimed at IT engineers at the NAB Show.

This was one of many efforts that the SBE and NAB are taking to help educate IT professionals. More than 60 folks showed up to learn the ins and outs of what happens beyond the studio.

Workshops like this remind us of things we may take for granted. Yes, today's equipment is much more reliable, but systems still need to be checked periodically.

So if you haven't scheduled some quality time at your transmitter site in a while, you're probably overdue. Let's start with a subject that was of particular interest to the attendees: focusing on FM and nitrogen pressure on the transmission line.

The pressure gauge, as seen in Fig. 1, can help you avoid disasters. This gauge usually is located at the transmission line input. Monitor it for at least three psi (pounds per square inch) pressure on the line. The nitrogen provides dry, positive pressure to the inside of the transmission line to keep moisture out.

While at the site, check the volume of the nitrogen tank. Full tanks have a

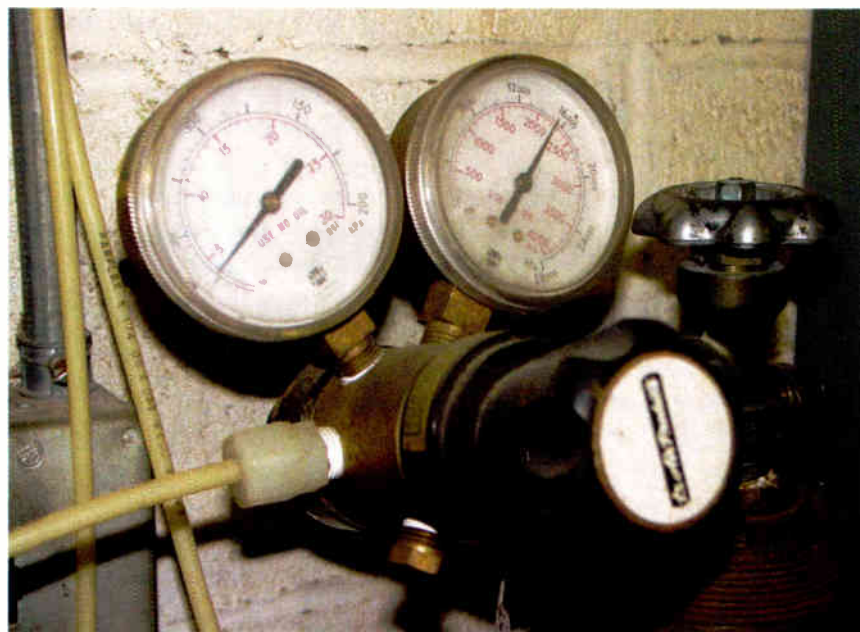


Fig. 1: A typical regulator shows both line pressure and volume.

volume of around 2,200 psi. Log both the pressure and the nitrogen volume; a dropping tank volume will signify a leak in the line. Keep a clipboard with this information right at the tank. Also include the phone number and address of the nitrogen supplier, so you can order replacement tanks easily.

At our boot camp, we discussed tank safety, too, because 2,200 pounds of pressure per square inch is enough to blow a hole through your hand or, if at eye level, blind you ... even kill you.

This is an OSHA requirement. You can find the tank supports online or at a local welding supply shop.

A fire marshal once told me about an unsecured tank that fell. The valve assembly broke off and the tank tumbled into a missile, blasting through two cinder block walls and landing out in a field. You can't be too careful around



Fig. 2: Keep nitrogen tanks capped when not in use.

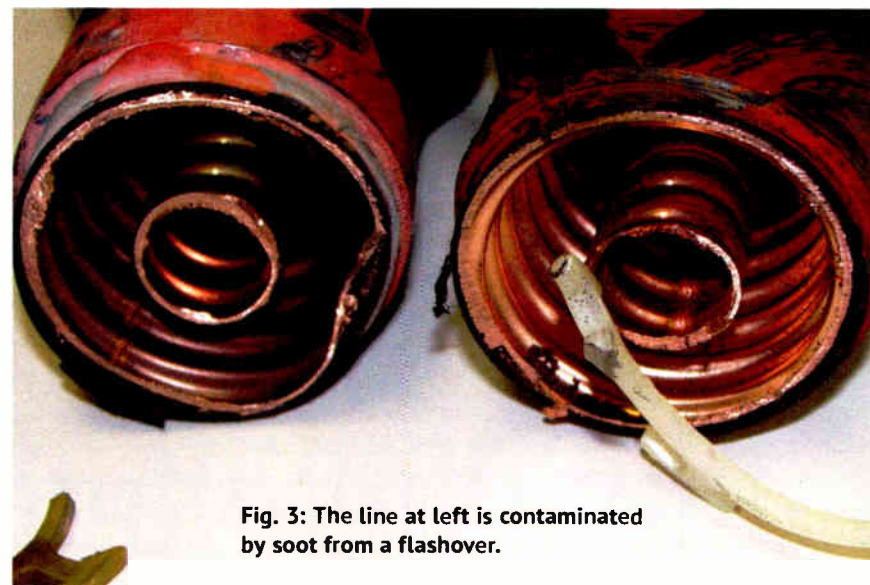


Fig. 3: The line at left is contaminated by soot from a flashover.

Never open a tank without a regulator attached.

Keep the nozzles of unused tanks covered with their metal screw-on covers, pictured in Fig. 2. Make sure tanks are secured against the wall. Chain or commercial tank supports work best.

nitrogen tanks!

If the transmission line is not pressurized and moisture develops inside, VSWR (reflected power) can increase. If the condition is ignored, a costly flashover inside the line can be the result. This usually results in line replacement, as seen in Fig. 3. The situation is not only costly but keeps you off the air until it is repaired.

Some stations may use unpressurized rigid copper line sections of transmission line inside the building. Since the outer conductor is at ground potential, use your hand to feel for any hot spots along the line. Ninety-degree elbows may be warm, but should not be hot.

(continued on page 16)

PRODUCT SPOTLIGHT

ADVERTISEMENT

Audio-Technica BPHS1 Broadcast Stereo Headset



Created especially for on-air news & sports broadcasting, announcing & interviews, this rugged stereo headset offers natural, highly intelligible and focused vocal reproduction, closed-back circumaural ear cups to seal out background noise, and a high-output dynamic microphone mounted on a flexible gooseneck boom. The headset's microphone has a cardioid polar pattern tailored for pickup of speech with maximum voice intelligibility

over a wide range of frequencies. The flexible gooseneck boom swivels for easy positioning on either the right or left side.

www.audio-technica.com
pro@atus.com • 330-686-2600



MONITOR LIKE A PRO WITH INOVONICS

NEW!



INOmini 633 FM/RDS Monitor

- Receives all standard FM Broadcasts.
- Displays and exports important RDS info for logging & proof of play.
- Alarm tallies for Carrier Loss & Audio Loss.
- Analog L/R and AES digital Line outs.

NEW!



INOmini 634 AM Monitor/Receiver

- Performance AM tuner with variable bandwidth selection.
- Alarms for Carrier Loss and Audio Loss.
- Analog L/R and AES digital Line outs.

NEW!



INOmini 514 Multiplex Decoder

- Demodulates MPX to Balanced L/R Audio.
- Digital AES output.
- Alarms for Audio Loss and Pilot Loss

NEW!



610 - Internet Radio Monitor

- Uninterrupted monitoring of streaming online radio performance.
- Balanced Analog L/R and AES digital outs.
- Decodes and displays live metadata for MP3, Ogg Vorbis and AAC formats.
- Local alarm tallies plus self logging alarms for Audio Loss, Stream Loss & Internet loss.
- Remote web interface + email notifications.

You already know we make great Audio Processors and RDS Encoders, but for us this year's NAB show was all about Monitoring and Broadcast Confidence. With a total of three new INOmini products and our industry first **610 Internet Radio Monitor**, essential monitoring of FM, AM and Internet Radio just got a whole lot easier.

Now Shipping! Learn more at:
www.inovonicsbroadcast.com

© 2013 Inovonics, Inc. All Rights Reserved.

i INOVONICS
BROADCAST

The 'vu' Meter Legacy Shines On

A quirky history of monumental *scale*

ROOTS OF RADIO

BY OLIVER BERLINER

Once upon a time, three wise men (no, not the ones you're thinking of; these guys were from NBC, CBS and AT&T) came to call on John Miller, vice president and chief engineer of Weston Instruments in New Jersey (which to *some* may be The Holy Land).

There, the trio complained that the "dB" indicator that all broadcasters had been using had many serious drawbacks, which they went on to list.

First, the indicators were designed so that a meter could be used on either 500- or 600-ohm program lines, which are not the same. It indicated 1.73 V at "0" on the scale on 500-ohm lines (used in motion picture sound recording), but it needed 1.9 V to do it on 600-ohm broadcast lines.

Not only was the scale's range a scant 16 dB, but the zero mark was reached before midpoint on the scale, thus wasting more than half of the scale area. The meter's resistance was so low — 5k-ohms at zero, dropping to only 1774 ohms at program levels of -9 dB — that it loaded the line it was supposed to bridge.

Then there was the fact that the pointer moved too fast, indicating peaks that the movie boys liked for optical recording, but which masked the *average* program level monitoring required by broadcasters.

Added to this was the high contrast of the black-on-white scale, which made for rampant operator eye fatigue. Not only were the meters frequency-sensitive, they were also inaccurate at voltages other than whatever was required to move the pointer to "0."

Adding insult to injury, it took too long for the pointer to settle down to proper power indication from its overshoot. What a mess!

RIGHTING WRONGS

Miller took on the task of fixing all of this, and yea, three quarters of a century ago, the vu indicator came to pass.

I say "indicator" because what we call a "meter" is not one (the indicator of electricity consumption at our homes is a meter). But with this revolutionary industry standard came an obligation: You have to hook it up right, or it won't be accurate.

And you can't put "vu" scales on AC voltmeters and expect them to give

you indications you can rely on, nor any other true vu meter's benefits. You mustn't use them on lines other than those with a net impedance of 300 ohms (600-ohm source to 600-ohm load).

And here are things you don't know about these indicators:

- Although not in the NSA spec, "vu" should be written in lower-case letters
- While not mandatory, the "A" scale (vu indications predominant) is only for use on test equipment and limiters, while the "B" scale (percent modulation indications above the arc) is for everyday program level monitoring.

Incidentally, why is it that we don't find meters with "B" scales in any studio today?

Well, blame Ray Dolby for that. You see, in the 1950s, when Dolby designed the circuit for the early Ampex tape recorders, he knew little about vu meters and broadcast/recording practices. So he figured that the vu scale (used when calibrating the recorder) should be predominant.

From that moment on, virtually every broadcast and recording equipment maker (save, perhaps, RCA, Gates, Collins, Sparta) and recording studio operator (except yours truly) repeated Ray's mistake.

Weston referred to dB meters as power indicators (6 mW power at "0") and to vu meters as "volume" indicators. But as volume is construed to denote power, vu meters indicate 1 mW at "0," which is 1.228 volts on a 600-ohm line.

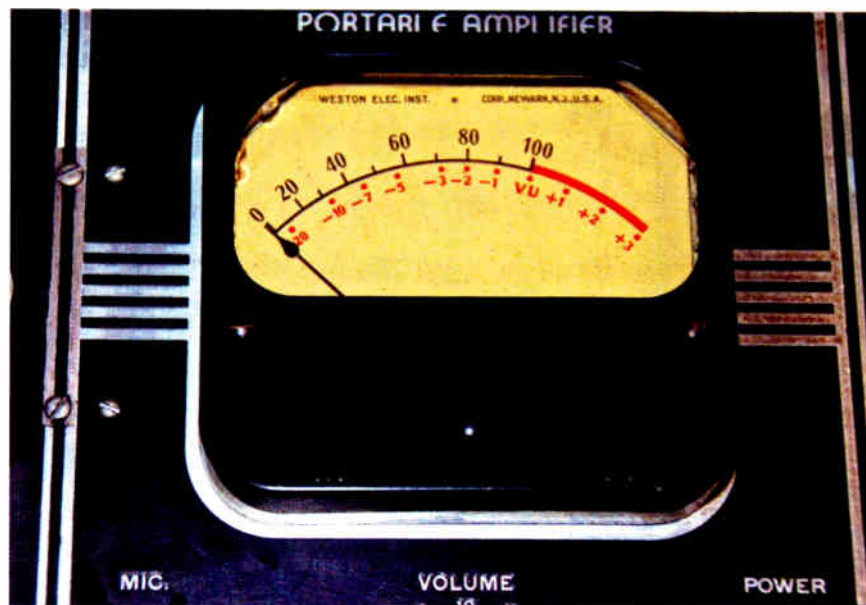
The percent-modulation scale indi-

cates percent power and percent voltage; ideal for studio and transmitter use. What's a *volume unit*? It's numerically equal to the number of decibels above or below 1 mW. Thus the term "volume unit" (coined by Miller) can't apply to a dB meter designed for 6 mW lines, nor can it apply to any pseudo vu meter.

THAT'S ONE BEAUTIFUL METER!

Let's see how carefully it was crafted. You'll see that it's truly ingenious.

It has an impedance of 3k9 ohms when a 1 kHz signal pushes the pointer to "0" (1 mW). But it must be used with a 3k6 resistor in series. While reducing line loading, this minimizes the unavoidable impedance change with signals other than 1 kHz and 1.228 volts.



Weston type 30, model 862 vu indicator with 'B' scale on RCA OP-6 portable amplifier. A Daven resistor network reduced the output from +11 dBm to telco-required +8 for 3 dB line isolation, sent the proper voltage to the meter, provided the 3k9 buildout, and also created an output Z of 150 ohms to improve frequency response on feeding Telco lines. Two No. 47 frosted lamps mounted beneath the glass illuminated the scale.

The result of Miller's new design, based upon a DC microammeter with a carefully selected rectifier (probably made by Conant) was the 1938 introduction of a radically different volume level indicator, which has stood the test of time under its "street" name: vu meter.

But there's a major characteristic that makes the meter the gem that it is: It must *see* its own impedance. Is a 3k9 instrument seeing its own impedance via the 3k6 buildout resistor? Of course not. Yet don't forget the

(continued on page 18)

WORKBENCH

(continued from page 14)

A hot elbow could be the result of a bad connection or split bullet. Remember, heat will eventually destroy components, so don't ignore this type of warning.

Here's a good question from one participant, "What do I do if the line pressure is falling?"

First grab a bottle of Formula 409 or Fantastic spray cleaner. With the tank valve and regulator on, spritz the soapy cleaner around the regulator fittings, then along the hose leading up to the transmission line, and finally at the gas inlet port on the transmission line itself. If there is a leak, hundreds of tiny bubbles will appear as the gas escapes.

There's your leak — and you didn't have to call in a tower crew.

Tell this to the manager. Let him or her know when you save the station money through preventive maintenance. Usually, tightening the fitting or replacing the hose will solve the problem.

If you don't find any leaks leading up to the transmission

line, calling in a tower crew may be necessary. They'll inspect the line all the way up to the antenna, checking all fittings just like you did but also looking for bullet holes or other damage to the transmission line.

Some stations may use a dehydrator instead of, or in addition to, nitrogen tanks. Two things to check on with these devices: First, do they seem to be running all the time? Even twice an hour is too much. More typical is once every hour or two. More activity could indicate a leak.

The second thing to check is that the moisture-absorbing crystals are blue. These crystals turn pink when they absorb moisture. Check with your manufacturer about replacement. Moisture-laden crystals can be rejuvenated in a warm oven, so don't throw them away.

More transmitter site maintenance tips next time.

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

Author John Bisset has spent 44 years in the broadcasting industry and is still learning. He handles West Coast sales for the Telos Alliance. He is SBE certified and is a past recipient of the SBE's Educator of the Year Award.



IT'S LIKE A SAVINGS VAULT IN DISGUISE.

The cost of a transmitter extends well beyond the purchase price. But with groundbreaking innovations like PowerSmart®, Harris Flexiva™ and 3DX® transmitters provide higher performance that saves money, every day. Less space, power and maintenance required — this is technology you can bank on.

Where Great Radio Begins — broadcast.harris.com/Radio

harris.com

HARRIS
assuredcommunications®

World Radio History

VU METER

(continued from page 16)

300 ohm (600/600) program line, which added to 3k6 gives 3k9, matching the meter's 3k9. QED.

Please bear in mind that without this impedance matching, the meter will not be accurate. Even a real, standard vu meter will not be accurate without matching.

What else did Miller do for the radio guys? He damped the meter so as to minimize overshoot (the purpose of damping), which also slowed the

pointer action so that the meter reads average program levels not masked by occasional peaks.

The zero point on the scale is far right of center, permitting maximum scale utilization, and its range was increased to 23 dB. He further improved legibility and reduced eye fatigue by specifying a buff color (yes, it's in the spec), and by creating a scale where overvoltage readings are in red.

Another benefit is that the meter and build-out resistor, totaling 7k5 ohms, met the desired 12.5 times the program line's impedance for minimum line

loading. Myriad parameters had come together in a perfect fit. Many meter makers began offering vu meters after the advent of Weston's Type 30 series.

Most of these companies, including Weston, no longer exist. What came closest to Weston's in styling was made by Simpson. Other meter makers were Assembly Products, Burlington, Marion, Dayton, Beede, Hoyt, Selco, Modutec (though the Triplett's I tested didn't meet spec).

One meter dealer merits a mention. It's Metercraft of Santee, Calif. Not only are they dealers, but they did a

marvelous job salvaging the "irreparable" Weston pictured here. Applause!

DIY

Want to add a vu meter to your mixer? Easy. Terminate that lo-Z unbalanced output with a 300-ohm resistor. Then place a standard meter having a 3k6-ohm resistor in series with it across the 300-ohm resistor and *voila!* You've done it. Your volume indicating will be accurate, easy on the eyes and legible.

Stop relying on flashing lights. You'll now have a traditional broadcast-standard zero-level-line. And don't forget what the manufacturers don't tell you: Only a factory-adjusted meter can be used on steel panels or within two inches of a ferrous metal.

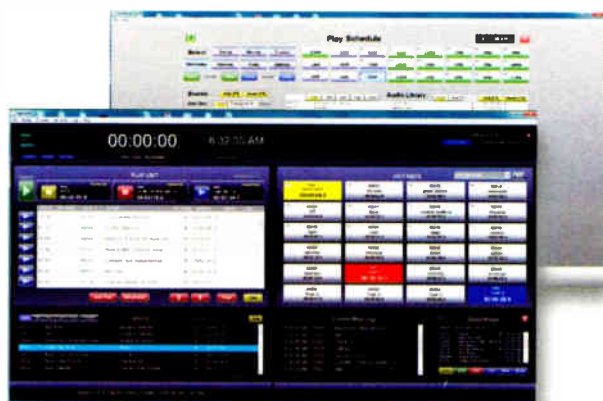
Finally, don't expect a meter with an expanded scale to be a true vu meter unless all specs have been met and practices adhered to.

NEW...
147 88 000

ARRAKIS SYSTEMS INC.
800.451.8800

DIGILINK~HD

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



Scalable, high speed Radio Automation for Multistudio, Multisite Applications



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

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

www.arrakis-systems.com

970.461.0730

There's a major characteristic that makes the meter the gem that it is: It must see its own impedance.

One unfortunate aspect of the vu meter, which didn't matter at the time and rarely does today, is that the meter's frequency response rolled off at 10 kHz. At the request of a major recording studio products maker, I recently tested a Chinese vu meter he'd been using in a limiter. It flunked all tests save one: It was flat to 100 kHz.

My favorite "uses and abuses of the vu meter" story happened many years ago. A famous beauty products maker, Charles Antell Co., bombarded national audiences with a TV commercial for a new shampoo. We saw a woman's head, above which was her hairdresser's arm, holding a light meter to prove how bright the lady's hair became after a Charles Antell shampoo.

I sent a note to The Hollywood Reporter, advising gossip columnist Mike Connolly about this sham. Connolly soon wrote, "Oliver Berliner says the light meter used in the Charles Antell commercial is actually a Simpson model 142 vu meter."

Charles Antell quickly pulled the spot.

Oliver Berliner is a self-styled leading authority on uses and abuses of the vu meter. Reach him at gramophone@earthlink.net.

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

MARKETPLACE

A NEW DESKTOP: Omnirax Furniture Co. wants facility managers to know that it can furnish an entire facility, from specialized on-air broadcast and production furniture to standard office and conference furniture for the traditional office operations.



New for Omnirax is the eDesktop line of private office and staff open office furniture. The eDesktop is a concept built around curved and scoop-shaped desktops that maximize the amount of desktop real estate that can be used.

Omnirax says that this line can be combined with the company's Innova customized and Phoenix manufactured broadcast furniture lines to satisfy a facility's requirements in a stylish way.

Info: www.omnirax.com

ECHO OF THUNDER: Sonnet Technologies has launched the Echo 15, a dock for devices with Thunderbolt-based ports.



It features four USB 3.0 ports, Gigabit Ethernet, a FireWire 800 port, two external eSata connections, one internal SATA connector and a Thunderbolt pass-thru for connecting with another Thunderbolt device or a monitor. It also has standard computer media connections such as headphones and mic jacks along with a DVD±RW optical disc drive (upgradable to Blu-ray). A 2 TB hard drive is optional as well.

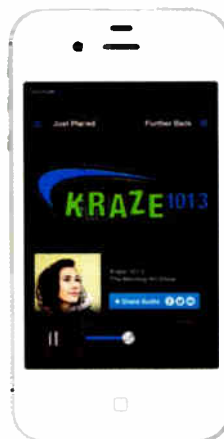
A Sonnet press release points out the use of devices such as the Echo 15: "With the introduction of newer, thinner, lighter computers, manufacturers continue to remove interfaces and optical drives that were once standard. The Echo 15 Thunderbolt Dock offers a simple way to restore FireWire 800, Gigabit Ethernet, eSATA, audio and add additional USB 3.0 connectivity."

Info: www.sonnettech.com

LISTEN LATER: Audio streaming software developer StreamOn announced at the NAB Show the latest addition to its StreamOn player.

Listen Later 2.0 is an audio streamer that works within social media platforms such as Facebook and Twitter. It also provides access to archiving services for listeners to play content later or on-demand.

According to a release, many key functions are placed within the player so that it does not rely on its environment to provide the services, thus enabling it to provide more features than would normally be possible within a centrally-controlled social media environment such as Facebook.



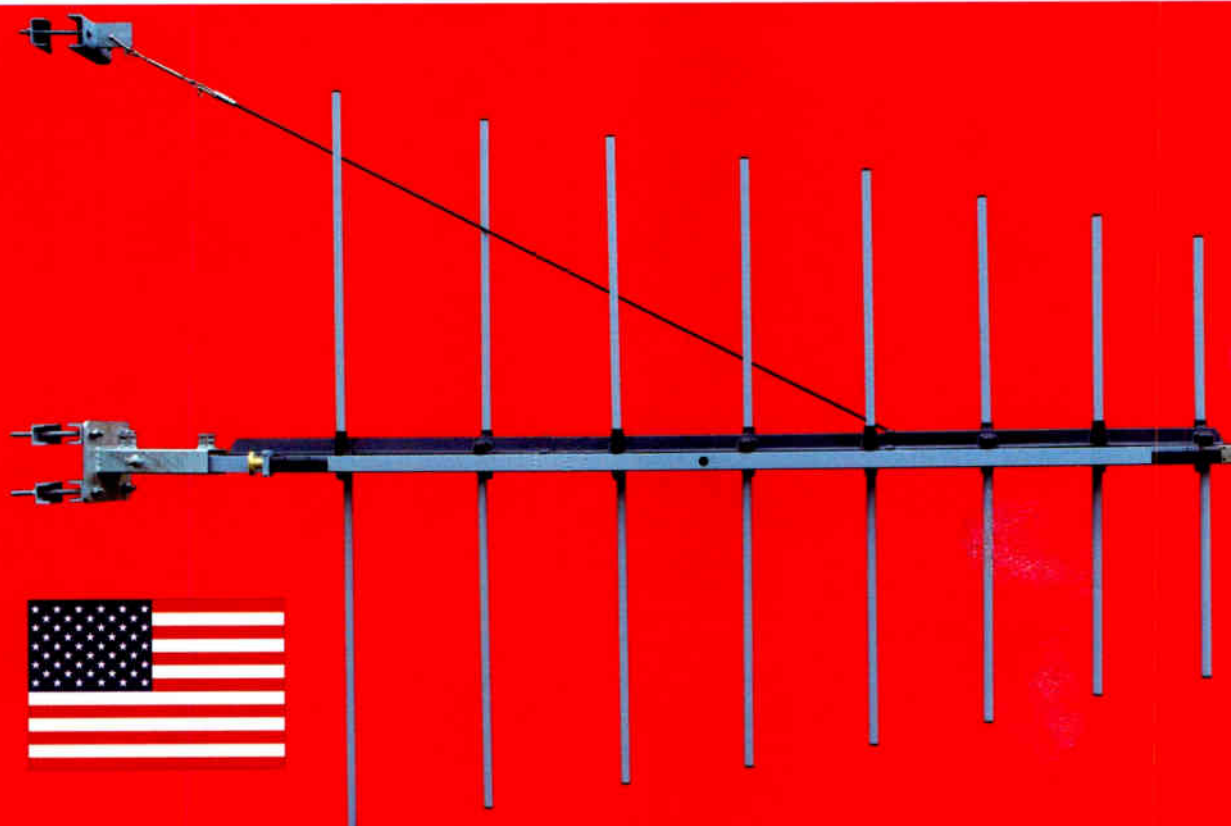
The release explains that key functions of Listen Later 2.0 are put inside the player, "so listeners can share their favorite sounds from your radio station (with ads included) with their friends."

The release adds, "Your station can generate meaningful revenue on social media with Listen Later 2.0 — where you can share your best audio moments immediately after they air, engaging your listeners to share content from wherever they are listening."

In addition, the release provides access to Limelight Networks backend, built-in Omnia Audio signal processing, AdsWizz audiometric services and Apple HLS streaming format.

Info: www.streamon.fm/listen-later

The original ALDENA ALP0802712 log periodic antenna is always better than a copy



Suitable for FCC Custom Directional Pattern

TELECOMUNICAZIONI
ALDENA s.r.l.

Via A. Volta, 13
20090 Cusago (MI) ITALY
Tel. +39.02.90390461
Fax +39.02.90390475



The Reliable Antennas

www.aldena.it aldena@aldena.it

08:27

SWITCHED 10 12 15 18 OVR
-20 -15 -12 -10 -6 -3 0 3 6

SPORTS-1 SAT-2 NETWORK NEWS-1 NEWS DIS

IP-12 DIGITAL



ain't got no distractions

 <p>Two 8x2 Stereo Virtual Utility Mixers These can be used for a wide range of applications; for example, using Wheatstone's ACI Automation Control Interface, your automation system can control the mix for satellite or local insertion switching.</p>		<p>StudioHub® Compatible RJ45 Interconnects Plus there are connections unique to each BLADE such as XLR jacks, etc.</p>	
 <p>Gigabit Ethernet 100/1000 Mbs permits robust operation and allows for exceptional expansion capabilities</p>	 <p>Built-in Web Server so you can configure and control locally or remotely without having to run dedicated software</p>	 <p>Silent — No Fans Can safely be located in a studio with live mics</p>	 <p>Intelligent Operation Programming a BLADE is easy. Scripting enables decisions about what to do and how to do it. Kind of like "If/Then" on steroids.</p>
 <p>True Mono Channels No need to tie up stereo pairs</p>	 <p>Selectable Sample Rate 44.1 or 48 kHz</p>	 <p>ACI (Automation Control Interface) An embedded interface for complete external control over IP for both the BLADE itself and its Utility Mixers</p>	 <p>DNA of the Entire Network Stored in Every BLADE Every setting for every network device is stored inside every BLADE. Handy, if you ever need to replace a BLADE. Just plug it in and it learns from the network!</p>
 <p>Front Panel Headphone Jack with source select and level control — monitor any system source</p>	 <p>Front Panel Bar Graph Meters Switchable to display source input level or destination output level after gain trim</p>	 <p>Front Panel Routing Control Any system source to any destination on that BLADE</p>	 <p>Flexible GPI Logic 12 universal logic ports, programmable as inputs or outputs, routable throughout the entire system</p>
		 <p>Silence Detection Each output can trigger alarms or make a routing change</p>	 <p>Family Ties Every BLADE is part of the extended family of WheatNet-IP™ compatible and interoperable devices, including automation systems, schedulers, scripting, studio controllers, Talent Stations, codecs, STLs, intercoms, processors, mic preamps, utility panels and more.</p>
			 <p>SNMP Messaging for alerts</p>

Each BLADE on the Intelligent Network is exceptionally powerful...
but do you know about the incredible functionality inside **EVERY** BLADE?

By now, it's a good bet you're aware of the WheatNet-IP Intelligent Network. You know about its advantages - how it's obsessively compulsive about redundancy. How it can repair itself, configure itself, run rings around the competition while still having much greater bandwidth (due to its Gigabit Ethernet throughput) - enough, in fact, to not only handle our increased functionality today, but well into the future. So we figured it's time to let you know a little more about those boxes you plug into the Intelligent Network. The ones that contribute to its intelligence. They're called BLADES and from inception have been far more advanced than any boxes on any other networks out there. Take a look and consider how you'd put all that to work in YOUR WheatNet-IP system.



WHEATNET-IP: THE INTELLIGENT NETWORK

Wheatstone

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

World Radio History

'Teen Day' Turns Young Broadcasters Pro

Wisconsin radio program immerses youth 14 and up in a range of radio roles

BY CHRISTINE SPANGLER

A college radio station, small-town newspaper and big-city broadcast professional have teamed up to create a unique program that transports Wisconsin high school students into the wide world of radio.

The first Teen Day Broadcasting Program was presented Sept. 5 through Dec. 19, 2012, by 91.7 "The Edge," WSUW(FM), on the University of Wisconsin-Whitewater campus, and by the Daily Jefferson County Union in Fort Atkinson, of which I am managing editor.

"We selected area teens, 14 and up, as broadcast team members," said organizer Dan Pettegrew. "Using local music, education and sports activities as homework assignments, Teen Day introduced them to the radio station environment firsthand."



Orion Schuyler shares his headphones with a young visitor during the Busy Barns Adventure Farm interviews.



Amanda Gilbert, a freshman from Jefferson, Wis., records her first sponsor promo, while Dan Pettegrew records.



Tyler Czappa talks politics with Terry Virgil during a candidate interview at Busy Barns Adventure Farm. Virgil was running as the Libertarian candidate for state assembly.

A Fort Atkinson High School graduate, Pettegrew has been employed in the broadcast industry since 1987, mainly in Los Angeles. His résumé includes commercial scheduling for the Los Angeles Dodgers Radio Network at Clear Channel Communications and a stint as broadcast traffic director for Pacific Public Radio and U.S. International Media.

I joined WSUW Station Manager Kyle Johns and



Nate Gilbert of Fort Atkinson, Wis., holds the microphone as ROTC cadets introduce themselves at the Teen Day Veterans Tribute.

Pettegrew teaching the mechanics of producing radio broadcasts through interviewing, programming, promotion, production, traffic, sales and billing instruction.

For two hours each week, the public library's community room was transformed into a radio studio where the six students wrote interview questions, recorded radio announcements and prepared for their broadcasts.

Sessions included recording promotions for business sponsors; a fieldtrip to WSUW; a Saturday at Busy Barns Adventure Farm, where the teens interviewed

state legislative candidates; and recording interviews with, and songs by, members of local band Searching for Seas.

The teens also hosted a Veterans Day Tribute at the American Legion that featured patriotic music and interviews with UW-Whitewater Reserve Officer Training Corps cadets and veterans who served in World War II, and the Korean, Vietnam and Gulf Wars; and they did a play-by-play broadcast of a high school boys' basketball game, complete with pre- and post-game coach interviews and a halftime conversation with the Daily Union's sportswriter.

(continued on page 24)

NEW

i INOVONICS
BROADCAST

Streaming Confidence.



Inovonics' 610 Internet Radio Monitor

Get the first dedicated, uninterrupted tool for monitoring streaming online radio performance.

- Balanced Analog L/R and AES digital program line outputs
- Automatically decodes and displays live metadata for MP3, Ogg Vorbis and AAC formats: Station ID, Song/Program Info, Quality (format and bitrate)
 - Easy setup & control via front panel OLED screen and jog-wheel
- Local alarm 'tallies' plus self-logging alarms continuously check for Audio Loss, Stream Loss and Internet Loss
 - Alerts sent to personnel via e-mail and/or text messages
- Full function 'responsive' Web interface works on desktop and mobile devices

The **610** is in stock, order yours today!

1-800-438-6040

www.scmsinc.com

SCMS INC.
YOU KNOW WE KNOW
RADIO

Doug Tharp
818 398-7314
West Coast

Bob Mayben
877 391-2650
Mid South

Bernie O'Brien
731 695-1714
Central

Jim Peck
315 623-7655
North-East

Mary Schnelle
513 899-3036
Mid-West

Rick Goldstein
877 640-8205
Southeast

Andy Cole
866 205-6905
Southern Gulf

Lily Massari
760 650-1427
Latin America

Pam Leffler
573 478-3737
North-Central

Ted Nahil
866 573-5935
Southwest

Art Reed / Bob Eburg
800 732-7665
Bradley / Mid-Atlantic

World Radio History

TEEN DAY

(continued from page 22)

A closing reception included the presentation of certificates, refreshments and a friendly game of bowling with state Reps. Andy Jorgensen and Steve Nass, both of whom participated in broadcasts earlier in the fall.

“Students should take advantage of hands-on learning opportunities now that will give them an advantage later, when they’re looking for a job,” said Jorgensen, a former radio personality himself. “I’m pleased to join Teen Day to help educate our young people and prepare them for the future.”

While the program is designed to provide career guidance, it also helps the teens hone important life and character skills: teamwork, decision-making, public speaking, interviewing, budgeting, self-confidence, respect, dependability, professionalism and responsibility.

Nathan Gilbert of Fort Atkinson is interested in sports broadcasting and hopes to work someday for ESPN.

“I am excited about having an opportunity not too many others have had,” Gilbert said. “I want to learn what it takes to be successful in the broadcasting field.”

Amanda Gilbert of Jefferson also is eyeing a broadcasting career. She



Teen Day team member Alex Scullin of Fort Atkinson, Wis., interviewed state Rep. Andy Jorgensen at Busy Barns Adventure Farm. After redistricting divided his district, Jorgensen went on to defeat incumbent Evan Wynn as representative of the 43rd Assembly District, on Nov. 6.

and two fellow participants were interviewed about Teen Day on the www.blogtalkradio.com segment, “At Eye Level.”

“I loved it! It was really cool and ... gave me a look into my future,” she said, calling Teen Day “amazing.”

“I’d like to just take in as much as they can teach me,” she added.

Alex Scullin of Fort Atkinson said she joined Teen Day “to try this broadcasting

experience to see if it’s right for me.”

And her goal? “To have my own little podcast radio show.”

The Wisconsin Broadcasters Association is excited about Teen Day, too.

“Teen Day is a terrific initiative,” said WBA President Michelle Vetterkind. “We fully support the program. It is a great concept and wonderful opportunity for our teens to get involved with the broadcast industry.”

Participation is free for teens, while tax-deductible sponsorships cover the \$8,400 budget. However, attracting sponsors has been a big challenge.

Those that signed on at \$700 each — Rock River Lanes, 2 Rivers Bicycle and Outdoor and Diversified Personnel Services/Opportunities Inc. — received a lot of print, website, radio and event exposure.

On WSUW, each sponsor got 14 weekly promos (two 15-second spots per day), 30-second underwriting insertion in all broadcast assignments and acknowledgements at the opening and closing ceremonies. That totaled 228 promos per sponsor, not to mention outside media coverage.

In addition to fine-tuning the curriculum and signing up next fall’s participants, the main task right now is raising funds and finding sponsors.

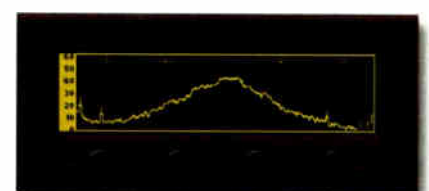
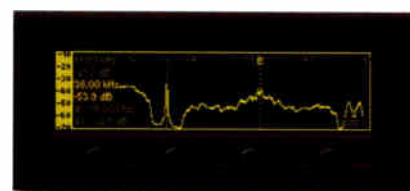
“Teen Day is a great opportunity, not only for teens, but for WSUW, the Daily Union, local businesses and the area at large,” Pettegrew said. “We are promoting community journalism.”

For more information on Teen Day, call (920) 397-9178 or email teendaybroadcast@gmail.com. Links to all broadcasts and photos are available on Teen Day’s Facebook page.

Christine Spangler is managing editor for The Daily Jefferson County Union.



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



Price: \$2700

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



Available in the US from SCMS, Inc. Call: 800-438-6040
www.scmsinc.com



AFTER A DEMO, GMs FIND THE BUDGET FOR AN OMNIA.11



No obligation. 45 Day Demo.

Contact your Omnia Dealer for immediate delivery



© 2013 TLS Corp. Omnia Audio. The Telos Alliance. All Rights Reserved.

World Radio History

Surprising Stats for Radio DVR Site

Robertson says its findings contradict some commonly held beliefs about talk

RADIONET

BY JAMES CARELESS

DAR.fm is a free “DVR for radio” website; we profiled it in these pages two years ago. Listeners can select and record their favorite radio shows on DAR.fm’s server. They can then listen to those shows on any Web-connected computer or smartphone, at their convenience. At present, DAR.fm listeners download 30 million minutes of content a month.

DAR.fm CEO Michael Robertson compiles accurate statistics on each show’s popularity, based on the number of plays it has received in the past 30 days. This data is displayed on each show’s selection page, in the same way that YouTube displays “number of views” for each of its videos.

Here’s where it gets interesting: “The listening trends we’ve been seeing, as a result of our data collection, contradict three of the most widely held beliefs about talk radio,” said Robertson.

“Our conclusions are based on hard numbers, where many of these beliefs are based on ‘fuzzy’ metrics, like quarter hours and market share.”

NOT JUST CONSERVATIVES

At present, DAR.fm’s Top 10 shows are dominated by U.S. talk radio shows, such as conservatives Rush Limbaugh (number one with 30,475 plays in 30 days) and Glenn Beck (number two with 20,432 plays in 30 days).

But surprise: Coming in at number three, with 16,531 plays in 30 days, is

Rachel Maddow, a liberal commentator with MSNBC. The next liberal in the Top 10 is Ed Schultz, with 6,820 plays in 30 days.

“Based on conventional wisdom, you would expect conservative talk show hosts to own the Top 10,” said Robertson. “But based on the actual program plays



Michael Robertson,
CEO of DAR.fm

on DAR.fm, liberal-leaning hosts own half of this market.”

Of course, DAR.fm’s results are not large enough to be generalized to the entire radio industry. But they raise some interesting questions, as Robertson readily pointed out.

“Is the interest in liberal talk radio hosts that we’re seeing on DAR.fm proof that there’s a market for more liberal talk radio?” he asked. “Or is it a case of people seeking out these shows on the Web, simply because they are not as widely distributed as conserva-

tive talk shows? We don’t know — but the fact that Rachel Maddow is number three is something that broadcasters should be paying attention to.”

NON-NETWORKED HOSTS

Conservative commentator Dana Loesch’s “The Dana Show” is only broadcast on KFTK(FM) in St. Louis and WIBC 93.1 FM in Indianapolis, Ind. Neither city is a big

talent, popular non-network hosts are a natural choice for syndication and network distribution. The plays being scored by Loesch and Kornheiser on DAR.fm indicate that they would do well if exposed to a wider audience.

PODCASTS ARE NOT POPULAR

“We do offer podcasts on DAR.fm,” said Robertson. “But, by and large, people far prefer to record live programs and



Rachel Maddow’s Page on DAR.fm

then play them back in real time, than to download and listen to podcasts.”

He isn’t sure why this is the case. “But I do know that, when given the choice, our users listen to recorded shows on their PCs and smartphones, streamed as linear content.”

Robertson is the first to admit that, compared to the ratings gathered by Arbitron and other audience research firms, DAR.fm’s data base is relatively small. “The advantage we offer is that our data, being based on Internet usage measurement, is precise and solid,” he

market, compared to New York and Los Angeles — and the show’s two-station distribution pales against Rush Limbaugh’s 600-plus.

Nevertheless, Dana Loesch ranks 18 on DAR.fm with 2,034 plays in 30 days.

Our conclusions are based on hard numbers, where many of these beliefs are based on ‘fuzzy’ metrics, like quarter hours and market share.

— Michael Robertson

STATION SERVICES

Find us on **FACEBOOK** for a steady stream of **SALES TIPS, HOT LEADS, COOL IDEAS** and **CREATIVE RESOURCES** to help YOU sell more advertising (and YOUR ADVERTISERS sell more stuff)!

Sound Ideas for Building BusinessSM

Radio Features You Can Sell.
:30/:60 sec. - FREE DEMOS!

GraceBroadcast.com

Sell Radio? Join the crowd.

RadioSalesCafe.com

ATTENTION PROVIDERS: Promote your services to Radio World’s readers. For information on affordable advertising call David at 212-378-0400 ext. 511 or email dcarson@nbmedia.com.

Sportscaster Tony Kornheiser is known for his strong opinions, which are aired exclusively on WTEM(AM) and its FM translators in the Washington area. Yet Kornheiser has won the number 28 spot at DAR.fm with 2,094 plays in 30 days.

“These are people who don’t have the same exposure and promotion backing them as Limbaugh, Beck and Maddow, yet people are listening to them on DAR.fm,” Robertson said. “This means that Loesch and Kornheiser are creating a buzz that reaches beyond their broadcast base, both through their online activities and word of mouth.”

For radio broadcasters seeking new

said. “We know how many people listened to which shows and for how long. Our data can be quantified.”

The significance of DAR.fm’s approach to audience measurement is it offers an alternative way to evaluate program performance, audience preferences and the emergence of new talent. For broadcasters wanting to supplement the traditional ratings system with additional and possibly more meaningful data, DAR.fm’s “plays per month” system seems worth looking at, and perhaps adapting to their own needs.

James Careless writes the Radionet column for Radio World International.



Z E T T A®

Advanced Radio Playout

RELIABLE, INTUITIVE, FLEXIBLE

Zetta the newest automation/playout system from RCS designed for today's multi-tiered broadcasting demands. This is the complete solution for terrestrial or streaming radio stations. Designed with rugged durability and a sleek interface, Zetta feels totally familiar from the moment you see it.

RCS products share the same DNA, which means you get intelligent integration and support solutions 24 hours a day, 7 days a week, 365 days a year. Zetta works smoothly with GSelector – Music Scheduling, RCSnews – news production, and our traffic system, Aquira.

It was built by the world's largest broadcast software company, RCS - a trusted name by more than 10,000 radio stations worldwide.



Audio-Technica Headset Impresses

One of the most important things I look for in a headset is comfort

USERREPORT

BY RANDY HARRIS
Entertainment Director
WTAN Sports

PINELLAS PARK, FLA. — I have been in the radio business for going on 30 years now, and during that time I have certainly gone through my fair share of headsets and microphones. That being said, I have been using the Audio-Technica BPHS1s for the last few years, and I am just as much in love with them now as I was when I first put them on my head.

One of the most important things I look for in a headset is comfort. I broadcast for up to two hours at a time, so if a headset is uncomfortable, why would I want to use it at all? Not only is the BPHS1 comfortable, it is the most comfortable headset I have ever used, and I enjoy wearing it for all of my broadcasts. The headset isn't a clunky piece of equipment, either. It doesn't slide around on my head, due to the padded around-the-ear cups and cushioned headband, and it is easy to store and travel with as well.

Additionally, I can't get over the durability of the BPHS1. Be it either in the studio with my not-so-careful broadcast team, or while I am traveling around the



world covering events, my headsets take a hefty beating — but stand up to the punishment time after time.

Even if my headset was damaged, I have the peace of mind to know that Audio-Technica provides a five-year limited warranty.

Also, its design makes it easy to use. Broadcasting is not a static activity for me. I am always utilizing social media to connect with my listeners during the show or take notes during an interview, so the ability to use my hands and not be

forced to face a regular stand-based microphone the whole time makes my job a lot easier.

No matter what, I always get clear sound in and clear sound out. The microphone is attached to a boom that stays in place where I position it, and the microphone doesn't pick up any unwanted sounds from my surroundings, providing crisp, clean content and making this the perfect setup for any broadcaster.

You can't beat the value you are getting with the BPHS1s. You would expect to pay significantly more for such a quality product; certainly more than \$300. But at an MSRP of \$279, you get a huge bang for your hard-earned buck. This is the perfect product for anyone in radio — from a budget-limited newbie starting off with a new podcast, to a high school sports broadcaster, all the way to an established radio station crew. Audio-Technica got it right when they designed the BPHS1s with the on-air news and sports broadcaster in mind.

Because of the overall quality, performance and value of Audio-Technica



products, especially that of the BPHS1 stereo headset, I recommend them to my colleagues whenever they are on the market for a new headset and are looking for the best product available for their money.

For information, contact David Marsh at Audio-Technica in Ohio at (330) 686-2600 or visit www.audio-technica.com.

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.

ONTIME

All the time.



Trust the name broadcasters have counted on for precision master clocks and timing-related products for over 40 years—ESE. Our products accurately synchronize broadcast operations using a choice of GPS, NTP, Modem, Crystal or line frequency for affordable, reliable, perfect time—all the time.

Visit www.esweb.com to witness world-class timing systems designed for easy installation, set-up and operation.

142 Sierra Street
El Segundo, CA 90245
(310) 322-2136



www.esweb.com

Delivery systems from dozens of partners like ENCO, RCS and BSI are Livewire-ready. One RJ, multiple channels. Sweet!

Livewire nodes from Axia partners let you extend your network's capabilities. Import MADI signals, log audio streams, or take hardware-based control of network routing (like this Paravel iRoute does).

Who's got time these days? You do, with Livewire-connected time management from 25-Seven.

Look Ma, no hands! PathfinderPC, with Boolean logic and drag-and-drop stacking event editor, automates routing control.

Livewire in Omnia audio processors ensures a clean, all-digital signal path.

Livewire in Nautel transmitters and IDC satellite receivers means you're covered inbound and outbound.

xSwitch: world's first Ethernet switch designed for IP-Audio. 8 Livewire ports, 2 Gigabit ports with SFP, - zero configuration.

Telos family of IP and ISDN codecs are ready to plug in.

Fanless xNodes with PoE pack lots of I/O into a tiny space.

Every family's got a big talker. Here's ours: the world's first broadcast IP Intercom that lets you take full-bandwidth audio to air.

Only Axia builds a network switch into the console engine. Plug in your sources and start broadcasting.

Pro sound cards and audio processors-on-a-card from AudioScience and Sound4 bring Livewire connectivity to your PC.

Now that Livewire and RAVENNA are partners, speakers and mics have a direct connection to your network, too.

XY panels, routing controllers, programmable button panels - you're in total control of your network.

8-fader Radius has 4 mixing buses, auto mix-minus, voice EQ — just like its big brothers.

Consoles? Oh, yeah, we've got 'em, big, small and in-between. This is an Element: over 4,000 raving fans worldwide (so far). Sizes from 4 to 40 faders.

DESQ packs lots of power into a small package. (Like your Aunt Louise's rum balls.) Just 18" square.

iQ: a mid-sized console that can grow from 8 to 24 faders. Powerful, expandable... now, that's smart.

Ooh, shiny! Studio control panels give your talent the power they crave.

Looks small, performs big. RAQ console puts giant-size capabilities into just 4RU.

Hello, it's for you. Telos phone systems work seamlessly with Axia networks (of course).

AXIA MAKES THE NET WORK.

Choosing an IP-Audio network? Some companies treat AoIP as if it were an RCA jack — nothing more than a way to get audio into a console. But Axia fans know that the network's real value comes when devices truly communicate.

Axia Livewire™ networks are much more than glorified punchblocks. Axia consoles integrate with a big family of more than 70 broadcast products, from 45 partners, to intelligently share audio, data and control between studio devices with the click of an Ethernet cable.

Phones, codecs, delivery systems, audio processors, profanity delays, pro audio cards and more, all form a sophisticated ecosystem. So phone and codec callers receive automatic mix-minus. Satellite feeds record unattended. Broadcast-quality intercoms can go straight to air. Shows are smoother and more error-free. And Axia is a charter supporting member of the AES X192 standards project, so your investment is future-proof.

So when you choose your IP-Audio network, choose the one with all the connections. Axia: we make the net work.

AxiaAudio.com



TECHUPDATES

MICW ISHOTGUN KIT AIDS BROADCASTERS



The iShotgun Kit is the newest member in the MicW i-Series of professional microphones. It is a supercardioid short shotgun microphone for use with mobile devices such as iPhones, tablets, laptops and DSLR cameras.

The 3.5 mm four-pole connector can mount in the microphone/headphone jack, or remotely with the included accessories. The kit includes a case, windscreen, telescoping boom, shock-mount, extension cable, DSLR camera cable and various adapters to split headphone and microphone connections. One adapter is an iPhone/iPad mount that sums the iShotgun and another iSeries mic to a single mono input, perfect for face-to-face interviews.

The supercardioid pattern eliminates unwanted background noise by focusing on the subject. The company says that the professional sound brings studio quality audio to mobile recordings or live broadcasts. In addition, its size and portability make the iShotgun Kit a suitable tool for mobile journalists and audio professionals.

For information, contact MicW/Full Scale AV in Tennessee at (615) 833-1824 or visit www.fullscaleav.com.

NEW NEUMANN MONITORS SHIP IN MAY

The new Neumann KH 310A is a three-way, active monitor system that delivers accurate sound reproduction in studio and broadcast environments.

The electro-acoustic performance of the KH 310A is based on newly developed drivers housed in a sealed cabinet. The company says that this delivers extremely accurate reproduction across the entire frequency range, and at very high reproduction levels.

The KH 310A's treble, midrange and bass drivers have all been designed and tested by Neumann. Each driver is optimized using acoustic simulations, and undergoes an extensive series of measurements, ensuring linear reproduction across the entire frequency range, according to the company.

The bass driver provides an accurate response down to 34 Hz, Neumann says.

The mid-frequencies, essential for speech and vocals, are reproduced by a dedicated soft dome midrange driver. Meanwhile, high frequencies are handled by an alloy fabric dome in an elliptical Mathematically Modeled Dispersion waveguide.

Neumann concludes that the result is an authentic sound, rich in detail, which provides a wide sweet spot while minimizing reflections in the vertical plane. Three Class AB amplifiers and a high-capacity SMPS power supply deliver headroom to the system with minimal audible distortion, and the acoustical controls for bass, low-mid and



high frequencies make the KH 310A a problem solver for acoustically challenging environments such as edit suites and OB vans, it adds. The KH 310A is magnetically shielded.

The KH 310A cost \$2,249.95 each, and is shipping in May.

For information, contact Neumann in Connecticut at (860) 434-9190 or visit www.neumannusa.com.

Control Freaks



SITE Sentinel[®] 16



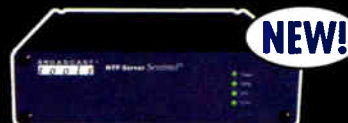
WVRC-8



AC Power Sentinel[®] 2
AC Power Sentinel[®] 2 Plus



WVRC-4



NTP Server Sentinel[®]



SITE Sentinel[®] 4

AES Switcher Sentinel[®] 4 »Web

Switcher Sentinel[®] 3 »Web

BROADCAST[®]
t o o l s
PROBLEM SOLVED

www.broadcasttools.com



©2013 Broadcast Tools

Scan the QR code for information



SHURE DEVELOPS OMNIDIRECTIONAL WIRELESS CAPSULE

Shure says that its VP68 capsule was developed for broadcast/media production professionals seeking superior performance in an omnidirectional capsule for handheld wireless transmitters.

According to the company, it's a convenient solution for ENG and interview field recording, which provides a forgiving polar pattern for critical microphone positioning.

In addition, the company says, the VP68 provides the clearest and cleanest on- and off-axis audio for critical media production applications. It requires

minimal positioning toward the sound source (typically interview subjects), offers excellent performance in interior and exterior applications, and captures authentic ambient sounds to preserve context. Featuring a condenser element, the VP68 is compatible with Shure handheld wireless transmitters.

Chad Wiggins, category manager for Wired Products at Shure, said it's a suitable tool for videographers and other broadcast professionals. He said the omnidirectional polar pattern is suitable for interview applications.

Other useful attributes of the omnidirectional capsule are minimal wind noise when used outdoors, minimal handling noise as the user touches or moves the mic, minimal popping when the user speaks words beginning with plosives such as P, B or T and no proximity effect when the mic is positioned close to the mouth.

For information, contact Shure in Illinois at (847) 600-1200 or visit www.shure.com.



GENELEC GOES GREEN

Genelec is boasting that its new line of small speakers are green (in all but color). The biamplified M Series that use what Genelec calls a Natural Composite Enclosure. It's made out of wood fiber and recycled materials. The onboard amplifiers are energy efficient Class D digital amps.

Genelec has also built-in Intelligent Signal Sensing, something of a silence detector that puts the monitor in a low-power consuming standby mode after 30 minutes of inactivity. It will cycle back on when a signal is detected.

The M030 (shown) has a 5-inch woofer and 0.75-inch tweeter. A 50 W Class D amp powers the LF section while a 30 W Class D amp powers the HF driver.

The M040 sports a 6.5-inch woofer and one-inch tweeter. The amps are 80 W and 50 W respectively.

For information, contact Genelec in Massachusetts at (508) 652-0900 or visit www.genelecusa.com.



What if your host can't de-fuse the next caller?



Contain explosive language with **Program Delay Manager**, radio's most advanced profanity delay. Seamless delay exits and builds mean minimal disruption for your listeners. Advanced web features let you control PDM from anywhere. And our patented **PD-Alert™** system emails time-stamped audio every time the Dump button gets pressed, so you'll know what happened instantly when a caller goes off.



It's about time

The Telos Alliance • www.25-Seven.com • (216) 241-7225

TECHUPDATES**PRESONUS DEBUTS MONITOR SERIES**

Audio equipment maker PreSonus has two new monitor series available, Sceptre (shown) and Eris.

The Sceptre series two-way studio monitors feature the company's CoActual coaxial driver array.

According to the company, the monitor's panoramic soundstage, clarity, fine detail and dynamics are the result of a design from Fulcrum Acoustic's Dave Gunness. The coaxial driver works with a 32-bit/96 kHz, dual-core processor running Fulcrum Acoustic's TQ Temporal Equalization technology.

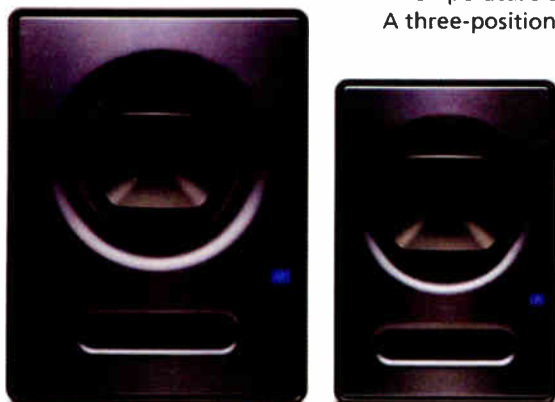
The Sceptre S8 features an 8-inch LF driver, while the S6 uses a 6.5-inch driver. Both employ a 1-inch, horn-loaded HF transducer and are biamplified, with each transducer powered by a 90 W, Class D power amp. Sceptres have balanced XLR and 1/4-inch TRS line-level inputs and feature acoustic ports.

A four-position acoustic space switch controls a shelving filter centered at 100 Hz to account for bass response. A high-pass filter switch sets the 24 dB/octave filter's LF cutoff. A high-frequency driver adjustment switch adjusts the tweeter level. Sceptres have RF shielding, current output limiting, over-temperature protection, internal power supplies and an amplifier "soft start" feature.

The Eris series are traditional two-way speakers. The Eris E8 has an 8-inch Kevlar LF transducer and a 1.25-inch low-mass silk-dome tweeter, with Class AB biamplification (140 W). The E5 uses a biamplified (80 W) 5.25-inch LF driver and 1-inch tweeter. Both models have acoustic ports, balanced XLR and 1/4-inch TRS inputs and unbalanced RCA inputs and include RF shielding, current-output limiting and over-temperature and subsonic protection.

A three-position acoustic space switch controls a shelving filter at 800 Hz, which provides three attenuation points for controlling the bass response. A high-pass switch sets the LF cutoff. There are adjustable high-frequency and midrange controls.

For information, contact PreSonus in Louisiana at (225) 216-7887 or visit www.presonus.com.

**HEIL SOUND DELIVERS HEADPHONES**

Bob Heil is known for many audio achievements ... including headphones.

The Pro Set 3 are circumaural headphones with padded earcups. The 40-millimeter drivers are powered with neodymium magnets. Printed acoustic response is 10 Hz–20 kHz.

The Pro Set 3 ships with three interchangeable three-meter cables — coiled for DJ duty, straight for music listening or straight again but with an iPod/iPhone adapter. The connectors are gold-plated.

For information, contact Heil Sound in Illinois at (618) 257-3000 or visit www.heilsound.com.

**AKG C4500 BC WORKS FOR BROADCASTERS**

Microphone maker AKG says that its C4500 BC large-diaphragm condenser microphone in the front-addressed format is specially designed for on-air broadcast work.

According to the company, it provides a cardioid pickup with voice-friendly tuning and a low proximity effect and high RF/EMI insensitivity.

The company adds that its exceptionally low self-noise (8 dBA) and its 165 dB maximum SPL capability also make the C4500 BC useful for close-miking of loud instruments like bass drums, brass instruments and guitar amps.

For information, contact AKG in California at (818) 920-3212 or visit www.akg.com/usa.

**TASCAM SHIPS HEADPHONES**

Audio equipment maker Tascam has added a pair of headphones to its product lineup.

The TH-02 is a closed-back design with padded, rotatable ear cups. The drivers measure 50 millimeters. The design is also foldable for portability.

The listed frequency response is 18 Hz–22 kHz. A 9.8-foot cable is attached and a 1/8-inch–1/4-inch adapter is included.

For information, contact Tascam in California at 323-726-0303 or visit www.tascam.com.

**AM Ground Systems Co.**

www.amgroundsystems.com

1-888-GROUND0

PHYSICAL
AM SITE SERVICES

CONSTRUCTION

EVALUATION

REPAIR

SAMPLE, FEED & CONTROL LINE LOCATION, REPLACEMENT & REPAIR

MOM MODELING PREPARATION WORK

SERVING THE TECHNICAL AND CONSTRUCTION NEEDS OF AM BROADCASTERS FOR OVER 25 YEARS

- Complete Ground System Construction, Evaluation and Repair Services.
- Fast, Efficient Full Site Construction Services.
- Firm quotes



Has your AM site been vandalized or damaged by unauthorized construction?

Has your coverage or site stability declined over time?

Contact us today for a no obligation quote on any of our services.

Reliable,
On-time Installation
Firm Quotes
Quality Workmanship

AMGROUNDSYSTEMS.COM
888-476-8630
888-GROUND0



9/11/2001
WE STILL REMEMBER



BUYER'S GUIDE

HENRY'S NEW SPORTS POD FEATURES DUPLEX TALKBACK

New from Henry Engineering is the Sports Pod.

Last year the company introduced Talent Pod, a mic and headphone controller suitable for remote broadcasts as well as typical radio studios. It lets an announcer turn his or her mic on and off, in order to create a personal headphone audio mix of local and return



audio. Henry says that the Talent Pod solved several problems encountered in remote broadcasts, especially at sporting events.

But the company said users wanted a talkback output, so talent could talk off-air to a producer, and also a way to turn the mic on and off remotely.

The new Sports Pod offers these features. It is similar to Talent Pod, with the same headphone audio-mix facilities and the ability to link several units via Cat-5 cable. But instead of two buttons for mic control, it has three: mic on/off, cough and talkback.

The Sports Pod's mic on/off function is controllable remotely. Both the talent and a remotely located push-button can control the microphone.

Sports Pod's talkback system lets the talent talk to a producer or engineer. Pushing the talkback button will mute mic audio from the main (on-air) output, and send it to an isolated talkback output.

For information, contact Henry Engineering in California at (562) 493-3589 or visit www.henryeng.com.



ALESIS ELEVATES ITS MONITORS

Alesis has added to its monitor lines with the Elevate series.

Available in two models, Elevate 3 (shown) and Elevate 5, the series features a powered, two-way design. The Elevate 3 uses a 3-inch bass driver while the Elevate 5 uses a 5-inch bass driver. Both models use a 1-inch soft dome tweeter with an elliptical waveguide.

Onboard amps split power between the drivers, 20 W for the Elevate 3 and 40 total watts for the Elevate 5. Volume controls, a blue power LED and a 1/8-inch headphone output are on the front panel. The Elevate 3 has a 1/8-inch subwoofer output. A bass boost switch is on the rear.

Both models have magnetic shielding.

For information, contact Alesis in Rhode Island at (401) 658-5760 or visit www.alesis.com.

MXL OFFERS A NEW WIRELESS SYSTEM

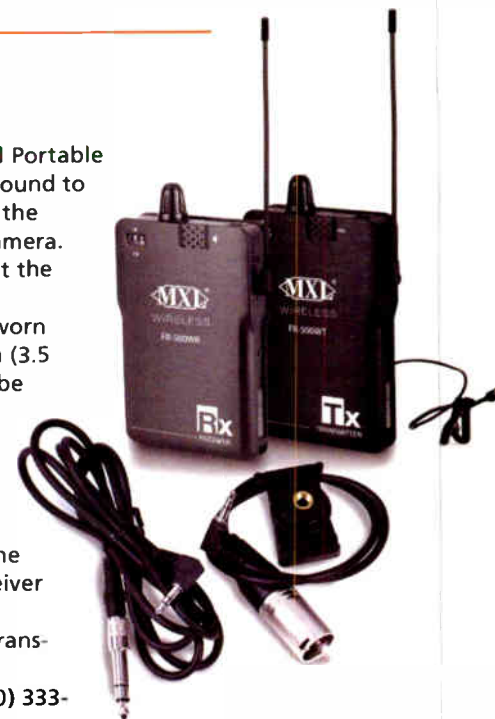
According to MXL Microphones the new FR-500WK Professional Portable Wireless Audio System is a compact, cost-effective kit for adding sound to video, wirelessly. The kit comprises the FR-500WT transmitter and the FR-500WR receiver, plus everything needed for use with a DSLR camera. The MXL FR-500WK lets videographers add audio to video without the need for cables.

The FR-500WT transmitter includes a lavalier mic that can be worn by the subject. The transmitter has a built-in microphone, 1/8-inch (3.5 millimeter) mic jack and line in. Alternatively, the transmitter can be used with a handheld microphone.

The FR-500WR receiver mounts onto a DSLR camera or it can be used with a recording device. A hot shoe adapter and camera cable is included. The receiver has a built-in speaker, 1/8-inch (3.5 millimeter) headphone jack and line out. A 1/8-inch-to-XLR male cable and 1/4-inch adapter are included to connect the receiver to mixers and other pro audio gear. Additionally, the receiver can be used with headphones.

Multiple receivers can be tuned into the same channel as one transmitter to enable multiple people to hear the same audio.

For information, contact MXL Microphones in California at (310) 333-0606 or visit www.mxlmicro.com.



PRODUCTS & SERVICES SHOWCASE

Coaxial Dynamics A CDI INDUSTRIES, INC. COMPANY
Specialists in RF Test Equipment & Components

- Digital Broadcast
- Directional Wattmeters
- Line Sections
- Plug-In Elements
- Loads and Attenuators
- Signal Samplers
- Meters
- Accessories
- Low Pass Filters
- Power Sensors
- Custom OEM

Coaxial Dynamics (a CDI Industries, Inc. Company)
6800 Lake Abram Drive • Middleburg Hts, OH 44130
Phone: 440-243-1100 Toll Free: 800-COAXIAL Fax: 440-243-1161
sales@coaxial.com • www.coaxial.com

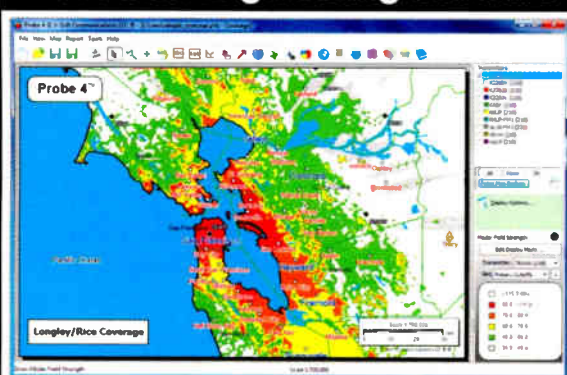
WORLDWIDE
L P F M
HEADQUARTERS

Featuring the Highest Quality / Lowest Cost
FCC Certified LPFM TRANSMITTERS on the Planet!

LPFM Planet is brought to you by the good people at:
PROGRESSIVE CONCEPTS
300 S. HARTLET RD., STREAMWOOD, IL 60107
EMAIL: sales@progressive-concepts.com
PHONE: 630.736.9822 FAX: 630.736.0354

www.lpfmplanet.com

Broadcast Engineering Software



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



www.V-Soft.com

(800) 743-3684

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

WANT TO BUY

Wanted: old analog automation equip, filters and EQ, tube amps, reel to reel, cart machines and parts. Pacific NW area. 503-493-2983.

CONSOLES/MIXERS/ ROUTERS

WANT TO BUY

Looking for parts for an old Arrakis 500SC Console, interested in buying one of these boards or a similar Arrakis board of the same vintage - 10 to 15 years old. If you have anything please call Barry O'Connor at 760-325-2582 x.237 or cell 760-902-4751.

MICROPHONES/ HEADPHONES/ SPEAKERS/AMPS

WANT TO BUY

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

MISCELLANEOUS

ROTRON BLOWERS AND PLATE BLOCKERS, new & rebuilt for Elcom, Harris, CCA, CSI, McMartin, Goodrich Ent. 11435 Manderson St. Omaha, NE 68164 402-493-1886 Email: CGoodrich@tconl.com

WANT TO SELL

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

WANT TO BUY

Collector wants to buy: old vintage pro gears, compressor/limiter, microphone,

CONSULTANTS



OWL ENGINEERING, INC.
Consulting Communications Engineers
5844 Hamline Ave. N., Shoreview, MN 55126
651-784-7445

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

Fax (651) 784-7541 E-mail: info@owleng.com "Member AFCC"

Herb Kravitz
Broadcast Engineering Contractors

AM-FM
Professional Technical Support
Comprehensive Field Service

phone 609-347-4821
215-490-6432
hkradio@att.net

GRAHAM BROCK, INC.
BROADCAST TECHNICAL CONSULTANTS
Full Service From Allocation to Operation AM/FM/AUX Services:
Field Work, Antenna and Facilities Design

Over 45 years engineering and consulting experience

912-638-8028
202-393-5133
www.grahambrock.com

K&A ENGINEERING

Will LPFM Affect Your Station?
352-332-3157
kesslerandgehman.com

EVANS ENGINEERING SOLUTIONS

Over 30 years of engineering expertise
FCC Applications • Design • Field Engineering
Tower Osturing • Upgrade & Relocation Studies
AM Directional Array Tuning & Proof
Microwave Planning
(262) 518-0002
ben@evansengsolutions.com
Member AFCC

SPACE IS AVAILABLE
Call David
212-378-0400 ext. 511

received, also have some CASH! Contact Chief Engineer Brian, BADodge@live.com or 518-265-2937.

RECEIVERS/ TRANSCEIVERS

WANT TO SELL

American Made SCA Decoders, 417-881-1846.

RECORDING & PLAYBACK HARDWARE

WANT TO BUY

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

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

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

SATELLITE EQUIPMENT

WANT TO SELL

OMB MT Platinum complete STL xmtr & rcvr, frequency agile, like new, 4 yrs old, \$1500/ BO. C Haynes, 601-218-5969.

TAX DEDUCTIBLE EQUIPMENT

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

mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035 or ilg821@aol.com.

& 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 ronwtamm@yahoo.com.

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

Looking for wiring diagram and manual to a Gates Remote Mixer M5136, the Gates mixer was used in the 50s. Gary, gd-str@hotmail.com or 276-935-8230.

Non-profit AM Station on 560 AM lost xmtr site, looking for parts at reasonable price to rebuild!! Need 5K AM xmtr, 3 guyed 299 foot towers, side lights, top beacons, ATU parts, Phasor, Base insulators, spark gaps, plus other things. Tax deductible gifts gladly

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, KSF, 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

ACOUSTICS

Acoustics First
-SOUND AND NOISE CONTROL MATERIALS-
Toll-Free Number **888-765-2900**
www.AcousticsFirst.com

ANTENNAS/ TOWERS/CABLES

WANT TO SELL

AM LOOPS

FOR EAS RECEIVERS
FEMA RECOMMENDED

www.PixelSatRadio.com
(303) 526-1965

3-1/8" rigid line, 500 feet, you take down, BO; Jampro 5-bay high power antenna, on tower, on 100.5 MHz, you take down, BO. C Haynes, 601-218-5969.

AUDIO PROCESSING (INCLUDES ON-AIR)

WANT TO BUY

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

AUTOMATION EQUIPMENT

WANT TO SELL

It's free and it has been expanded. The only cost is to keep us informed as to

DISTRIBUTOR DIRECTORY

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

CORNELL-DUBILIER MICA CAPACITORS
FROM STOCK

JENNINGS VACUUM CAPACITORS
FROM STOCK

HIGH ENERGY CERAMIC CAPACITORS

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



Rebuilt Power Tubes 1/2 the cost of New!

Se Habla Español

ECONCO

Se Habla Español

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



TRANSMITTERS/EXCITERS/TRANSLATORS

TUBES

TRANSCOM CORPORATION

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

Used FM Transmitters

100 W	2008	BE FM100C
250 W	2006	Crown FM250T
500 W	2000	BE FM 500C
5 KW	2006	Harris Z5CD, solid-state, unused.
10 KW	1991	Harris HT10
20 KW	2000	Harris HT20CD
27.5KW		Continental 816R4, SS IPA & all factory upgrades
27.5KW	1988	Continental 816R4B, SS IPA & LP filter cooling option
30 KW	1988	Harris FM30K
35 KW		BE FM35B/T, upgraded in 2001

Please visit our website, www.fmamtv.com, for additional listings.



CROWN BROADCAST

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

New TV Transmitters- Analog and Digital
 OMB and Technalcojix
 VHF and UHF TV Antennas
 (10 W to 10 KW) TV STL

Used AM Transmitters

Please see our website for a current listing

Exciters & Miscellaneous Equipment

Phasemaster T12 000
 New Phase Technologies PT330D, solid state 3 phase converter
 Urban Optimods 8100XT, 8100A1
 BE FC30, SCA Generator

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

www.fmamtv.com • E-mail: transcom@fmamtv.com
 RETUNING & TESTING AVAILABLE • CALL US FOR A QUOTE!

WANT TO SELL
 CCA AM 10,000 D - Call John KQSS 928-595-0263 between 10 & 6 PM Pacific Time.

QE1 30kW xmtr, FM, in gd cond on 100.5 Mhz, \$5000/BO; TFT STL xmtr & rcvr, \$750/BO. C Haynes, 601-218-5969.

WANT TO BUY
 5-10-20K AM xmtr on 1430 for Church run station in Northeast, fixer uppers OK, please email WTTT@live.com or call 413-256-1430, we have to rebuild due to an accident with tower, also need ATU parts for upgrade. God Bless you Real Good!!

RF PARTS™ CO.
 Se Habla Español We Export

EIMAC • TAYLOR • SVETLANA
 New & Rebuilt Tubes - Same Day Shipping
 Motorola • Toshiba • SGS • Thomson & Mitsubishi Semiconductors

800-737-2787 760-744-0700
rfp@rfparts.com www.rfparts.com

FOR THE BEST PRICE
 & 24 Hr service on transmitting tubes & sockets/parts, new & rebuilt call Goodrich Ent. at 402-493-1886 day or night, www.goodrichenterprises.com.

Broadcast Equipment Exchange

For more information, ask David at 212-378-0400 x511 or dcarson@nbmedia.com

RADIOWORLD

Without advertising a terrible thing happens...

NOTHING...

For information contact David at 212-378-0400 ext. 511 or dcarson@nbmedia.com

EMPLOYMENT

POSITIONS WANTED

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

Articulate with superior communication skills, friendly and good listener. Comical and entertaining, multitasked, team player. Extensive customer service and organizational ability. Teka, 210-290-0909 or Teka.willis@yahoo.com.

Character, with interesting personality. Passion for sports, music and entertainment. Love to laugh, and keep things stimulating. Creative with good on-air/production. Ricky, 972-227-7708 or ricky_lacy85@yahoo.com.

Entertaining and energetic, driven, personable Talent. Cognizant, detailed, analytical. Up on current events, and good bits, coachable, and idyllic. Motivator. Kenneth, 972-370-8716 or kennethmorris78@yahoo.com.

Radio personality with PBP experience, copywriting, digital production and VO. Eager to work, passionate about the business, and dream of mine. Darelle, 469-531-5254 or darelleholmes.31@gmail.com.

Strong Marketing/Sales/Promotional talent and strategies. Strong Public Speaker, motivator and communicator. Dedicated to betterment of company and its assets. Nika, 214-777-4905 or amisaved4real@yahoo.com.

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

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

ADS GET POSTED THE NEXT BUSINESS DAY AND WILL RUN FOR A FULL BUSINESS DAY

CONTACT US WITH AN AD IN OUR RADIO WORLD NEWSPAPER, EMPLOYMENT SECTION AND REALLY COVER THE BROADCAST INDUSTRY AND MORE!

www.radioworld.com

Call David Carson for all the details at 212-378-0400 ext. 511 or dcarson@nbmedia.com

ISO 9001 Certified
 The Choice of Successful Broadcasters Since 1934

NEW POWER TUBES
 Triodes
 Tetrodes
 Pentodes

NEW SOCKETS & REPLACEMENT PARTS

Worldwide Availability

Made in U.S.A.

CALL 800-414-8823
 Int'l (650) 592-1221
 Fax (650) 592-9988

Visit our Web Site at www.eimac.com

READER'S FORUM

Womble Carlyle attorney John Garziglia's comments in the Randy Stine article "FM Translator Roulette Begins" (Radio World, March 13) sure set off some sparks. Here is a smattering of what we've gathered.

Garziglia responds on page 38.



LPFMS ACCESSIBLE TO UNDERSERVED POPULATIONS

My letter is in response to a quotation in Radio World stating that low-power FM broadcasters are merely hobbyists who are playing at radio. I am one of the original petitioners to the FCC for the LPFM radio service (Docket 99-25).

The statement about LPFM playing with radio is completely incorrect. LPFM operators are serious radio broadcasters with a serious interest in serving their local communities. One of the most important aspects of LPFM radio is that it allows minority communities to have their own radio stations that can be used for community building.

For example, minority people living in the inner city can use LPFM stations to bring community news and events to their own neighborhoods. This opportunity

supports the constitutional law's focus on equal opportunity rights for all Americans.

Radio is not just for economic elites to make large sums of money. Radio is also for minorities to grow and accomplish a better status within the nation. Also, few women own radio stations today. In the future, women and minorities can move into radio ownership, starting with LPFM radio.

In addition, new producers of program content can access the airwaves through LPFM. Members of the community can participate in the development and presentation of programs. Radio broadcasting can be for everyone in the United States, not just a few.

Nickolaus E. Leggett
Retired Technical Writer
Alcatel Data Networks
Reston, Va.

INCENDIARY QUOTE WAS A POOR CHOICE

I was a little surprised at the line accusing LPFM applicants of being "mostly hobby broadcasters that would like to play radio with an LPFM station."

I realize it was a quote, but I think including it in the article did very little to calm the waters. Quite the opposite, in fact.

While I'm sure there probably are some LPFM applicants that are little more than hobby broadcasters, most whom I've met are quite serious about what they are doing. At best, I thought the comment was a cheap shot.

Since I was the founder of one of the first LPFM stations to be awarded a construction permit in Texas, I think I can speak from some experience. At the time, most LPFM applicants were quite serious in their quest to serve their community, by offering programming that was not available in their area.

I doubt that has changed.

Throughout the initial application process, I got to

know many (LPFM applicants/operators). Over the next 10 years or so, I again got to know quite a few people who were operating LPFM stations. I've found very few "radio wannabes." In fact, several of the leaders of the movement were experienced radio veterans.

Their product is as professional as anyone's. Imagine that.

My old LPFM station, KZQX(LP), became successful enough to acquire a commercial FM frequency. Radio World even wrote a nice article about our transformation ("From LPFM to Commercial FM: It's Complicated." August 2011).

Since that time, we've acquired a local AM station and a couple of FM translators to go with it. The reason we were able to do that is because we had enough listeners to make it possible. There is demand for our programming.

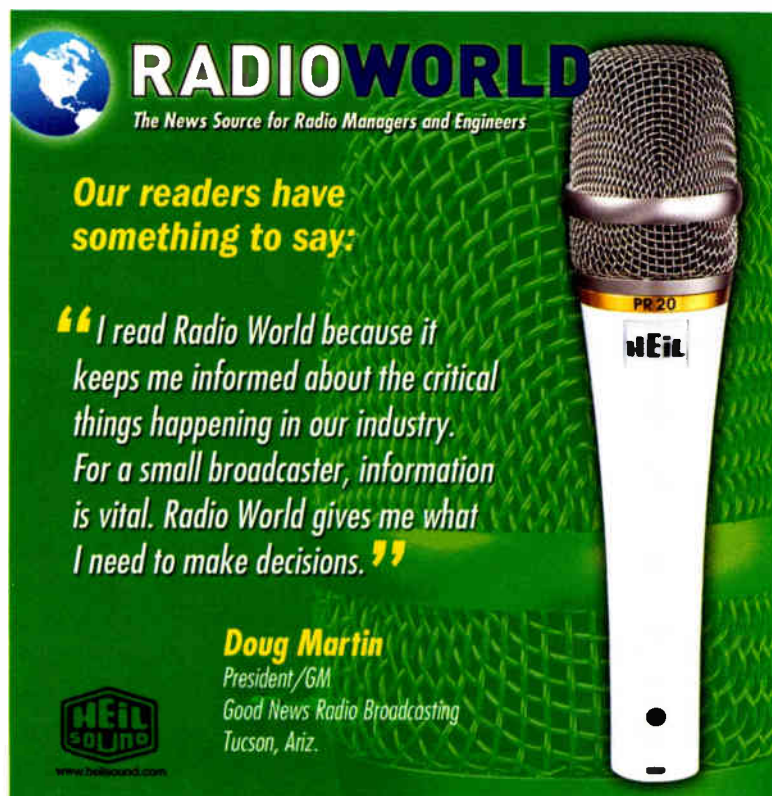
Everyone has to start somewhere. Rather than oppose LPFM, commercial broadcasters (myself included) should welcome it, realizing that it can be the incubator for the next generation of radio broadcasters. Your new employees have to come from somewhere.

If the FCC is really serious about localism in radio, they should allow translators to originate local programming. That would be advantageous to existing commercial broadcasters who could use them to super-serve their communities.

It would allow LPFM advocates a way to inject localism into the airwaves, maybe at enough power to garner a reasonable audience. Even the satellite translator broadcasters could benefit by leasing time to local operators.

There could be a lot of winners in such a scenario. Allowing daytime AMs to broadcast overnight on their translators has already established a de facto commercial LPFM service. Why not just even out the playing field?

Chuck Conrad
General Manager, Owner
KZQX(FM), KDOK(AMIFM)
Kilgore, Texas



RADIOWORLD
The News Source for Radio Managers and Engineers

Our readers have something to say:

"I read Radio World because it keeps me informed about the critical things happening in our industry. For a small broadcaster, information is vital. Radio World gives me what I need to make decisions."

Doug Martin
President/GM
Good News Radio Broadcasting
Tucson, Ariz.

ADVERTISER INDEX

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

PAGE	ADVERTISER	WEB SITE/URL
31	25-Seven Systems	www.25-seven.com
8	305 Broadcast	www.305broadcast.com
19	Aldena	www.aldena.it
32	AM Ground Systems Co.	www.amgroundsystems.com
18	Arrakis Systems Inc.	www.arrakis-systems.com
14	Audio Technica	www.audio-technica.com
1, 29	Axia - The Telos Alliance	www.axiaaudio.com
30	Broadcast Tools, Inc	www.broadcasttools.com
3	BSW	www.bswusa.com
33	Coaxial Dynamics	www.coaxial.com
7, 39	Comrex Corporation	www.comrex.com
24	Deva Broadcast Ltd	www.devabroadcast.com
28	ESE	www.es-web.com
26	Grace Broadcast Sales	www.gracebroadcast.com
17	Harris Corporation	www.broadcast.harris.com
36	Heil Sound, Ltd.	www.heilsound.com
15	Inovonics Inc	www.inovon.com
4	Kintronic Labs Inc	www.kintronic.com
5	Lightner Electronics	www.lightnerelectronics.com
11	Logitek	www.logitekaudio.com
6, 12, 14	Nautel Ltd.	www.nautel.com
25	Omnia - The Telos Alliance	www.omniaaudio.com
33	Progressive Concepts	www.progressive-concepts.com
27	RCS	www.rcsworks.com
23	SCMS	www.scmsinc.com
13	Telos - The Telos Alliance	www.telos-systems.com
9	Tieline Technology	www.tieline.com
2, 20-21, 40	Wheatstone Corporation	www.wheatstone.com

YOU DON'T HAVE TO LIKE LPFM, BUT RESPECT IT

Over the years, I have worked with John Garziglia to persuade the FCC to allow locally originated programming on translators. And I have worked against John by pressing the FCC to allow LPFM stations below 50 watts.

Even where we have disagreed, our encounters have been consistently courteous and respectful. In his latest statement, however, John has unfairly trivialized the value of volunteer service at community radio stations and has inaccurately understated the level of professional radio expertise in the LPFM movement.

I cannot speak for all LPFM advocacy groups, and especially not for Prometheus Radio Project, which has its own distinct political agenda. I am nevertheless co-founder and current president of the Amherst Alliance, as well as attorney for Let the Cities In, which gives me some perspective on the matter.

Amherst has been working for LPFM since 1998, while LTCL, focused on expanding urban LPFM, is only four months old.

Within these two groups, I can assure you, calling the average aspiring LPFM broadcaster a "hobbyist" is like calling the deacon of a church a hobbyist. Some of our members have spent years and years, at dozens of hours a week, donating labor to (and even self-subsidizing) Internet radio stations and/or Part 15 AM stations that might be the only local stations in their community.

If this is a "hobby," so is service as a volunteer firefighter.

Let me add that some of the aspiring LPFM broadcasters, in both Amherst and LTCL, are former "mainstream" radio station personnel. They were forced out of "mainstream" radio by the reckless media consolidation that Congress and the FCC have permitted since the Clinton Administration. Now these individuals are "finding their way" back into broadcasting, through a new path that is open to them only because they, and other activists, went out and fought for it.

John Garziglia has the right to dislike LPFM if he wishes, but he should at least acknowledge and respect the tremendous human talent that is present in groups like Amherst and LTCL.

Don Schellhardt
President
The Amherst Alliance
Waterbury, Conn.

A DIFFERENCE IN SIZE, NOT PROFESSIONALISM

I agree with much of the article's attention given to the fact that the FCC has a real problem on its hands, having to deal with issues of fair use of available FM spectrum. However, I was very offended and, yes, even angered by the comments made by John Garziglia regarding those that might seek to get an LPFM station.

His commentary demonstrates the ignorance of those who simply oppose this service as being a nuisance to commercial radio.

His statements that somehow the whole FM band is being harmed (in favor of a nascent promise of community-based programming from mostly hobby broadcasters that would like to play radio with an LPFM station) indicates to me that he has never met an LPFM owner, or taken the time to see what is involved in running these operations.

It may be true that some do not do as good a job as they could; however, most LPFM stations provide a community service to their areas, broadcasting local events and news not even touched by the commercial stations.

I have been in broadcasting for 30 years, and have owned two full-power stations. The last 10 years have been spent running LPFMs. The only real difference between a large commercial station and a well-run LPFM is the size of the transmitter. From the exciter back to the control board, the work is the same.

In fact, LPFM owners have several disadvantages that will increase the workload. We are faced with the fact that we have to work much harder to get the cash flow to keep the station running, as well of the constant threat of being displaced by a full-power upgrade. In the last 10 years, this has happened to me three times.

And yes, we make a substantial investment in equipment, tower leasing and property. I personally know a number of LPFM broadcasters, and they all take their stations seriously and, I might add, are very community conscious.

During the last election cycle, we interviewed all but two of the local candidates running for office. We have local organizations into the station on a regular basis and run community PSAs. In our market, we are the only station that provides these services, and they all come with no charge.

So my suggestion to Mr. Garziglia is that he get out and meet some of these dedicated people who just want to play radio.

Peter Swartz
General Manager
WEKJ(LP)
Homosassa, Fla.

IN NEW ENGLAND, WE TAKE LPFM SERIOUSLY

I read Randy J. Stine's "FM Translator Roulette Begins" with interest, but I am concerned about the perception of LPFM as portrayed by Womble Carlyle attorney John Garziglia, who characterized LPFM applicants as "mostly hobby broadcasters that would like to play radio with an LPFM station."

To the contrary, Public Media of New England Inc., one of those *aspiring* LPFM broadcasters, is compelled, and believes it is obligated, to provide community news and programming to its core city of Haverhill, with its more than 60,000 residents.

Non-profit Public Media of New England operates the Internet radio station WHAV, which is also relayed by seven public access television stations. Since 2004, WHAV has carried on a local radio tradition of service started by its former terrestrial namesake in 1947.

I imagine the flood of 250-watt AM stations created just after World War II, like WHAV, were similarly looked down upon at the time by some people in the industry.

WHAV's board and staff are civic-minded individuals motivated by a concern that residents are not receiving adequate information to make life choices, participate effectively in the democratic process or make decisions in their own best interest.

The terrestrial WHAV, and its Haverhill-centric programming, disappeared after being consolidated in a group of stations. Similarly, the once-daily Haverhill Gazette newspaper was reduced to a weekly and its local office finally shuttered last year.

No ill will is intended against these other media, as they have had their own battles to wage. But the fact

is that Public Media of New England's WHAV is now the sole medium to remain based in the city. Online, WHAV operates 24 hours a day, seven days a week, with hourly "Community Spotlight," local weather and breaking local news. There is also local talk programming and more.

WHAV's existing Internet and cable operations, however, cannot reach a significant segment of the population that remains without broadband or cable television access. Moreover, radio is the ubiquitous medium of choice during an emergency.

I believe most LPFM applicants share these motivations.

Tim Coco
President
Public Media of New England Inc.
Haverhill, Mass.

OPERATIONAL HEADACHES ARE MORE THAN A HOBBYIST'S

I would love to respond to John Garziglia's rather broad mischaracterization of LPFM broadcasters. However, as I write this, our community has experienced a very severe storm (which hit March 18), and both of the commercial broadcasters in town have been effectively off-air for several days, leaving only our LPFM, WQJJ(LP), on the air working with emergency management and other local agencies — I simply do not have the time required to respond.

You see, I am too busy "playing hobby radio" by getting news and information out to the homeless and powerless people of our community who are now needing to know where to find shelters and emergency supplies until power (heat during sub-freezing nights) and other utilities are restored so that they can go back home.

As this is the *fourth* time we have been in just such a situation of being the only station on the air within the past two years, we are hoping that we may eventually convince the local commercial broadcasters that they, too, may eventually want to invest in a generator and a few additional emergency supplies so that they may also be here to operate "in the public interest and necessity."

The coverage afforded to us as an LPFM is extremely limited, so that we do not interfere with (the income of) the much more community-minded and responsible commercial broadcasters. These are the same commercial broadcasters who claim not to see any financial return from investing in emergency facilities.

At the very least, I am very much hoping to eventually convince two local stations that they do eventually need to invest in functional EAS equipment. This has been an issue for some time now, as their continued belief that "we've done just fine without the old version since it was mandated in 1997, by broadcasting a recording of a test at another station, so we'll do just fine without this new version, too" is a fallacy.

Just a quick thought from someone who is busy "playing hobby radio," while the local commercial stations are taking some time off while utilities are being restored.

Keith Hammond
General Manager
WQJJ(LP)
Jasper, Ala.

More on page 38

I Unfairly Took Aim at LPFM Proponents

A response to reader comments

BY JOHN GARZIGLIA

Don Schellhardt of the LPFM proponent The Amherst Alliance shared his letter with me objecting to my quote that characterized some LPFM proponents as “hobby broadcasters” (see pages 36–37) Don states that I have “unfairly trivialized the value of volunteer service at community radio stations and [have] inaccurately understated the level of professional radio expertise in the LPFM movement.”

Don is right to take issue with my statement. I agree with him. In my zeal to promote the removal of FCC regulatory barriers to enable AM stations that provide superb community-based programming to obtain FM translators, I unfairly took aim at LPFM proponents.

Broadcasters fully laud the community service goals of LPFM proponents. I am thrilled that among LPFM proponents are people who dearly love and believe in over-the-air broadcast radio. As one medium-market independent broadcaster commented to me, LPFM stations may very well be the radio training ground of the future and “if they get really good at it, maybe they are our exit strategy if someday we want to sell.”

The hope of broadcasters is, just as there are now many exemplary public radio stations, that many LPFMs will similarly become great radio stations. The fear, however, is that some LPFMs

will become “satellites” or descend into a chaos reminiscent of CB radio, neither of which would advance the goals of community-based broadcasting.

I fully appreciate the goal of future broadcasters, including LPFM proponents, to have their own radio station. But I do question the single focus of LPFM proponents in larger radio markets to try to obtain interference-creating 10-watt or 50-watt facilities when there is so much of a current opportunity to now reach the radio market with underutilized FM facilities.

The HD2 and HD3 channels that now cover larger communities have suboptimal usage and few listeners. HD2 and HD3 channels are prime candidates for time brokerage types of arrangements for community groups and aspiring broadcasters.

Yet I am aware of few specific instances in which aspiring LPFM broadcasters have approached FM HD stations seeking to broker time on an HD2 or HD3 channel. Yes, there would be a price involved, just as there will be with owning an LPFM station, but the population coverage from an HD2 or HD3 channel would far exceed any LPFM station.

Don mentioned the volunteer fire-

fighter analogy for LPFM broadcasters. Broadcasting, whether commercial or non-commercial, is a business in which the electric, rent and maintenance bills must be paid. Even for volunteer organizations, there are usually payrolls to meet.

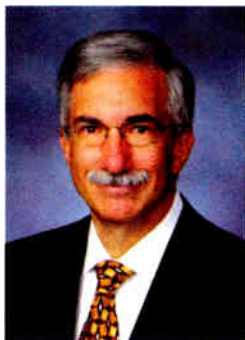
A future LPFM broadcaster is kidding herself if she does not think there will be a substantial cost for a major-market LPFM tower space and operational costs. Yes, volunteer firefighters receive no pay. But what must be kept in mind is the cost of the firehouse rent, firehouse infrastructure, fire engines, equipment and insurance, none of

which is free, and all of which have cost analogies to any radio station operation even if staffed by volunteers.

In short, LPFM stations, whether dependent upon a few wealthy donors or upon donations from the community-at-large, will need significant revenues to sustain quality operations which, going back to my original comment, will cull out any “hobby broadcasters” in short order.

I encourage existing broadcasters to embrace future LPFM broadcasters who aspire to provide great broadcast programming, both for the good of the community and for the future of broadcasting. I wish Don and his group all of the best in their aspirations to become part of the community of our nation’s great broadcasters.

John Garziglia is a Washington attorney who represents radio broadcasters nationwide. He recently participated on FCC Commissioner Pai’s AM Revitalization Panel at the NAB Show.



John Garziglia

READER'S FORUM

LPFMS ARE THE TRUE LOCALS

I take offense to Mr. Garziglia’s generalized statement about LPFM broadcasters being “mostly hobby broadcasters that would like to play radio with an LPFM station.” Where is Mr. Garziglia getting his information?

The earlier paragraph specifically noted that these were his opinions and feelings, not facts. Furthermore, where is it stated that so-called “hobby broadcasters that would want to play radio” don’t have as much right to market share as the big corporate stations?

I would argue that small potential LPFM operators are considerably more focused on their local communities than any 100,000-watt powerhouse. I started in small-market radio and worked my way up to jobs in Los Angeles and I can tell you firsthand that small, local radio stations truly serve their local communities, not always to the expansion of their bottom lines or market share.

I challenge Mr. Garziglia to produce evidence to support his opinions about LPFM operators being “mostly hobby broadcasters.” I would consider that most hobby broadcast-

ers do so either online through services like Nicecast, or Live365 or on “pirate” broadcast frequencies.

LPFM operators are following the same proper procedures and FCC regulations as large, high-power stations. All radio stations must serve the public trust and who does that better?

A giant mega-station that tells its audience that it is local in one town, while being “local” also in another town hundreds of miles away at the same time? No, sir.

LPFM operators face the same challenges and in most cases more challenges than larger stations. Not only do LPFM operators have to continually justify their existence to translator proponents, but they work within the limitations of a non-profit when it comes to underwriting; severely limiting their ability to generate revenue.

These operators have small, sometimes “out-of-pocket” budgets that will never rival the millions generated by huge corporate mega-stations. Yet even facing these disadvantages, LPFM stations survive and, in most cases, thrive in their local community.

*Gene Rowley
Contract Pilot
U.S. Army
Deployed to Afghanistan*

Next Issue of RADIO WORLD May 22, 2013
Next Issue of ENGINEERING EXTRA June 12, 2013

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

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

EDITORIAL STAFF

EDITOR IN CHIEF, U.S. Paul J. McLane
NEWS EDITOR/WASH. BUREAU CHIEF Leslie Stimson
GEAR & TECHNOLOGY EDITOR Brett Moss
U.S. ASSOCIATE EDITOR Alexis Hauk
TECHNICAL ADVISER Thomas R. McGinley
TECHNICAL EDITOR, RWEE Michael LeClair
PRODUCTION EDITOR, RWEE Karen Lee
CONTRIBUTING EDITOR John Bisset
INTERNATIONAL EDITOR IN CHIEF Marguerite Clark
LATIN AMERICA EDITOR IN CHIEF Rogelio Ocampo
LATIN AMERICA EDITOR Karina Gerardi
EDITORIAL ASSISTANT Emily Reigart

EDITORIAL CONTRIBUTORS

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

ADMINISTRATION & PRODUCTION

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

CIRCULATION

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

SUBSCRIPTIONS

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

CORPORATE

NewBay Media LLC
PRESIDENT AND CEO Steve Palm
CHIEF FINANCIAL OFFICER Paul Mastronardi
CONTROLLER Jack Liedke
GROUP CIRCULATION DIRECTOR Denise Robbins
VICE PRESIDENT OF WEB DEVELOPMENT Joe Ferrick

VIDEO/BROADCAST GROUP

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

ADVERTISING SALES REPRESENTATIVES

US EAST: John Casey, jcasey@nbmedia.com
T: 212-378-0400, ext. 512 | F: 330-247-1288
US WEST & CANADA: David Carson, dcarson@nbmedia.com
T: 212-378-0400, ext. 511 | F: 866-572-6156
EUROPE, AFRICA & MIDDLE EAST:
Raffaella Calabrese, rcalabrese@broadcast.it
T: +39-02-9288-4940 | F: +39-02-7004-36999
LATIN AMERICA: Susana Saibene, susana.saibene@gmail.com
T: +34-607-31-40-71
JAPAN: Eiji Yoshikawa, callerns@world.odn.jp
T: +81-3-3327-5759 | F: +81-3-3322-7933
ASIA-PACIFIC: Wengong Wang, wwg@imaschina.com
T: +86-755-83862930/40/50 | F: +86-755-83862920
CLASSIFIEDS: David Carson, dcarson@nbmedia.com
T: 212-378-0400, ext. 511 | F: 866-572-6156
LIST RENTAL: 914-925-2449, danny.grubert@lakegroupmedia.com

Radio World Founded by Stevan B. Dana

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

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

Globe graphic ©iStockphoto.com / Edward Grajeda

Copyright 2013 by NewBay Media, LLC.
All rights reserved.
Printed in the USA





1644: Just what it looks like. Two tin cups and a string. But it transmitted sound!



1876: Alexander Graham Bell's commercially viable telephone.



1900: Phones become fixtures in more well-to-do and steam-punk homes.



1920: Every home is working toward having a telephone!



1936: The advent of the dial desk phone. No more asking the operator to connect you.



1963: Push buttons usher in the thoroughly modern world. Touch tones enter pop culture.



1983: The mobile phone is a reality. Plots in all TV shows get a boost!



2004: IP Telephones begin to become the staple of modern business.



2007: Smartphones are complete communications centers. AND they can sound great!



STAC-VIP
VoIP • POTS • HD VOICE • CALL MANAGEMENT SYSTEM

AS PHONES GET 'SMARTER,' YOUR ON-AIR CALLERS SHOULD SOUND 'BETTER,' RIGHT? **NOW THEY CAN...**

STAC-VIP leverages VoIP (Voice over IP) technology to deliver a new way to manage *all* your phone calls for talk shows, interviews and contests. It breaks new ground by handling calls from HD Voice-capable telephones as well Smartphone apps. Give your listeners the best sounding shows on the air. Get **STAC-VIP**.

N O W S H I P P I N G

plugged into  Skype™

STAC-VIP is Plugged Into Skype™

comrex.com

COMREX

19 Pine Road, Devens, MA 01434 USA Tel: 978-784-1776 • Fax: 978-784-1717 • Toll Free: 800-237-1776 • e-mail: info@comrex.com

WHEATSTONE
WIP
THE INTELLIGENT NETWORK



modern : classic

LX-24

gotta have it!



Wheatstone

LX-24: ADVANCED MODULAR NETWORKABLE CONSOLE

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

World Radio History