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Now HD Radio Is Subject of a Patent Suit

Several radio groups that are already involved in automation fight are named in new litigation

BY RANDY J. STINE

A Delaware company has sued a number of radio ownership groups and automakers, alleging patent infringement for using voice and data transmission technology for HD Radio broadcasts.

This is the second recent, prominent legal action based on patent claims to be raised against U.S. radio broadcasters; the other involves studio automation technology. There is no known connection between the two sets of suits.

Wyncomm LLC claims the broadcasters are using in-band, on-channel technology and therefore infringing on U.S. patent no. 5,506,866 and several associated patents. Wyncomm lists Delaware Radio Technologies (DRT) as the exclusive licensee for its technology, and DRT is listed as a plaintiff in the suit.

Wyncomm has cited the same '866 patent as grounds for suing a number of large electronic firms in other recent

legal actions.

The '866 patent was applied for in 1993 and granted in 1996. IBOC digital radio technology did not receive FCC approval until 2002.

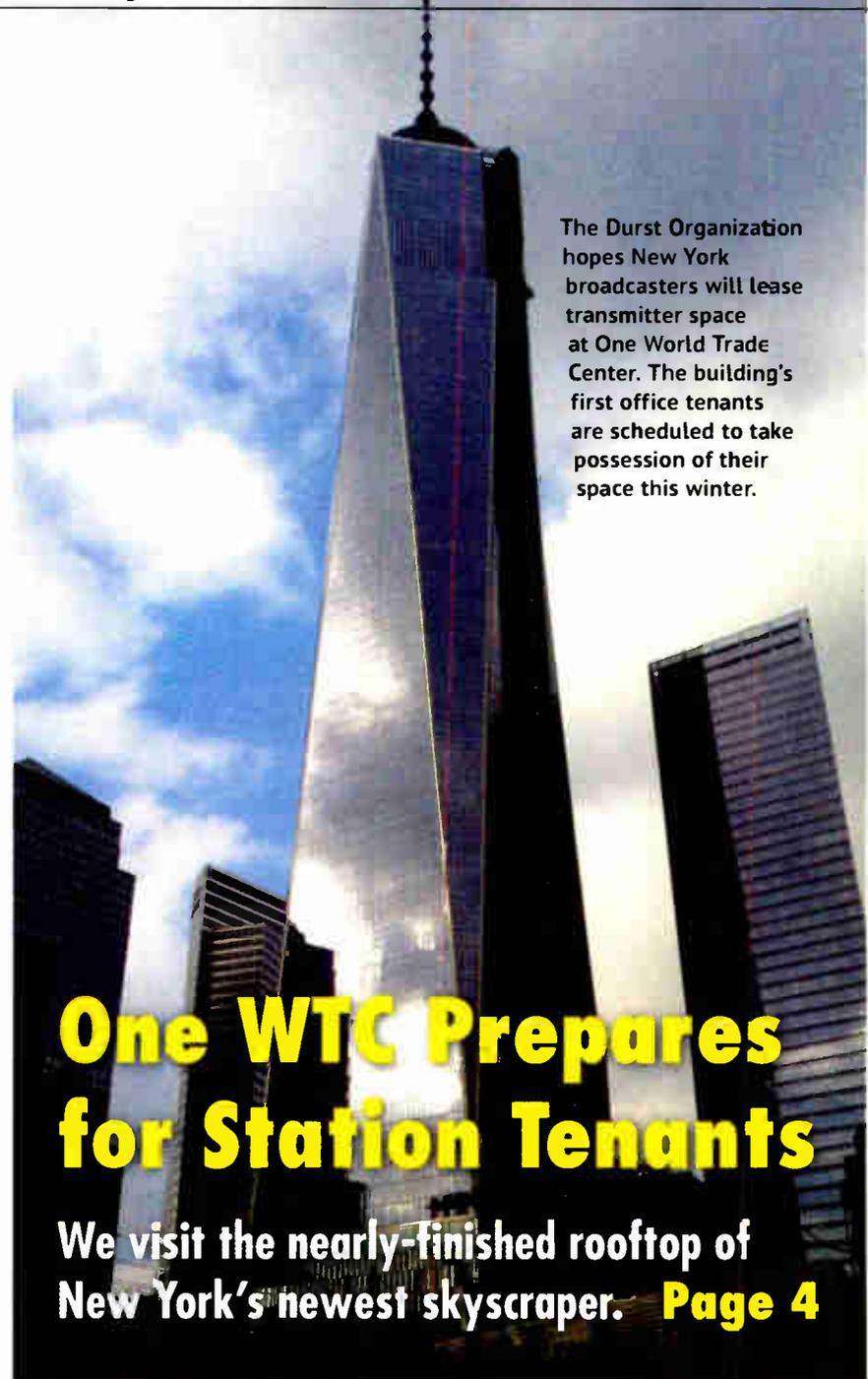
Attempts to reach Wyncomm for comment were unsuccessful.

The Nov. 1 filing in U.S. District Court in Delaware seeks unspecified damages, according to court papers. The broadcasters were ordered to answer the suit by Nov. 26, though most of the groups received an extension until Feb. 24, 2014, as they requested. Cox Media asked for and received an extension until Jan. 3.

Broadcasters are likely to deny the allegations and ask the judge to set the case aside, observers said. It was assigned to Judge Gregory Sleet.

IBiquity Digital Corp., which developed the type of in-band, on-channel digital radio technology now marketed as HD Radio, is not named nor identified in the lawsuits. IBiquity licenses

(continued on page 8)



The Durst Organization hopes New York broadcasters will lease transmitter space at One World Trade Center. The building's first office tenants are scheduled to take possession of their space this winter.

One WTC Prepares for Station Tenants

We visit the nearly-finished rooftop of New York's newest skyscraper. **Page 4**

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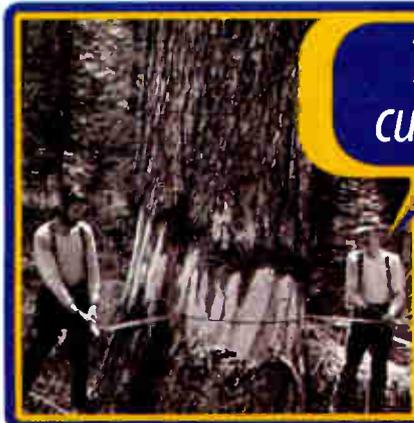
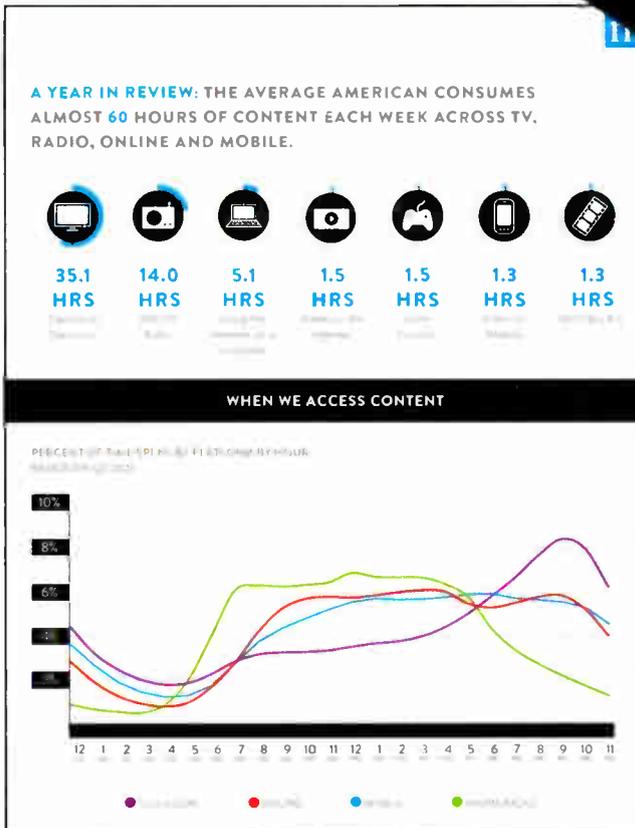


NEWSROUNDUP

CROSS-PLATFORM LISTENING: In its first cross-platform report since acquiring Arbitron, Nielsen said the average American radio listener tunes in to AM/FM radio for more than two hours a day. It also said audio consumption reaches a plateau in the morning hours, peaks around noon and then stays fairly constant before tapering off as people start their evenings and morph into television viewers. Over a year, the average American consumes nearly 60 hours — 2-1/2 half days — of content each week across platforms like television, radio, online and mobile.

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PATENT REFORM: The House voted 325-91 to pass the Innovation Act, which moved to the Senate. The patent reform bill, sponsored by Virginia Republican Rep. Bob Goodlatte, is designed to rein in so-called patent trolls. H.R. 3309 aims to require such lawsuits to be more specific about the supposed infringement and clarify the nature of the company behind such a lawsuit, among other things. The bill would allow technology vendors to step in and fight

lawsuits on behalf of customers as well as make it easier for a defendant to recover the cost of defending against an unsuccessful suit.

REACTION: CEA President/CEO Gary Shapiro praised the House action above, calling the bill "the most important technology legislation of 2013. Patent trolling is garden-variety extortion by another name, and we are one step closer to shutting it down." NAB President/CEO Gordon Smith said the vote "sends a strong message that lawmakers stand in support of innovation and condemn the harms caused to both the economy and our patent system by so-called 'patent trolls.'"

BTC: The Broadcaster Traffic Consortium is growing, adding markets and stations to its stable. Member stations use their FM analog and HD Radio signals to distribute traffic, weather, fuel prices and other map-related data for Here, a Nokia business. The data is delivered to Nokia navigation devices and in-dash systems. Univision, University of Michigan Radio and KCBX(FM) in San Luis Obispo, Calif., have joined the BTC. New markets for BTC are Ann Arbor and Flint, Mich.; Trenton and Morristown, N.J.; Manchester, N.H.; Gainesville-Ocala, Fla.; and, in California, San Luis Obispo, Santa Barbara, Temecula and Monterey/Salinas/Santa Cruz.

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Plans for Station Tenants

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FROM THE
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Paul McLane

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Photos by John Casey and Paul McLane

A view down onto the roof well. The base of the steel spire is at right. Master TV and FM antennas would be mounted on the spire; smaller systems like STLs, ENG, RPU and cameras will go on one of the three communication rings visible near the top center.

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89 BROADCAST LEVEL

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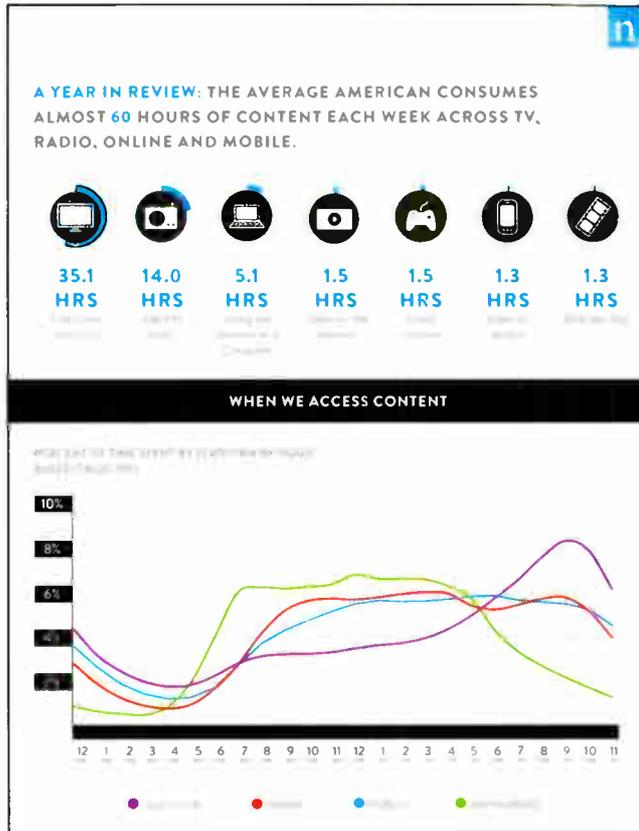
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One WTC Prepares for Station Tenants

Here's a look at the nearly-finished rooftop of New York's newest skyscraper

This fall, Radio World took a peek at the rooftop of the tallest building in the Western Hemisphere.

One World Trade Center, now soaring above lower Manhattan, is nearing completion. Condé Nast, its first office tenant, will take possession of its space this winter.

The Durst Organization co-owns the venture with the Port Authority of New York and New Jersey; Durst manages and leases the building. The company would like the rooftop to become a preferred transmission platform for radio and TV stations in New York, competing for RF tenants with the Empire State Building and complementing Durst's own facility at 4 Times Square.

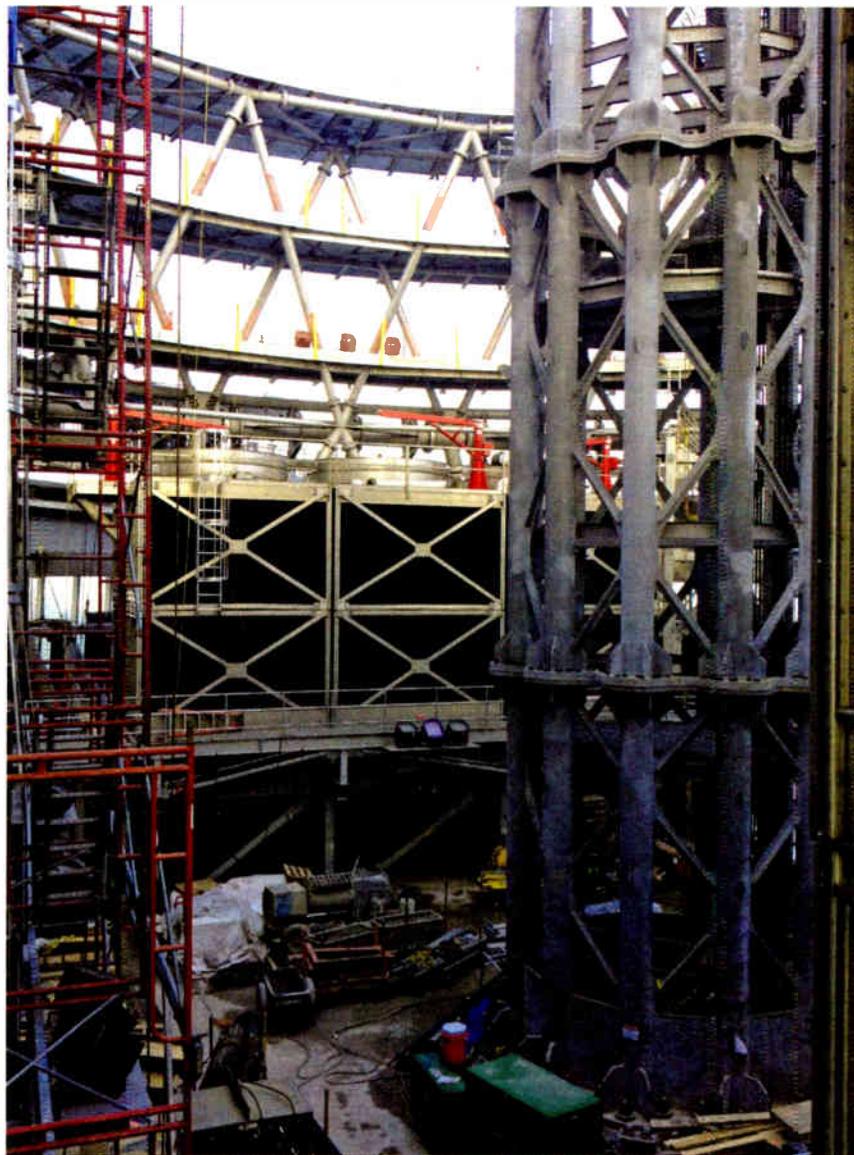
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Paul McLane



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THIS ISSUE

DECEMBER 18, 2013

NEWS

Now HD Radio Is Subject of a Patent Suit 1

News Roundup 3, 10

One WTC Prepares for Station Tenants 4

The Patent 8

Who Is Delaware Radio Technologies? 10

10



FEATURES

Fix Your Onan Clock/Timer Module ... 12

People News 15

Put a Radio Gift in That Stocking! ... 18

Fix a Transmitter Tube Socket 20

Marketplace 21



BUYER'S GUIDE

ERI Provides Total Solution for WDAV 23

Aldena Antennas Translate Success 24

Who's Buying What 24

24



OPINION

Foundation Helps Broadcasters in Need 29

Reader's Forum 30

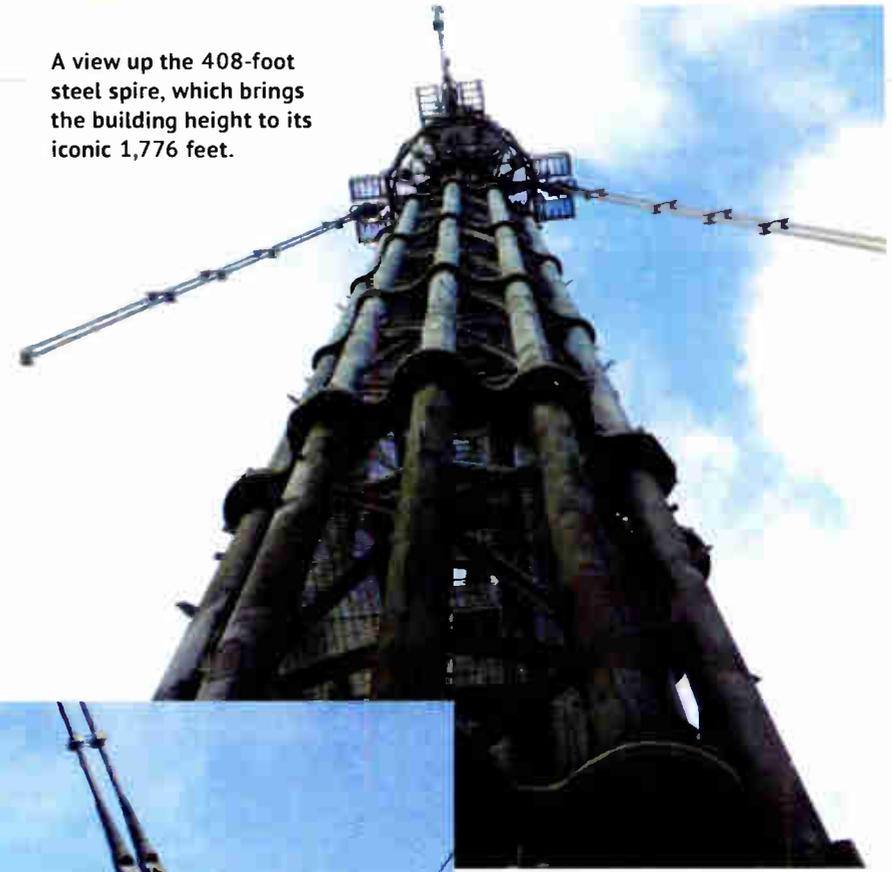
Port Authority press release, and cost more than \$7 million in upfront capital. Those costs would be borne by The Durst Organization.

He and other company officials have been making their pitch to local broadcasters, describing the broadcast center's features: 2 Megawatts of backup power; condensed and chilled water for equipment cooling and heat exchange; loading docks with hydraulic lift gates; 24/7 building engineers on duty; and fiber and copper communication lines at the top of the building.

At present, no agreements have been announced. Lyons said the TV spectrum "repack" has injected some uncertainty, giving stations pause before they

(continued on page 6)

A view up the 408-foot steel spire, which brings the building height to its iconic 1,776 feet.



Left: A closeup of one of the four spire guy sets. Phillystran supplied eight aramid fiber high-performance tower guy assemblies, each approximately 100 feet long and 6 inches in diameter, to support the mast. These custom assemblies are the largest Phillystran tower guys ever assembled and have a rated break strength over 1.7 million pounds.

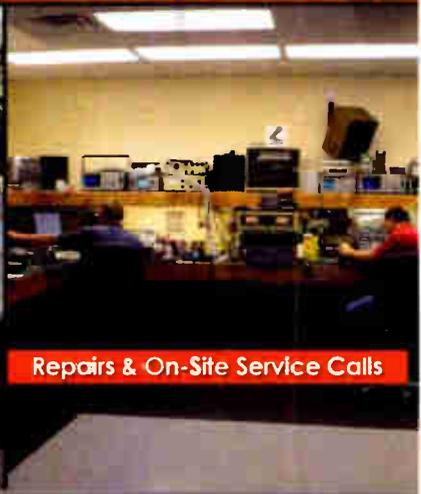
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The Durst Organization hopes to bring broadcasters back to Lower Manhattan. The site looks down onto the Statue of Liberty and Ellis Island.



ONE WTC

(continued from page 5)

invest in RF facility changes. I also thought aloud that perhaps stations have less motivation to invest in new over-the-air facilities these days, given that so much media consumption is done via non-broadcast channels. Lyons said time will reveal that.

We agreed that over-the-air remains a multibillion-dollar business, that New York remains a lucrative market for broadcasters, and that the reported “cord cutting” phenomenon means more people these days may actually be watching OTA television. He sounded optimistic that Durst can attract enough stations to 89 Broadcast Level to proceed.

After climbing another level and peering down on New York Harbor, we rode down. On the way out, we peeked at the 55-foot-high lobby; and we saw an underground gallery that connects to the nearby World Trade Center Transportation Hub, designed by Santiago Calatrava and featuring its own distinctive spiny architecture. I marveled at the scope of these projects, the incredible detail and necessary coordination of planning.

Radio World is not in the business of making RF site endorsements — only a broadcaster knows where to best put its transmitter — but certainly One World Trade Center will give potential tenants something to ponder. And the structure itself is an impressive, important one

— not only for lower New York but for the country.

You can view many videos and photos of the building, including views

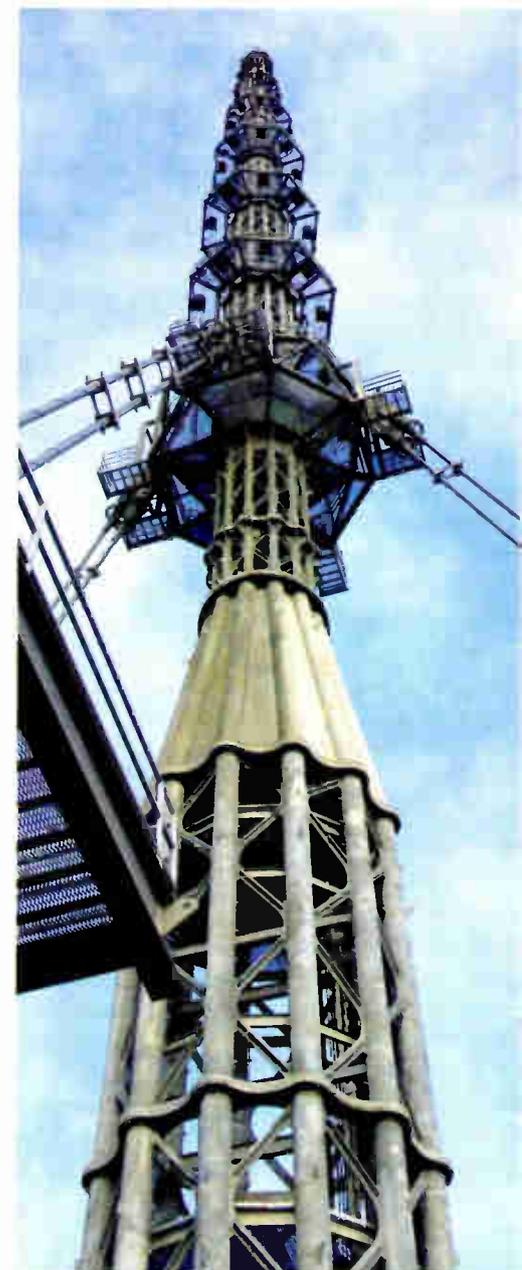
from various floor levels, at onewtc.com.

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



That's me at left with Durst's John Lyons atop the temporary construction elevator scaffolding that is attached to the building's exterior. We're at about 1,300 feet; my knees were wobbly. Radio World Publisher John Casey snapped the pic. For scale, note the Brooklyn Bridge in the background behind Lyons' elbow.

Photos by John Casey and Paul McLane



The 785-ton spire stands ready for broadcast antennas.

HOW TO

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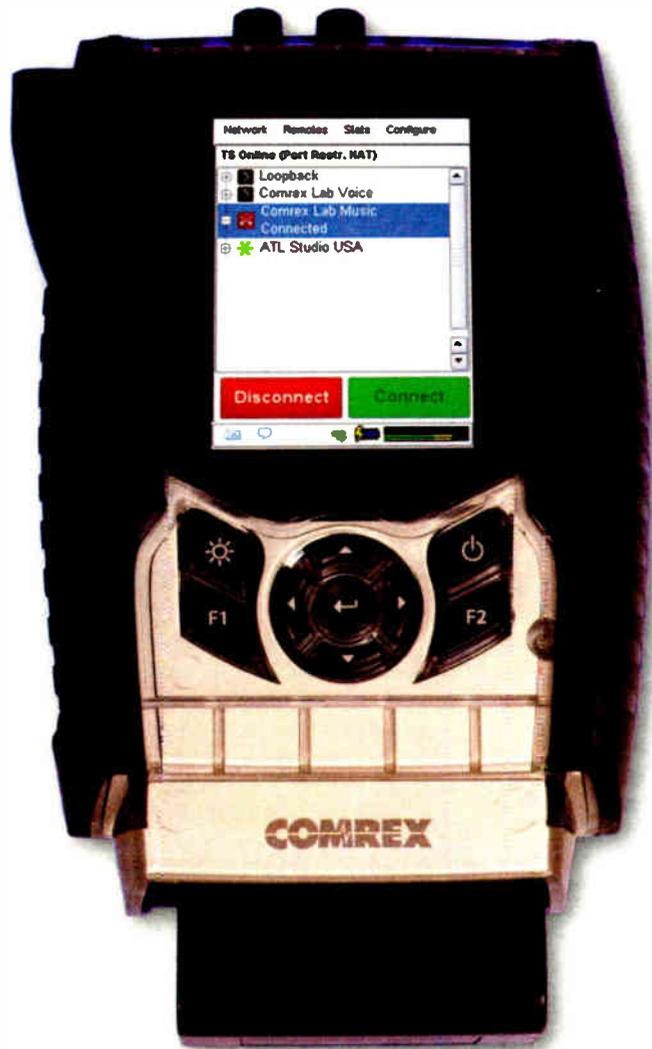
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HD PATENT SUIT

(continued from page 1)

its technology to radio broadcasters and carmakers, among others. The company declined comment on both sets of suits.

The '866 patent is titled "Side-Channel Communications in Simultaneous Voice and Data Transmission." The United States Patent and Trademark Office originally assigned the patent to AT&T (see sidebar). The plaintiff says the patent specifically describes radio transmission techniques used in the IBOC standard adopted by the National Radio Systems Committee in 2005.

The suit seems to be trying to tie the NRSC standard to HD Radio specifically, stating in the document: "In violation of 35 U.S.C. § 271, Defendant, including its affiliates, has directly infringed and continues to directly infringe, both literally and under the doctrine of equivalents, one or more claims of the '866 Patent through its transmission of radio broadcasts using HD Radio transmission techniques further described in the IBOC Digital Radio Broadcasting Standard (the 'Accused Instrumentalities')." "

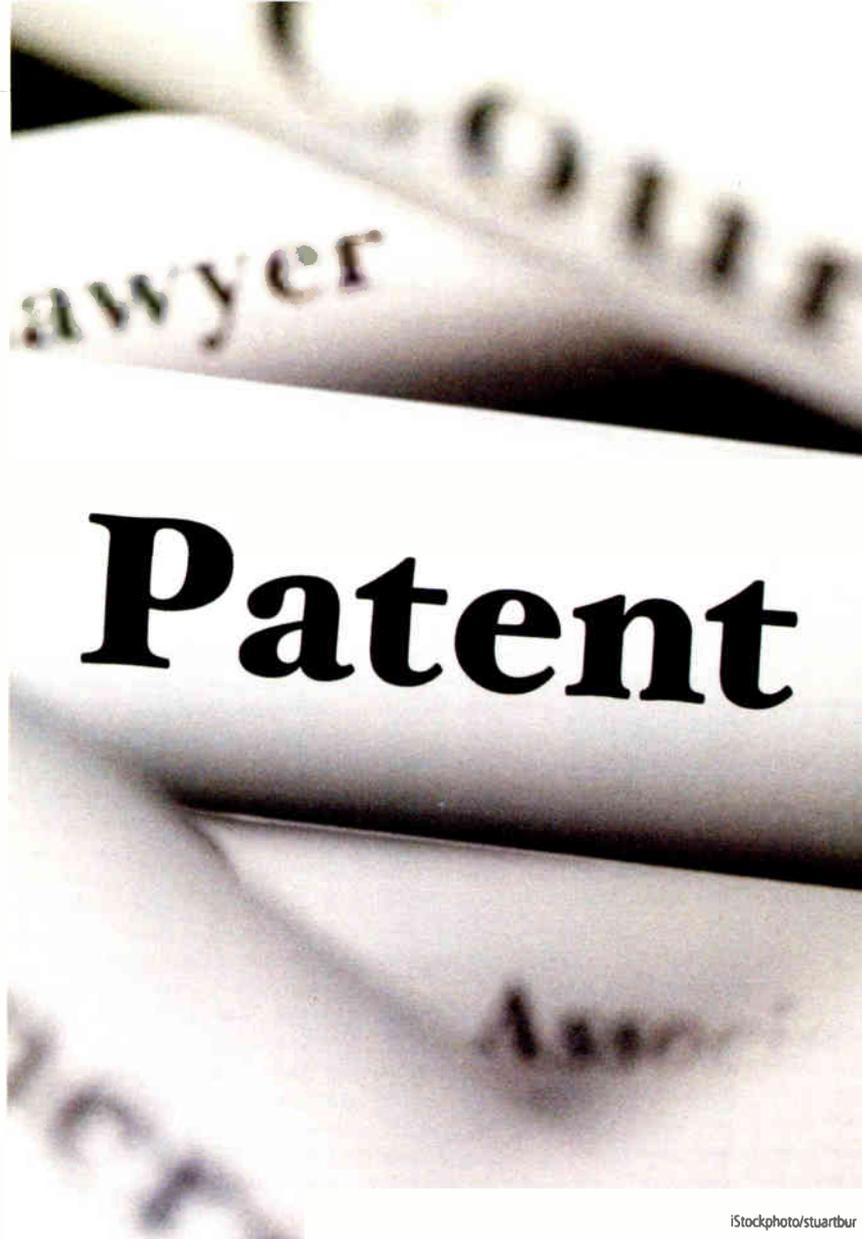
An NRSC source told RW that NRSC-5 describes IBOC as a generic term that could apply to any such system from any proponent.

Two other patents — 5,475,691 and 5,642,379 — are cited in the patent infringement lawsuits. Both describe simultaneous voice, data transmission and modulation techniques, according to court documents.

RADIO GROUPS

The filing names Beasley Broadcast Group, CBS Radio, Clear Channel parent CC Media Holdings, Cox Media Group, Cumulus Media, Entercom, Entravision, Greater Media, Hubbard Radio, Radio Disney, Radio One, Saga, Townsquare Media and Univision as defendants in the federal lawsuit. Many of these groups are also named in the apparently unrelated DigiMedia/Mission Abstract Data storage and automation suit.

Shortly after the slate of suits against broadcasters was filed, Wyncomm along with DRT filed a second set of lawsuits in U.S. District Court in Delaware alleging that Ford, Chrysler, General Motors, Toyota, BMW and 13 other car companies are infringing upon



iStockphoto/stuartbur

patent patent '866 as well.

Wyncomm is asking for a jury trial and is seeking damages from the broadcasters and carmakers.

The company is identified by several observers as a patent monetization entity, a type of business that critics deride as a "patent troll." The plaintiff, also described as a "non-practicing entity" — typically a company that hold patents but produces no goods — has been aggressive, according to court records, using the '866 patent as grounds to sue electronic firms Samsung, Sony, LG, Vizio, Toshiba and dozens of others earlier this year. Wyncomm is listed as a party in 113 cases filed in U.S. District Court in Delaware (see sidebar).

Of the defendants contacted by Radio World for comment, only Ellen Rubin, vice president and general counsel for Greater Media, replied. In an e-mail she confirmed the company had been served with the suit but declined to comment further on the case.

For now, said legal observers familiar with the suit, broadcasters involved in the case should prepare for litigation.

The first step for the radio industry is to assess whether there are potential violations of the claimed patents by the HD Radio system in use at radio

stations, said John Garziglia, a communications lawyer with Womble Carlyle Sandridge & Rice.

"The hiring of legal counsel who are familiar with both our radio industry and patent litigation, either individually or as a group, is prudent in order to seek advice as to the potential liability incurred by radio stations that are using the HD Radio system," Garziglia said.

FAMILIAR PROCESS

Broadcasters have been down this road recently in the separate Mission Abstract Data case. MAD is a patent assertion entity that filed a patent infringement suit in 2011 against a number of broadcast groups alleging that their music on hard drive systems infringe on a patent, as RW has reported.

The patent has since been transferred to DigiMedia, which continues to press the case in federal court in Delaware.

"It is only in the past decade or so that businesses such as radio broadcasting have had to give patent issues serious consideration," Garziglia said.

"Prior to that time, there was a transmitter, an exciter, an audio processor, turntables, cart machines, microphones and such. If someone came along and claimed that a patent was being infringed through the use of, for instance, a particular microphone, the immediate remedy was easy: Get another microphone."

Things are more complicated now, and companies are more litigious,

(continued on page 10)

THE PATENT

U.S. patent no. 5,506,866 has an assignment history that looks like a game of hop-scotch. The patent traded hands at least a half-dozen times in 2013, according to records from the United States Patent and Trademark Office.

The patent, "Side-Channel Communications in Simultaneous Voice and Data Transmission," was issued to AT&T in 1996 and credited Gordon Bremer, Kurt Holmquist, Kenneth Do and Keith Souders as inventors, according to USPTO filings.

The inventors wrote in the patent summary, "In accordance with the invention, we have realized an advantageous side-channel technique wherein the side-channel is multiplexed with the data signal, and the resultant multiplexed signal is then added to the analog, e.g., voice, signal to provide simultaneous voice and data transmission."

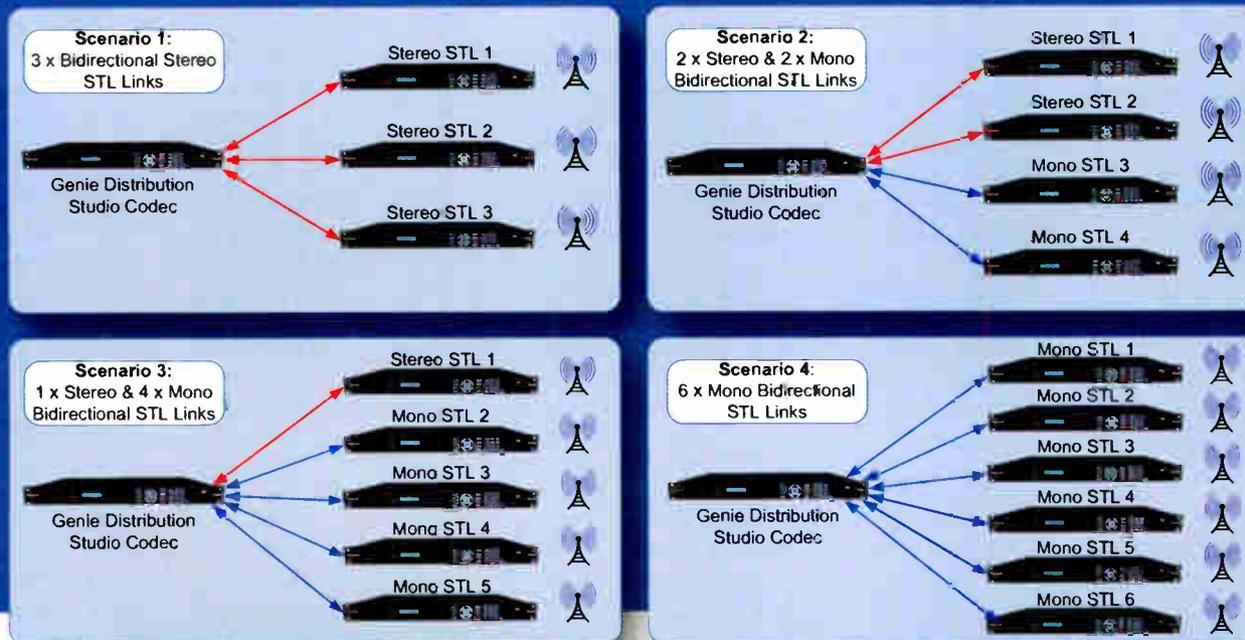
The patent describes "straightforward telephone technology," according to one observer.

Bill Ragland, a patent attorney with Womble Carlyle Sandridge & Rice, said, "DRT and Wyncomm are trying to stretch the language of patent claims directed to the copper wire and public switched telephone systems around HD Radio systems."

Since 1996 the patent has shuffled among a variety of tech groups and holding companies, and the number of reassignments rapidly accelerated in 2013. Clearwater Innovations, Patent Business Development, Paradyne Corp., Zhone Technologies, Wyncomm and Delaware Radio Technologies all have controlled the patent at one point since the beginning of 2013.

"Patents can be bought, sold and assigned like commodities," Ragland said. "It is certainly common for there to be multiple assignments along the way to a patent assertion entity owning and enforcing a patent. But that many assignments all in one year does seem quite unusual and is hard to read."

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HD PATENT SUIT

(continued from page 8)

Garziglia said.

The patents at the center of the HD Radio suit are ancient, according to Bill Ragland, a patent attorney with Womble Carlyle Sandridge & Rice.

"Two of [the patents cited in the HD Radio case] expired in November [of 2013] and the other expires on June 24, 2014. Even with regard to the one patent that expires in next summer, it would be unlikely a court would issue a preliminary injunction requiring the broadcasters who were sued to stop broadcasting in HD."

Ragland said it appears DRT and Wyncomm have not requested an injunction in their lawsuit. Instead, the patent holders are seeking royalties for broadcasting in HD Radio in the past up until the patents expire, Ragland said.

"The statute of limitations is six years. Therefore, patent holders may only claim royalties going back six years from the filing of the lawsuit," Ragland said.

It's not clear if iBiquity would have a legal responsibility to indemnify users if the patents are upheld.

"Indemnification would likely depend on the purchase agreement that iBiquity has with the defendants," said Scott Daniels, an intellectual property attorney with Westerman, Hattori, Daniels & Adrian LLP. "Usually, a large customer, like CBS, insists on indemnification in its purchase agreements. Even if there is no indemnification requirement in the purchase agreements in this case, iBiquity might, for business goodwill, feel obliged to defend the defendants to maintain good relations."

NEWSROUNDUP

HD RADIO: The 2014 Civic is Honda's first car to feature HD Radio-delivered audio and traffic data using Nokia's Here mapping service. HD Radio stations that are members of the Broadcast Traffic



Consortium transmit traffic information along with their broadcast signals. The new Honda Civic navigation system incorporates HD Radio features like Artist Experience, in which the digital audio is

WHO IS DELAWARE RADIO TECHNOLOGIES?

Little is known about Wyncomm or Delaware Radio Technologies. Both are based in Delaware and identified as non-practicing entities, which are patent holding companies that typically don't produce any goods or services but simply manage intellectual property portfolios.

Wyncomm's approach to litigation has moved some observers to refer to it as a "patent troll."

NPEs often have offices in Delaware due to its desirable corporate taxes and law, observers said. Delaware Radio Technologies lists as its address 1209 North Orange Street in Wilmington, Del., infamous for being home to over 200,000 business addresses as registered agent services.

Several members of Congress have introduced legislation to combat so-called patent trolls. Federal Trade Commission Chairwoman Edith Ramirez has urged an investigation and crackdown on patent exploitation. In May, Sen. John Cornyn, R-Texas, introduced the Patent Abuse Reduction Act, a measure that aims to deter patent litigation abusers.

More recently, the House passed and sent to the Senate the Innovation Act of 2013, sponsored by Judiciary Committee Chair and Virginia Republican Bob Goodlatte. The bill seeks to curb vague "demand" letters that patent trolls send to end users that place the burden on users to prove they're not infringing on a patent, rather than on the sender to prove they are. Among other things, the bill requires lawsuit plaintiffs to specify which patents are at issue and what products allegedly infringe.

Paul Schneck, chairman of Rembrandt IP Management LLC, recently testified at the Government Accountability Office summit on NPEs in Washington as the GAO released its congressionally-mandated report on the role of NPEs on the U.S. economy. In a blog post, he wrote: "The trolls can be recognized by their actions: broad assertion of dubious patents against large numbers of defendants. These are transparent efforts to shakedown companies for settlements, with no intention of engaging in the expensive process of litigation culminating in a trial."

synchronized with visual elements on the infotainment display. iBiquity Digital COO Jeff Jury calls the Civic an example of the benefits of bringing the HD Radio data pipe into the car as part of a "connected vehicle" strategy. The 2014 Honda Civic will be in dealerships in December.

COMMUNICATIONS ACT: House Energy and Commerce Committee Chairman Fred Upton from Michigan and Technology Subcommittee Chairman Greg Walden from Oregon, both Republicans, want to update the Communications Act. They and former FCC Commissioner Robert McDowell outlined a need to adapt the law to today's marketplace. Upton termed the project a "multi-year effort" focused on updating the communication laws to fit the Internet age. When the Act was revised nearly 18 years ago, 56 kilobits per second via dial-up modem was state of the art, said Walden, adding, "The Communications Act is now painfully out of date."

REACTION: Observers welcomed news of an update to the Communications Act, above. Some said it makes no sense to treat different forms of communications separately in an age of con-

Patent Trolls Have Grown Into PATENT MONSTERS



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\$29.2 BILLION*
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Innovative American companies are increasingly under fire from "patent trolls"—entities that do not make or invent products but simply sue those who do. These trolls, called Patent Assertion Entities (PAEs), are legal entities that siphon time and money from American companies. Their lawsuits have doubled in two years and now account for most U.S. patent lawsuits.

There are several bills now being considered in the House and Senate that would take reasonable steps to stop the trolls, cut on American jobs and innovation. Enact Sensible Patent Reform Today!

Source: Reuters and IPR Watch. *The 2011 total is an estimate. ©2011 Innovation Movement. All rights reserved. 11-14-11



Doctoreinnovation.com

The Consumer Electronics Association is among those critical of so-called patent trolls; here it calls for legislative action to protect 'American jobs and innovation.'

Schneck's firm invests in intellectual property with the goal of maximizing the value of infringed intellectual property, according to its website.

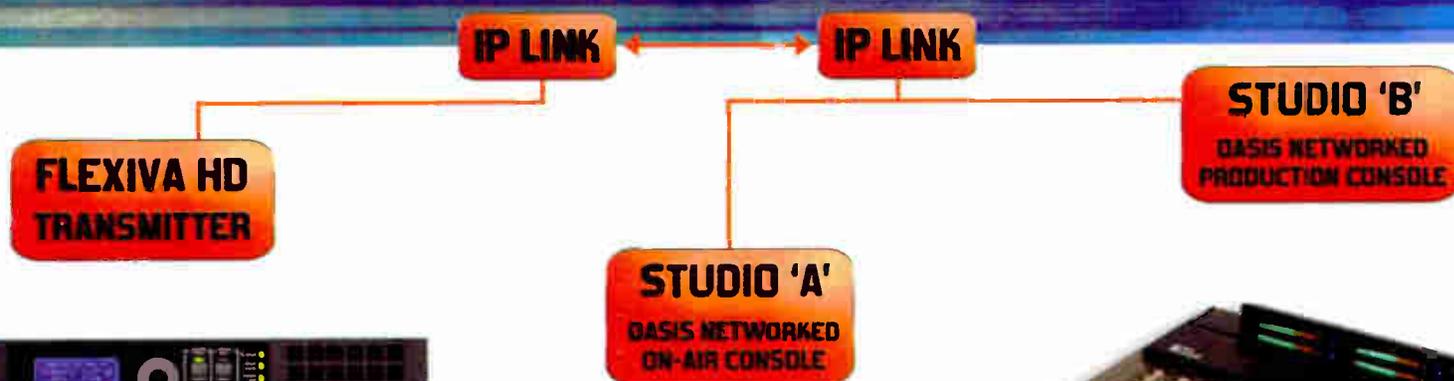
Ironically, Rembrandt IP Management at one time apparently owned one of the patents involved in the Wyncomm suit, according to USPTO data. Patent no. 5,642,379 was acquired by Rembrandt in 2004 as part of a patent portfolio purchased from Paradyne Corp. (once a unit of Lucent), according to a Forbes magazine story headlined "Patent Pirates."

However, a Rembrandt spokesman said the company and affiliates are not, and never were, associated with Wyncomm nor Delaware Radio Technologies.

vergence. FCC Commissioner Ajit Pai said, "Some provisions of the Act have yellowed with age, unchanged, since the Great Depression; even those of more recent vintage predate the transformative impacts of the Internet, competition and innovation." NAB President/CEO Gordon Smith called the proposal a "holistic review" and stated, "There can be little doubt that in this multichannel, multiplatform communications world, local broadcasting remains the essential and indispensable programming source in every American community." He said any legislation should sustain "a robust future for local broadcasting." The Free State Foundation, a think tank, praised the review. "The current 'stovepipe' regime, which regulates comparable services differently based on techno-functional constructs, needs to be replaced by a technology-neutral regime so that competitive services are not treated differently," said President Randolph May.

SATELLITE: Sirius FM-6 is a new, high-power satellite designed to operate in a geostationary orbit. The satellite is the seventh Space Systems/Loral-built spacecraft in the Sirius XM Radio fleet and has an expected 15-year service life, according to SSL. It launched in October.

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World Radio History

Fix Your Onan Clock/Timer Module

Also, a caution about using PVC pipe for insulator purposes

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

Crawford Chicago Chief Engineer Art Reis offers a tip for engineers who use Onan generators. He encountered a situation in which the generator's exercise clock/timer failed, and he was put off by the \$500 price tag for a replacement. Further, his service folks told him the clock/timer module could not be repaired — the wrong thing to tell a broadcast engineer.

Art got the module open and was relieved that it was not potted. He found a 0.22 F, 5-volt capacitor (Digi-Key SKU #2832813-ND).

After you order the capacitor, it's time to disassemble the module. Remove the smoked plastic cover from the front of the readout. You'll find two screws on the opposite corners of the black plastic readout bezel. Remove these screws completely using a medium-sized flat-head screwdriver.

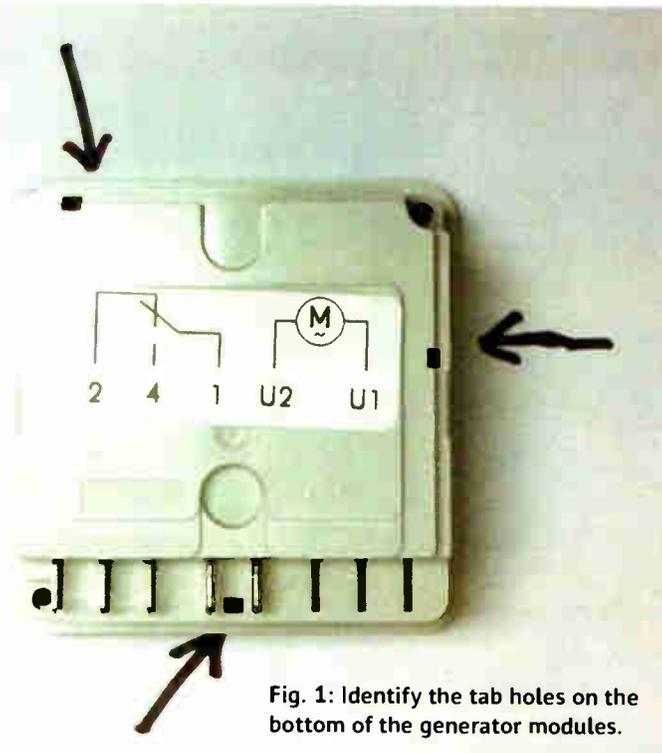


Fig. 1: Identify the tab holes on the bottom of the generator modules.

The white plastic housing, seen in Fig. 1, is in two parts that snap together. The arrows in Fig. 1 identify the holes where plastic tabs are located. Insert a greenie as seen in Fig. 2. The greenie will push aside the tabs, which hold the two pieces together.

Gently separate the two halves, using the larger flathead screwdriver as a wedge, but being careful not to snap off the three plastic tabs holding the two pieces together.

Inside the plastic box is the small circuit board, with about 15 parts on it, shown in Fig. 3. In one corner is a small IC with four pins. This is the bridge rectifier for the circuit. Next to the bridge rectifier is a 100-microfarad electrolytic capacitor. Also next to the bridge rectifier is the 0.22 F capacitor, designated C-3. The arrow in Fig. 3 identifies this capacitor. Unsolder, remove and replace this capacitor and reassemble — the module should work.

Reinstall the module to the control panel, and put it back online. Remember that both the "1" and "U-2" terminals connect to ground. The hot +24 VAC line goes to U-1. The command to turn the generator on connects to U-4, which

(continued on page 14)



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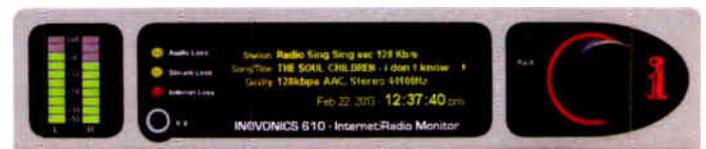

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WORKBENCH

(continued from page 12)

is brought to ground via U-1 when the clock activates it.

Thanks, Art, for a money-saving tip — especially for engineers or contract engineers maintaining multiple sites.

Reach Art at radioart@sbcglobal.net.

Art offers another useful tip for those with laptop computers with the rectangular mouse pads below the keyboard. He informs us that moving the cursor around is only the secondary purpose of this mouse pad on many computers. The primary purpose is to drive you nuts by causing functions to come up that you don't want to happen, like erasing your work.

Art's cure was to grab an anti-static bag such as the kind used to store integrated circuits. Cut the plastic bag in the shape of a patch that will fit your mouse pad, taping it over the pad. The sensitivity of the pad is reduced, and those incidents of out-of-control operation are reduced, if not eliminated.

I've received great comments concerning the use of PVC pipe for insulator purposes, as we discussed in an earlier column.

Ralph Hartwell says be sure the RF voltages are not high enough to cause the PVC to begin decomposing. Otherwise you might have a serious problem. Ralph sends a link to his personal website as evidence: Visit W5JGV.com. He catalogues his experience and provides a number of pictures describing a PVC fire.

Lawrence Behr, whose company manufactures phasors, ATUs, matching networks and combiners, likes

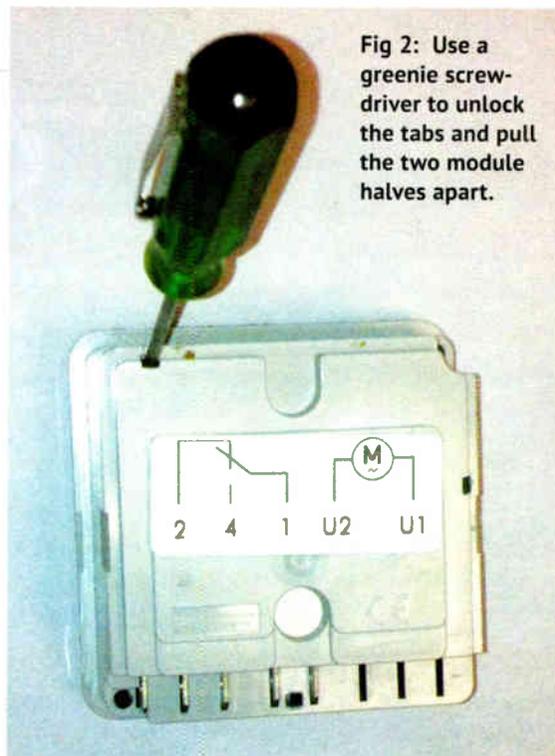


Fig 2: Use a greenie screwdriver to unlock the tabs and pull the two module halves apart.

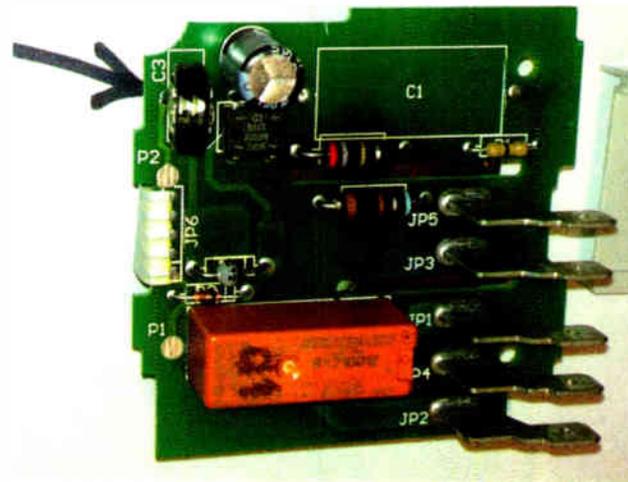


Fig. 3: Replace the errant capacitor, a 0.22 FARAD capacitor.

the idea of using PVC as a replacement for porcelain insulators, but says engineers need to be careful. If the PVC arcs and burns — and it does burn — it will generate hydrochloric acid and lots of black carbon, as you'll see in Ralph's pictures.

The acid will corrode all copper and silver in the ATU — or wherever the PVC is used — and the carbon will coat all insulating surfaces, creating further arc paths. The damage will probably be beyond economic repair. So, yes, this kind of temporary fix is fine, as long as it's temporary and you realize the

risks involved. It's best to replace the cracked porcelain insulators with the proper replacements.

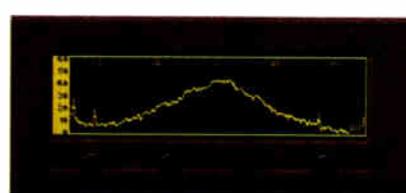
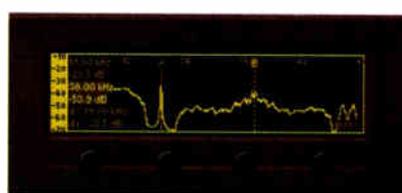
Reach Ralph Hartwell at ralph@spectrotek.com and Lawrence Behr at lbwireless@lbagroup.com. Interested in furthering your education? LBA offers a variety of online courses at www.lbagroup.com/lbauniversity.

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Author John Bisset has spent 44 years in the broadcasting industry and is still learning. He is SBE Certified and is a past recipient of the SBE's Educator of the Year Award.

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PEOPLENEWS

The national **Library of American Broadcasting** presented its 11th Annual Giants of Broadcasting Honors Oct. 16 at Gotham Hall in New York. This year, LAB honored 11 people for excellence in the electronic communications arts, including **Jeff Smulyan**, founder, CEO and president of **Emmis Communications**. Joining this year's class are **Anne Sweeney**, **Alex Trebek**, **Barry Diller**, **Dick Cavett**, **Robert L. Johnson**, **Morley Safer**, **Richard Leibner**, **David E. Kelley** and **Carole Cooper**.

Matt Wolfe has joined **ABC News Radio** as production manager. He will transition to the position from working as a digital audio initiative and writing freelancer between 2004 and 2007.

Bruce DuMont is ready for someone else to run the **Museum of Broadcast Communications** in Chicago. DuMont told media blogger Robert Feder that he planned to ask the board to hire someone to succeed him in the day-to-day operations as well as sales and marketing tasks. He plans to continue as president and CEO.

Corporation for Public Broadcasting has chosen **Ted Krichels** to be senior vice president for system development and media strategy.

The **Southern California Broadcasters Association's** board of directors voted in a new slate of officers for the 2014-2015 term. The elected executive board will include Chairman **Jaime Jimenez**, senior vice president

Cumulus Media has chosen **Jeff Brown** to serve as vice president and market manager for its six-station Atlanta cluster.

Clear Channel Media and Entertainment chose **Steven Macri** to serve as its chief financial officer. The company also added **Nancy Abramson** in the new role of director of digital affili-



Nancy Abramson

ates for National Media Groups. **Clear Channel** has also named media executive **Tim Spengler** to the newly created position of president of content marketing and revenue strategy. The company added **Will Leaverton** and **Brice Kornegay** as vice presidents of political strategy. **Clear Chan-**

nel Wichita (Kan.) has named **Stephanie Callihan** its new market manager. **Clear Channel Tucson (Ariz.)** has selected **Debbie Wagner** for the same position.

WXTB(FM) of Tampa Bay, Fla., has chosen assistant program director **Ty Bailey** as its new program director. The rock station's former Program Director **James Howard** will now serve as program director for **WWDC(FM)** in Washington and **WQSR(FM)** in Baltimore.

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Jaime Jimenez

and general manager of **Univision Radio LA**; Vice Chairman **Marko Radlovic**, president and market manager for **Team Cumulus, L.A.**; Secretary **Miles Sexton**, CEO of **Point Broadcasting LLC**, Ventura/Santa Barbara; Treasurer **Greg Ashlock**, president and market manager for **Clear Channel Music and Entertainment, L.A.**; and as At-Large Executive, **Val Maki**, senior vice president of **Emmis Broadcasting** and market manager for Los Angeles' **KPWR(FM)**.

Serving as immediate past chair is **Dan Kearney**, senior vice president and market manager for **CBS Radio, L.A.** Vice Chair **Susan Whiting** will retire at year-end after 35 years with **Nielsen**. Following college graduation, Whiting joined the company as the first woman hired into Nielsen's inaugural media management training program.

Entercom Boston has hired **Phil Zachary** as vice president and market manager.



Office Suite Makes SWEET Remote Studio

WUIS-FM in Springfield, IL has a reporting team that wanted an office-like feel for their new remote studio digs at the state capital...

...and that's not all. Greg Monfroi, the CE for WUIS-FM, said he was asked by management to come up with a solution for the new morning talent who was having a difficult time adjusting to his early sunrise schedule. A no-show could be a big problem...

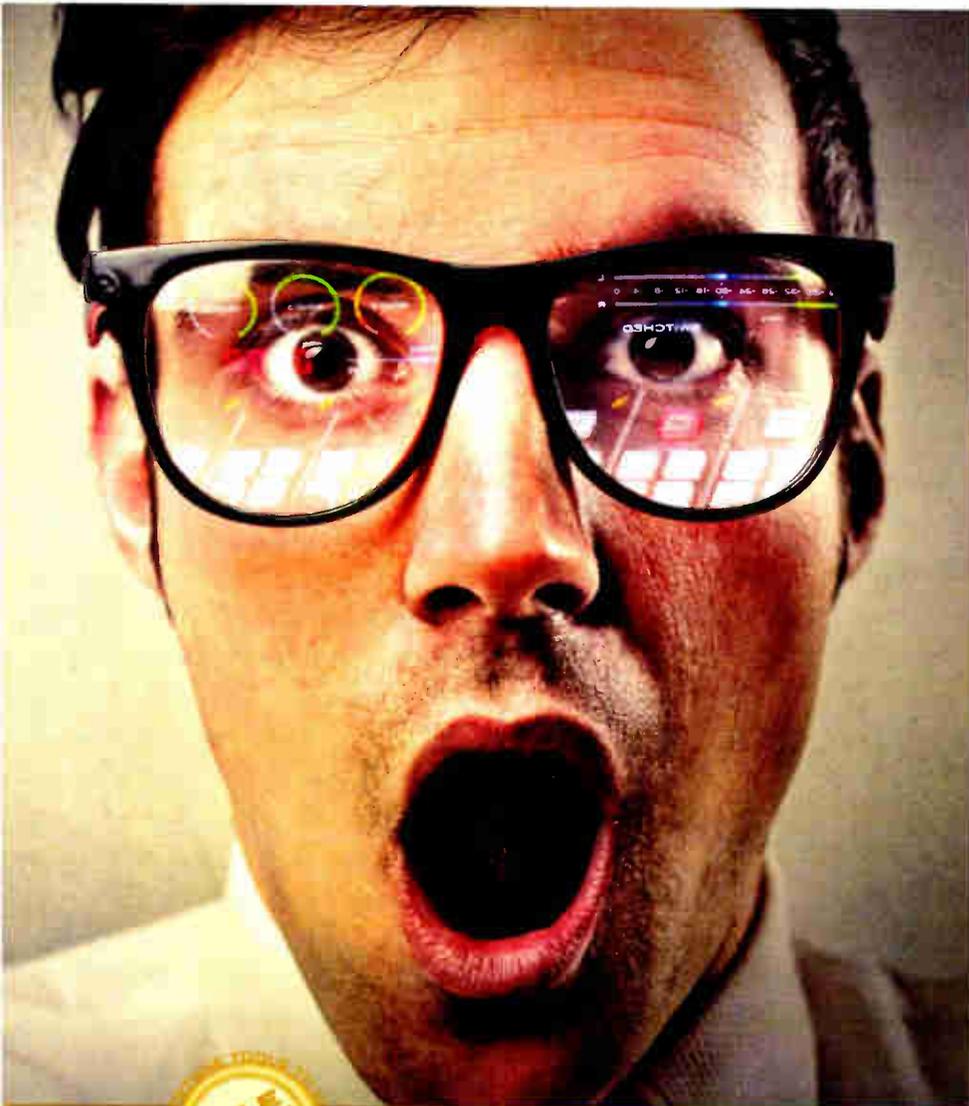
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What You Need To Know About Today's Radio Consoles - Part 1

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We know plenty of broadcasters who have nicknames for their consoles. You might be one of them, in which case you won't hear any comments from us. What you call your board is your business. We just hope that you keep it respectable.

Because with any luck, and a little respect, that radio console will be around for a long, long time. Still, every decade or so it's a good idea to pop your head up from the controls and see what's out there. You might be surprised to learn that consoles haven't changed all that much on the surface, although some of the changes we've made under the hood could make a difference in how big and how cool your next console will be.

[Read the rest of the story here](http://INN5.wheatstone.com) INN5.wheatstone.com

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The processing golden ears at Wheatstone have declared the newest software version for their flagship AirAura X3 audio processor a keeper, sending it on its way to radio stations everywhere. During field testing version 3.6.7 was described by beta testers as "impressive as all get-out".

[Read the rest of the story here](http://INN5.wheatstone.com) INN5.wheatstone.com



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BLADE HONING 101

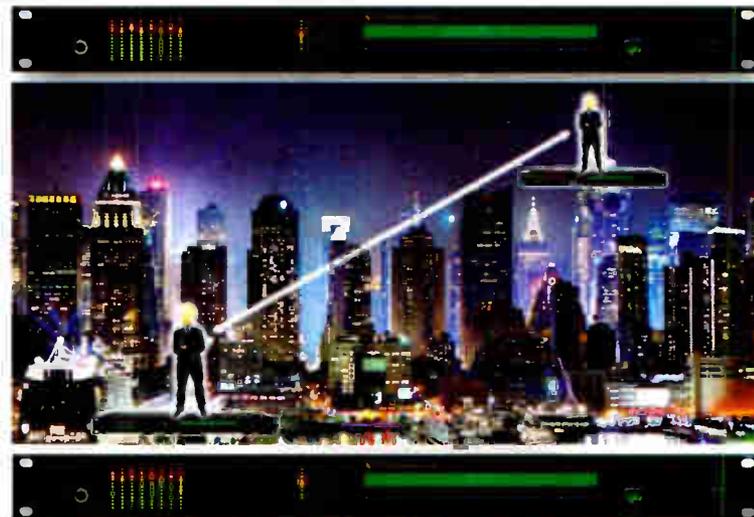
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[Read the rest of the story here](http://INN5.wheatstone.com) INN5.wheatstone.com



Put a Radio Gift in That Stocking!

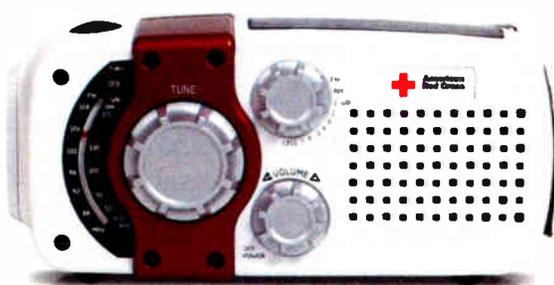
From whimsical items to emergency preparedness, something for everyone

BY JENNIFER WAITS

The holiday gift-buying season is a great excuse to share some radio love with friends, family and colleagues who may or may not be as passionate about radio as you are. With that, here's a short gift guide featuring some of my go-to gifts for all kinds of recipients.

EMERGENCY RADIO

If your loved ones don't own a portable emergency radio, the holidays are the perfect excuse to help them amp up their disaster-preparedness kits.



Eton Microlink FR170

Solarlink FR370 has similar features and can also charge a smart phone so that you can make a quick emergency call.

INTERNET RADIO

My life changed drastically when I received a standalone Internet radio as a birthday gift. Now I find myself listening to out-of-range radio stations far more frequently since I can just turn on a radio to tune in to streams from afar. It's a bonus that I can also use the same Internet radio as an alarm clock so that I can wake up to the sounds of my favorite radio station.



Tivoli
NetWorks
With FM



Grace Mondo Wi-Fi Music Players

Recent killer storms in the Midwest and the Philippines are just another reminder of why it's crucial to have access to a radio for news and information during a crisis. I've got a small Eton Microlink FR150 radio (www.etoncorp.com), which can be charged with a hand crank, with a solar cell and with a USB connection. The AM/FM radio also has weather radio bands as well as a flashlight. A newer Eton model, the FRX1, is even more stylish with a modern design available in a range of hues. The Eton

I've got the Grace Mondo Wi-Fi Internet Radio (www.gracedigitalaudio.com) on my nightstand, but there are plenty of choices out there. My one beef with my Wi-Fi radio is that I can't pick up terrestrial radio on the tuner, so I'm also tempted by the pricier Tivoli NetWorks with FM (www.tivoliaudio.com).

As a bonus, Tivoli's radio is crafted from hardwood in cherry, walnut and wenge.

CRYSTAL RADIO KIT

I love buying science-oriented, hands-on projects for not only the kids in my life, but also for my engineer dad. Creating one's own crystal radio used to be a rite of passage for many budding scientists decades ago, so I'm happy to see that modern-day DIY radio kits are still on the market.

Pictured is the reasonably priced Slinky brand Crystal Radio Kit (poof-slinky.com). The even more visually



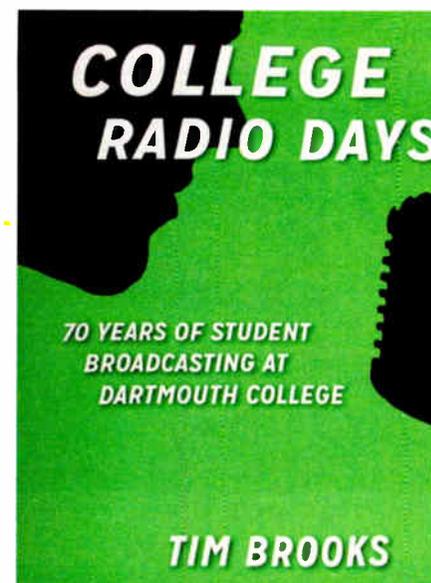
appealing (there are wooden parts!) Flights of Fancy Radio Receiver Kit, above, (www.crafts4kids.co.uk/flights-of-fancy-kits/h123) has a lovely vintage look to it and includes a booklet about the history of radio.

If the folks on your gift list are more interested in FM radio or shortwave, there are also some specialized kits from Elenco (www.elenco.com).

RADIO BOOKS

Although I have lots of radio books in my library, few of them delve into the history of college radio. For that reason, I was thrilled to pick up Tim Brooks' new book "College Radio Days: 70 Years of Student Broadcasting at Dartmouth College," which chronicles the lengthy history of radio at the school. Along the way, it also provides insight into the history of college radio in general.

Another radio history worth picking up is Carter Alan's new book, "Radio Free Boston: The Rise and Fall of WBCN," seen above. Boston locals will appreciate this in-depth look at the station (and at the development of progressive rock radio) from 1968 to 2009. [Editor Paul McLane listed sev-



eral other gift book ideas in the Nov. 20 issue.]

WHIMSICAL RADIO ITEMS

There is a wide range of radio-themed accessories that can be a fun way to broadcast one's enthusiasm for radio. I've been dying to get the perfect cell phone case that can reliably fool people into thinking that I'm carting around a retro transistor radio. Fred & Friends' (FredandFriends.com) Re/Cover line of iPhone cases fit the bill with designs that pay homage to early electronics. Not only is there a case sporting the image of a mint green portable radio, but there's also a pocket calculator version and a cover resembling an old remote control.

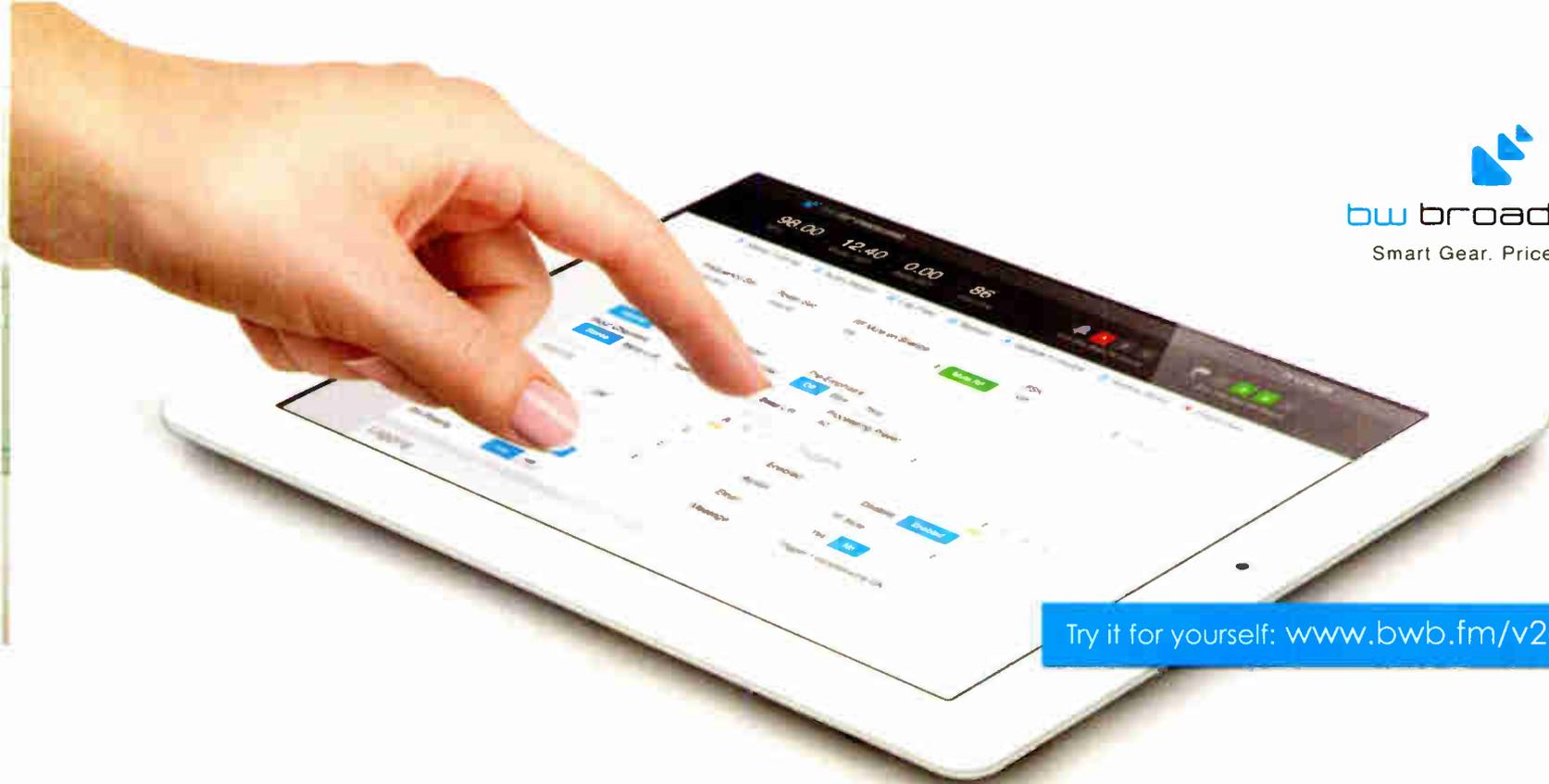


Re/Cover
iPhone Cases From Fred & Friends

Some other great whimsical gift ideas for radio colleagues include radio-themed jewelry and household items. Zaunick has a pair of sterling silver cufflinks in the shape of vintage microphones (www.zaunick.com) and Uncommon Goods (www.uncommongoods.com) carries gorgeous stainless steel cufflinks in the shape of mini headphones. Finally, for radio and toaster aficionados, Kenwood's, now rare TT756SL toaster sports an embedded functional radio (check Amazon or eBay to find one).

Jennifer Waits is a writer, college radio DJ and independent radio scholar. She contributes to the blogs *SpinningIndie* and *Radio Survivor*.





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Fix a Transmitter Tube Socket

Don't be afraid of the job; here's a step-by-step how-to

TECHTIPS

BY MARK PERSONS

You work on transmitters every day. Have you ever removed a large tube socket for repair or replacement? It can be a daunting task.

I hope you don't have to do the job overnight when you are tired. Mistakes are made easily and can be difficult to figure out later. Plan on taking a few hours, even a day. Don't be afraid of the job but understand that you need to work in a logical way. Take photographs as you go along; it can help immensely during reassembly.

Fig. 1 Here is the top side of a tube socket for a 4CX15,000A tube in an RCA BTF-20E 20 kW FM Transmitter. Lots of pieces in a small area. You can never have too many tools when doing this work. That adjustable wrench is just 4 inches long. It is exceptionally handy in tight spots.

Fig. 2 Here is the socket with the screen contact ring removed. Look closely and you will see something is a little odd on the left side of the right-hand screen bypass capacitor.

Fig. 3 Sure enough, the insulator material failed, causing a short in the screen circuit. You can see an arc-through near

the top. Careful visual examination is an excellent troubleshooting tool in most cases. Fortunately there was a spare

part at the site. Spares are a wonderful thing!

In this transmitter repair adventure, that screen bypass was not the only problem. The entire tube socket had to be removed for bench repair.

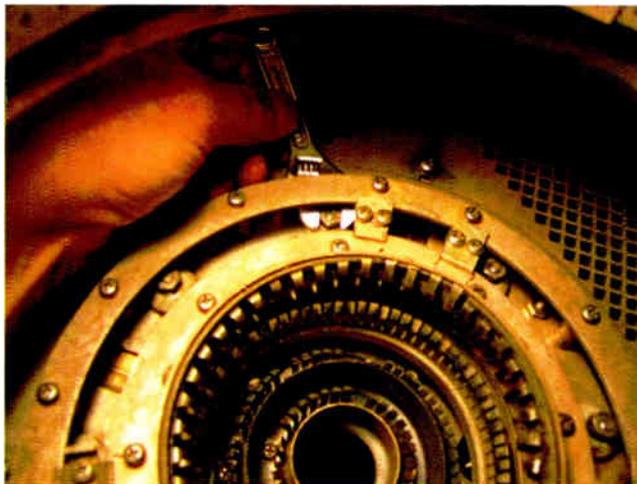


Fig. 1: Top of tube socket with small wrench.



Fig. 2: Bypass capacitors around the tube.



Fig. 3: Capacitor dielectric that has been arced through.



Fig. 4: Socket removed from PA cavity.

Fig. 4 Note a scattering of hardware in the bottom of the PA compartment. A piece of cardboard was placed over the incoming air duct to keep parts from falling into the cooling fan. This is also a good time to replace any burned or broken fingerstock.

The most likely failure occurs on the innermost filament contact ring. It carries the same current as the next ring out, but is much smaller. The second ring is the other side of the filament. Current is 160 amperes in the case of a 4CX15,000A tube, which is enough to start a car engine. No wonder the filament leads need to be heavy duty.

(continued on page 22)

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"Letter to the Editor" in the subject field.
Please include issue date.

MARKETPLACE

IDevice Connection: The MicConnect from Griffin Technology is a small interface box that connects professional-level microphones with an iPad, iPhone or iPod touch.

The MicConnect offers as an input connector an XLR. A nice feature is that the MicConnect offers 48V phantom power so condenser mics can be used. The phantom power is switchable, so dynamic microphones can also be used. This allows for improved audio input for recording and editing software used on an iDevice.

The connection to the iDevice is through the 1/8-inch headphone/headset jack. Price: \$39.99.

Info: store.griffintechology.com

The Vault Opens: There doesn't seem to be any shortage of apps that turn a smartphone into a recording device. A recent addition for iPhone and iPod Touch users is SoundVault from Soundness.

Though aimed at the basics, SoundVault does have some uses for professional broadcasters. Its top-level recording performance is an acceptable 44.1 kHz, certainly usable for field acquisition and it offers 22 kHz and 11 kHz dictation levels handling sound and interviews that won't be making it onto the air.

It has Dropbox integration for quick file sharing and it can function over a Wi-Fi network. In addition SoundVault files can be emailed or trafficked through iTunes Sync.

Tools include markers, pitch control, recording timer, GPS and the ability to attach files to the recording. It is also compatible with Bluetooth microphones.

Price: \$49.99. Info: www.soundness-llc.com



Info: www.soundness-llc.com

Redphones: Audio equipment maker Tascam has a new set of headphones available, the TH-2000.

Described as their "top of the line," the foldable TH-2000 are of a closed-back circumaural design.

They are available in black and a snazzy red.

The drivers are listed as 53 millimeter and the 'phones are listed with an 18 Hz–22 kHz frequency response. Impedance is 60 ohms.

A 5–13-foot coiled cable is attached and a 1/8–1/4-inch adapter is included, as is a black leatherette pouch. Price: \$49.99.

Info: tascam.com



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TUBE SOCKET

(continued from page 20)

Fig. 5 On the bench, a nylon spacer/insulator was discovered to be reason control grid voltage went to nearly zero at times, resulting in sudden PA overloads. You can see the insulator discolored brown to black on the right side of the socket. Since those are no longer readily available, I used a porcelain insulator as a replacement. This change in capacitance is enough to throw neutralization off. Checking and adjusting neutralization afterward is a good idea when making changes to the socket for a tetrode (4CX) tube.

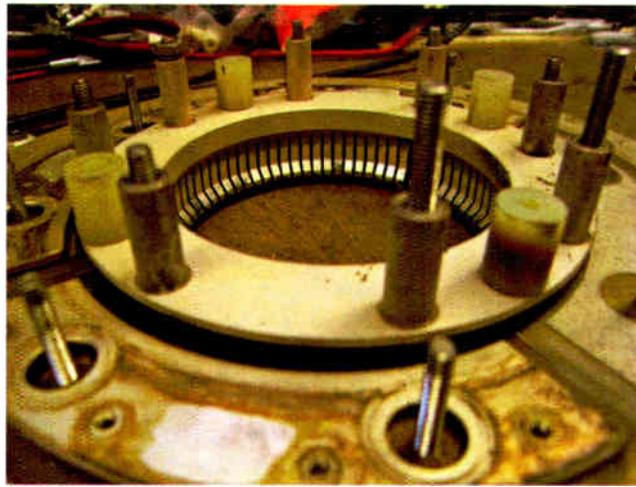


Fig. 5: Failed socket spacer on the right.

Some plastic or nylon screws and nuts are OK in RF and others are not.

Triodes (3CX) don't require neutralization, as they do not normally have enough gain to go into oscillation. After the insulator was replaced, the tube socket needed to be reassembled. It is extremely important to get the socket contact rings aligned properly. Failure to do so could cause undue physical stress on the tube causing an air leak at one of the seals and total tube failure.

Fig. 6 The best way to get the socket geometry right is to use a tube as an alignment tool. Carefully tighten the hardware as much as possible, then remove the tube and do the final tightening. Recheck to make sure the tube fits easily into the socket. Inspect fingerstock to see that it is equally depressed on all sides of the tube. Sideward pres-



Fig. 6: Using a tube to get socket parts exactly in place.

sure in only one direction on a hot tube seal is a formula for tube disaster.

Fig. 7 Here the socket insulators and bypass capacitors are being tested using a Sencore Z Meter to see if there is any leakage at 600 Volts. This is the best time to find a problem like that, rather than after the socket is back in the transmitter.

Fig. 8 Back in the transmitter, the screen ring had to be installed and tight-

ened after the rest of the socket was in place. Again, a tube was used as a jig to get the alignment correct. A right-angle screwdriver with ratchet was ideal for final assembly in this case. Note the black permanent marker line on the socket and transmitter cavity. That helped get parts back in the original orientation. You can get into real trouble in a hurry if you don't think it all through first, and by marking as you go.

If you run short on hardware, use only copper, brass or stainless steel in an RF situation. If the hardware sticks to a magnet, it is ferromagnetic and will tend to vibrate at the RF frequency involved. This could lead to the hardware melting in the presence of high power. I have seen it happen. Some plastic or nylon screws and nuts are OK in RF and others are not. If you hear a loud pop when RF is turned on, then you will know the hardware you used was not RF compatible.

Take time to confirm that all hardware is tight. Cooling fan vibration can easily loosen bolts and nuts that were

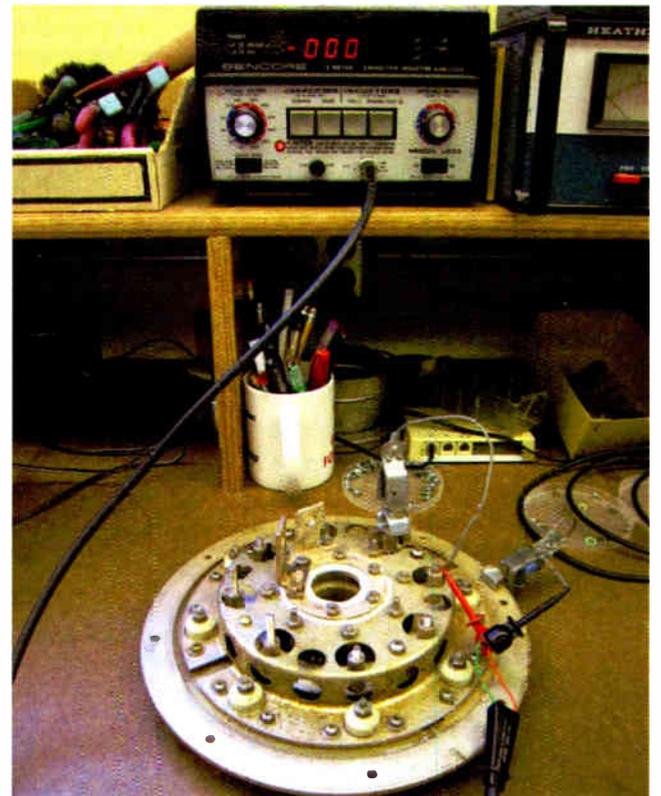


Fig. 7: Testing bypass capacitors on the bench.



Fig. 8: Installing a screen grid ring in transmitter.

not snug at installation time, resulting in bad electrical connections and erratic transmitter operation. This kind of project is not for the faint of heart. Also, it helps to have mechanical skill. If you are the person who has trouble deciding if a square peg goes in a square hole or in a round hole, it is best to have someone else help with the tube socket mechanical work. Don't laugh; I have run into otherwise great engineers like that.

Double check the work and use an ohmmeter to verify there are no unwanted shorts before turning power on. Just think it through and you should be fine.

Mark Persons, W0MH, is a certified professional broadcast engineer by the Society of Broadcast Engineers and has over 30 years of experience. He has written numerous articles for industry publications over the years. His website is www.mwpersons.com.

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ERI Provides Total Solution for WDAV

Custom directional antenna, tower mods resurrect FM's lightning-fried facility

USERREPORT

BY LARRY SCHROPP
Owner
Schropp Electronic Services

DAVIDSON, N.C. — Our phone has rung many times with word that lightning has struck an FM antenna. In this case, one of Schropp Electronics Services' long-term customers, WDAV(FM), in Davidson, N.C., had the problem. The symptom was the always unwelcome high VSWR alarm that had shut down the transmitter.

Jim Schropp, my son and an engineer for Schropp Electronics Services, was first to respond. He checked to see if the fault would clear, rechecked for VSWR and ran the transmitter into the dummy load. It became apparent that the antenna system was the problem. Fortunately, WDAV has an auxiliary antenna; we were able to switch the coax switches and return the station to the air.

After we inspected everything on the ground, our next call was to the tower climbers.

INSPECTION

The climbers first did a physical inspection on the antenna. We then disconnected the transmission line to check for soot and I swept the line with the VNA. Fortunately, the line checked good and no soot from the antenna had migrated into the line.

Well, the problem was definitely the antenna. We asked the climbers to begin to disassemble the antenna; that's when we found melted parts, charcoal and debris. As we looked at more of the antenna, it became obvious it would

have to be replaced.

So far everything would seem to be pretty straightforward; however, this was not the case.

First, WDAV has a difficult directional pattern. The old antenna had three rows of four-basket panels, with a 13th panel added for fill. The antenna was, in a word, huge.

Additionally, wind standards for towers in the area had been upgraded over the years; there was no way a new antenna the size of the old one could meet the current wind standards. Adding to the wind-loading difficulties, the tower is short-guyed at around 50 percent.

After checking allocations for WDAV to see if there could be improvements to our pattern and applying for a small improvement based on a more accurate terrain data base, our search for a new antenna was on.

DECISIONS

We checked with various manufacturers for proposals, and the best-looking preliminary pattern fill was from Electronics Research Inc. In addition to the custom directional antenna, ERI offered structural analysis, tower modifications and installation. The whole package could be purchased from one source. After careful consideration, we

chose ERI for design and installation of the antenna, along with structural analysis and strengthening of the WDAV tower.

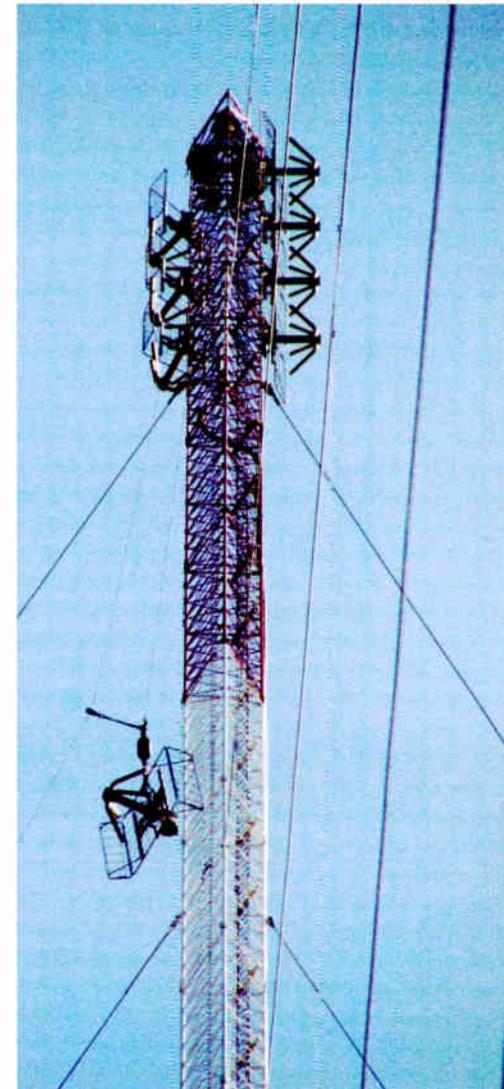
ERI sent a crew down to do a full structural inspection of the tower. Pattern development was the usual back-and-forth process of trying to achieve the best pattern fill and market coverage for the station. Jim added Longley-Rice coverage predictions to the materials provided by ERI to give us a more complete look at what coverage should be like.

ERI designed an antenna for us that reduced the number of elements from 13 to eight, resulting in a significantly lighter antenna while actually gaining performance. With a smaller antenna to work with, the structural engineers at ERI were able to design leg-strengthening supports that would allow the tower to meet wind standards.

WDAV's coverage is even better than I expected, and the tower is up to current standards as well.

The staff at ERI was great to work with throughout the project, demonstrating a strong desire to do the best job possible for the customer. I remember our sales representative, Carl Davis, telling me that we were going to be happy with the results; he was very right.

For information, contact Joe Meleski at Electronics Research Inc. in Indiana at (812) 925-6000 or visit www.eriinc.com.



WDAV's antenna nears completion. The last section is hoisted up.

ABOUT BUYER'S GUIDE

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

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Aldena Antennas Translate Success

Circularly-, elliptically-polarized FM models meet needs of broadcasters in the Northeast

USERREPORT

BY CLARENCE BEVERAGE

Partner

Communications Technologies Inc.

MARLTON, N.J. — As a broadcast engineering consulting firm in the congested Northeast portion of the country, we have faced a number of challenging FM antenna pattern design projects in an effort to optimize FM coverage for many station clients. This review describes fill-in translator projects, which can be the most demanding because the antenna pattern must meet all FCC protection requirements as well as keep the translator's 60 dBu contour inside the pertinent AM or FM contour.

We have chosen to use Aldena antennas and software for the most demanding pattern applications based on multiple factors. Most important is the fact that Aldena offers a pattern design software program called EMLAB which allows the user to design an antenna pattern based on specific radiation limitations using both Aldena's own extensive line of FM (also TV) antennas as well as antennas from other manufacturers. Having this software is important since without it one would need to rely solely upon the manufacturer, which takes away the opportunity to do "what if" scenarios that most engineers like to do to optimize coverage.

Equally important are the quality of materials and workmanship of Aldena's antennas. It is rare that engineers don't

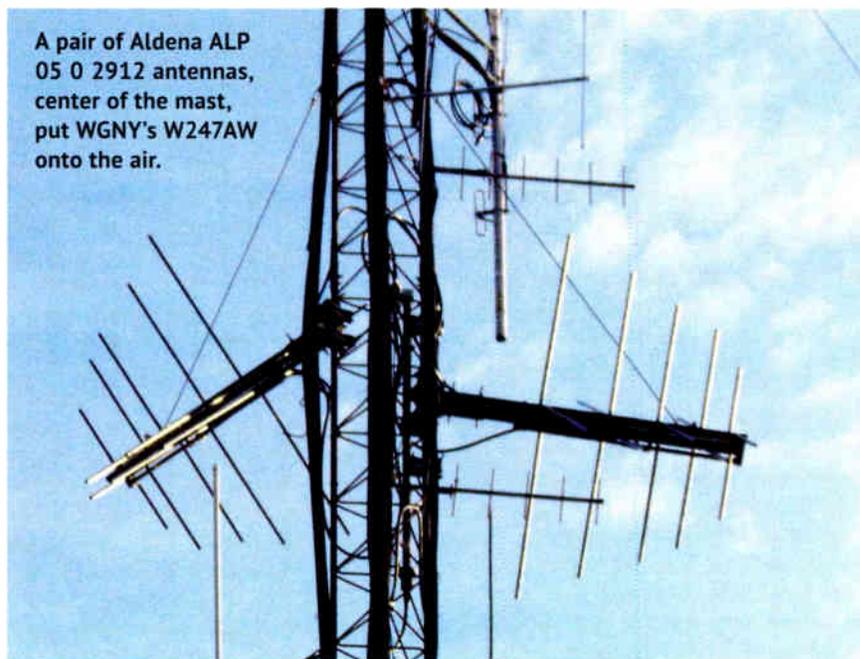
comment positively on the quality followed by a later communication saying "beautiful, low VSWR, the coverage is excellent."

WRNJ(AM) in Hackettstown, N.J., installed a DA array of three ALP 05 02 912 five-element, circular-polarized, yagi antennas for the W284AQ FM

the antenna systems to be extremely rugged and virtually unaffected by the winter ice. Reflected power is always a watt or two at most all conditions during the year." This AM licensee also comments that most of their listeners are on FM due to the consistent coverage especially when compared to their night DA coverage.

In the spring of 2012 WGNV(FM) Rosendale, N.Y., implemented W247AW

A pair of Aldena ALP 05 0 2912 antennas, center of the mast, put WGNV's W247AW onto the air.



translator in August of 2012, just in time to make it through Hurricane Sandy last fall and then the heavy blizzard conditions in February 2013. The WRNJ 2 mV/m contour is filled in by a second translator, W224AS, using ASR 03 02 315 three-element yagis set at 45 degrees for slant polarization.

The station reports, "We've found

using two ALP 05 0 2912 circular log antennas in Poughkeepsie, N.Y. Our contact with folks from WGNV indicates stable operation since installation with no known reports of ice impact on performance.

For information, contact Roberto Di Bari at Aldena in Italy at 011-39-02-90390461 or visit www.aldena.it.

WHO'S BUYING WHAT

Kintronic Supplies DRM-Capable Antenna Systems to Oman

In 2011 Kintronic Labs was selected as the antenna system provider for three high-power medium-wave stations in the Sultanate of Oman. Kintronic says that the scope of work for which it was responsible included the design, supply, installation and commissioning of the towers, transmission lines and the RF

phasing and matching networks (shown).

Two of the stations utilized half-wave towers with a parasitic guy cable for the purpose of providing a limited gain in one direction and the third station was a two-tower-driven directional array also utilizing half-wave towers.

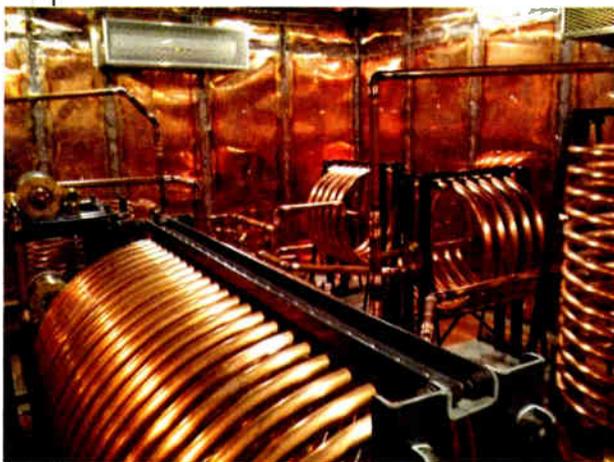
The transmission lines were all pressurized rigid lines installed in underground concrete troughs with removable

concrete covers. Two of the stations utilize Nautel NX600 transmitters operating at 500 kW, while one is driven by a Nautel NX100 100 kW transmitter. One specific requirement of this contract was that each antenna system had to yield a load impedance sweep that was compatible with the DRM-capable Nautel transmitters.

The Kintronic Labs RF systems for each site were designed to install in customer-supplied tuning houses with complete interior copper lining to form a Faraday cage around the networks. Each network was designed to yield the required DRM-compatible impedance sweep at the final combined amplifier output of each transmitter.

All three DRM-capable stations are now on the air and are exceeding the coverage expectations of the customer, according to the supplier.

For information, contact Kintronic Labs in Tennessee at (423) 878-3141 or visit www.kintronic.com.



TECHUPDATE

AM GROUND SYSTEMS OFFERS AM TRANSMISSION SITE SERVICES

Specializing in grounding for AM broadcast and lightning protection, AM Ground Systems Co. offers comprehensive ground system inspection, evaluations and repair. The company says that by using state-of-the-art test equipment, it can locate faults and repair ground systems that would have required a full rebuild in the past.

According to the company, available services include new construction of AM ground systems, rebuilding AM ground systems, inspection and evaluation of lightning grounding, installation of lightning grounding, turnkey site work and tower tuning.

In addition, it specializes in Method of Moments (MoM) proof physical preparation work. This includes installation of new feed, sample or control lines as well as installation of new tuning equipment and retrofitting of existing tuning equipment for MoM equipment.

The company adds that it offers budgetary estimates and firm, competitive quotes to aid in planning a site construction or rehabilitation budget and says that compressed timeline projects are handled efficiently.

For information, contact AM Ground Systems in Tennessee at (877) 766-2999 or visit www.amgroundsystems.com.

TECHUPDATES

POWERCLAMP SURGE SUPPRESSORS IMPROVED

According to Sine Control, the PowerClamp line of transient voltage surge suppressor units has been improved with an updated design that improves performance and reliability.

These devices eliminate spikes, surges and noise from AC power lines to prevent damage to electronic equipment. They will clamp transients to within a few volts of the AC waveform, and "scrub" noise and harmonics from the AC power line. The improved units now respond to power line disturbances in less than one nanosecond.

PowerClamp TVSS units employ a combination of technologies that react to both the amplitude and the rise time of line disturbances. Their automatic sine wave tracking maintains a very narrow threshold over which the clamping circuitry activates. Spikes and surges are attenuated without causing clipping or distortion of the AC sine wave.

Because PowerClamp units are installed in parallel with the incoming AC service, performance always remains constant under changing load conditions, the company says. There is no insertion loss; the transmitter will remain on the air even if the PowerClamp fuse blows.

PowerClamp TVSS units are available for single-phase and three-phase power. They're suitable for transmitter sites, studios, translators, computer rooms and other mission-critical installations.

For more information, contact Sine Control Technology in California at (562) 493-3589 or visit www.sinecontrol.com.



BDI PROVIDES RF POWER MONITOR AND TRANSMISSION PROTECTION SYSTEM



Broadcast Devices Inc. says that its DPS-100D RMS power meter series provides the broadcaster with an accurate RF power meter for all broadcast applications including analog FM, IBOC, DAB and all digital television formats.

The DPS-100D is a compact system providing monitoring of crucial information

regarding transmitter and antenna performance. The DPS-100D is an RMS-type detector providing superior dynamic range to previous designs and provides a proprietary 3-Strike VSWR protection system.

Thresholds can be user-set to alarm locally and by email to the operator in the event of a VSWR, low line pressure or high temperature event.

The unit also has a pair of interlock relays that can be interfaced to the transmitter for RF interruption in the event of a transmission system failure. Additional features include an onboard Web GUI providing observation of all parameters including six general purpose inputs. Optional temperature and transmission line pressure transducers for direct interface to the DPS-100D system are also available.

The DPS-100D is SNMP-capable and is compatible with most modern remote control systems. The DPS-100D system is available in popular EIA line sizes in addition to N type, and DIN type. In addition, DPS-100D systems can be supplied with waveguide sections.

For information, contact Broadcast Devices in New York at (914) 737-5032 or visit www.broadcast-devices.com.



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TECHUPDATES**LBA INTRODUCES ANTENNA MONITOR**

The COMM-connect 3025 Broadcast Power Monitor is now available in North and South America from LBA Technology Inc.

It is described as an entry-level unit offering a number of applications to monitor and control antenna performance.

The 3025 uses available RMS probes and power conversion algorithms to handle multicarrier, multi-mode signals. Depending on the probe used, frequency range options include 47–860 MHz, 50–250 MHz and 10–2500 MHz.

The 3020 directional coupler with built-in probes comes in three



frequency ranges: 380–420 MHz, 470–860 MHz and 800–2200 MHz. The maximum power capability with the 3020 is 1 kW.

LBA says that this versatile and cost-effective antenna monitor can control four external RF measuring heads. The high dynamic range with external couplers and RF measuring heads cover from 1 W to 1 MW.

It can measure forward power and reflected power, produce true RMS and true power levels and calculate VSWR.

The 3025 Antenna Monitor has configurable alarms and a digital output; it fits 19-inch panels with up to three per row. It can also be mounted onto frames as a standalone.

For information, contact LBA Group in North Carolina at (252) 757-0279 or visit www.lbagroup.com.

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Myat Inc. has added 7-16 DIN and 7/8-inch EIA options to its line of coaxial switches.

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The radial port positioning and lightweight compact design make the switches useful for rack-mounting or for use in systems where space is at a premium. LED and mechanical switch position indicators provide redundant certainty of routing configuration, even during AC failure. The switch also is manually operable. In the case of lost power, the switch will remain in position when the power is restored.

A high-quality motor and engineered drive movement provide consistent operation, cycle after cycle, year after year, the company says.

The switches can be configured for either 12 VDC or 24 VDC control, and either 120 VAC or 220 VAC drive.

For information, contact Myat in New Jersey at (201) 684-0100 or visit www.myat.com.

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Antenna maker Dielectric says that the DCR-T antenna is an economical, low-power antenna that is the latest addition to the company's popular DCR series FM ring-style antennas.

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The antenna's elements are constructed of aluminum with a 7-16 DIN input. They are a mere 20 inches in diameter and weigh only 17.5 pounds each, according to the company. An integrated clamp mounting design simplifies easy installation on a variety of towers. The antenna arrays can have optional beam tilt and/or null fill. The antennas have a 1-5/8-inch EIA input.

For information, contact Dielectric in Maine at (800) 341-9678 or visit www.dielectric.com.

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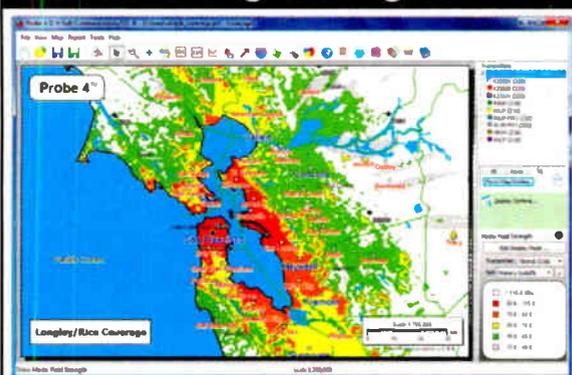
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shipping can be discussed. 443-854-0725 or ajkivi@gmail.com.

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Foundation Helps Broadcasters in Need

BFA offers monthly and one-time emergency assistance

COMMENTARY

BY JIM THOMPSON

The author is the president of the Broadcasters Foundation of America.

As radio broadcasters, we are a central part of everything that happens in our communities. Everyone in town has driven past the radio tower — that tall spire that transmits essential and relevant information and entertainment. It's the engineers who are responsible for the tower, the receivers, the transmitters and all the equipment that enables the radio station to broadcast and remain integral to the community, sometimes with life-saving information.

Regardless of radio format, we report on monumental events, and we do what we can to help our community get through the hard times. We see the joy that emanates from parents and their teens when the high school football team wins a home game, and the happiness that radiates from children when the playground in the town's park is finally completed. We also see the sadness that strikes our community when disaster hits.

We are an industry that cares, and we use the power of radio to do something about it.



Jim Thompson

But what happens when something tragic occurs to one of us? What about when it's the radio engineer, the morning show producer or the afternoon air talent that falls on hard times? This is when the Broadcasters Foundation of America steps in.

LIFELINE

When the lives of broadcasters and their families are shattered by unthinkable circumstances, leaving them unable to work or support themselves, the



Foundation is a lifeline.

For more than 60 years, the Broadcasters Foundation has provided financial assistance to broadcasters whose lives have been shattered by unthinkable tragedies. A 501(c)3 public charity, the Foundation is unique in that we exist solely to help broadcasters. That means that all of our grant recipients are your colleagues.

Hard-working, dedicated broadcasters who had productive lives and vibrant careers in engineering, programming, on-air, production, sales, management, ownership and more, can wind up destitute because of disease, accidents or advanced age.

The Broadcasters Foundation delivers two types of financial assistance: Monthly and one-time emergency grants. Our monthly recipients undergo a thorough screening and application process annually to determine need. Examples of situations where we have

provided monthly aid include a 20-year broadcast veteran who died of a sudden massive stroke, leaving behind two children and a wife who suffers from multiple sclerosis; a successful manager paralyzed from the waist down in a tragic motorcycle accident; and an elderly couple with stellar broadcasting careers who lost their home and cannot keep up with exorbitant medical costs.

One-time emergency grants have been disbursed to broadcasters whose lives or homes were affected by natural catastrophes like Hurricane Sandy in the Northeast and tornadoes in the Joplin, Mo., area.

The Foundation has helped these and other broadcasters who have fallen on hard times so extreme that it has rendered them destitute, unable to pay for necessary medications, or even support themselves.

How many engineers have weathered a storm to keep their station broadcasting live? As we all know, when most people are running for cover, radio broadcasters stay on the air to deliver vital information that saves lives. The emergency grants from the Foundation help offset the destruction caused by these disasters.

THANK YOU

Here are some of the thank you notes we have received from radio broadcasters that the Foundation has helped:

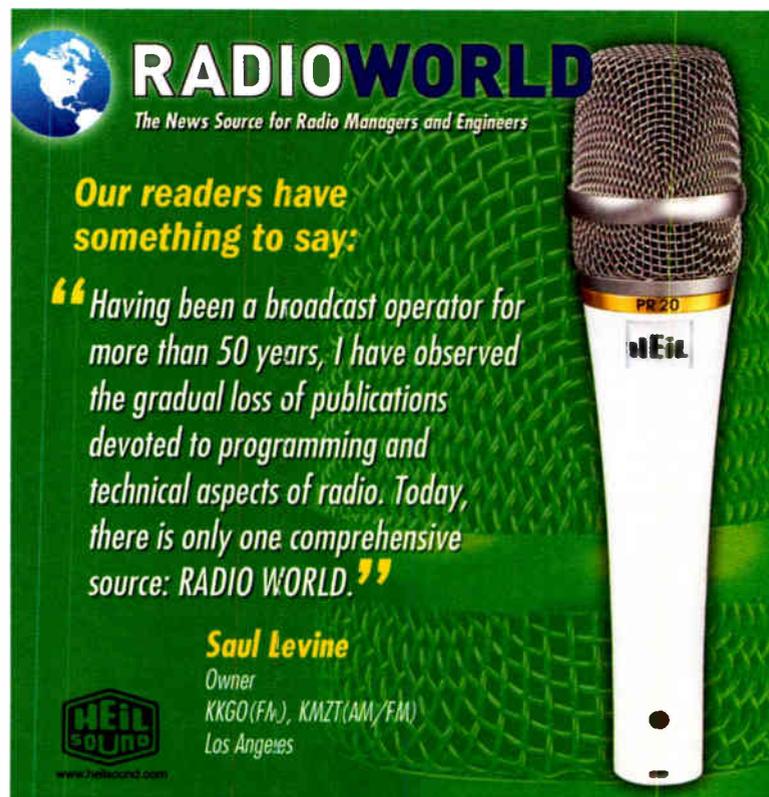
"MS has managed to slow every part of my life to something unimaginable ..."

(continued on page 30)

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BFA

(continued from page 29)

My new normal contrasts sharply with my old memories of early sales meetings, days on the road and then back to the office. Thank you for your help."

"My prayers have been answered through the Broadcasters Foundation of America ... You have restored my faith in God and man. Your generosity will allow us to find a new apartment and walk away from our current living conditions, which have unequivocally curtailed my recovery from the stroke."

"There aren't words enough to tell you what the Broadcasters Foundation of America means to us. On the first of every month, when we get your check, I send up a special prayer to God to give the Foundation many great blessings to keep you going so that you can bless many more 'old radio' people like us."

Reading these stories of these brave broadcasters is a reminder of how much someone we know might be struggling, and how fortunate we are to be working in this great business. Our board of directors comprises some of our profession's most influential leaders, representing a variety of radio groups from across the country: Dan Mason from

CBS Radio, Joe Bilotta from Buckley Broadcasting, George Beasley from Beasley Broadcasting, Jeff Smulyan from Emmis Communications, Jerry Lee from WBEB and more. In addition, the CEOs of our industry's organizations, Erica Farber from RAB and

cause so that we can help those in our industry who need it most.

Annual membership to the Broadcasters Foundation is only \$150 per year, and a donation can be made to the Guardian Fund in any amount. Please, at this time of giving, consider mak-

Right now, there may be a colleague at your station, or even at a station across town, who needs help but they don't know where to get it.

Gordon Smith from NAB, serve on our board.

The board's goal is that no broadcaster's cry for help should ever go unanswered. The requests for aid have more than doubled over the past few years. Next year, we will disburse \$900,000 in financial assistance, a 100 percent increase from five years ago.

Right now, there may be a colleague at your station, or even at a station across town, who needs help but they don't know where to get it. Please, make sure every broadcaster you know is aware of the Foundation and the work that we do. Consider supporting our

ing a donation or becoming a member. You can visit our website at www.broadcastersfoundation.org or call us at (213) 373-8250. We hope you are never in a position to need charity. But with your support, we will always be there for a broadcaster who needs help.

Jim Thompson was president of Group W Radio and has served on the boards of numerous industry organizations. Under his leadership, the Broadcasters Foundation has doubled the amount of financial aid it distributes in the past five years from \$400,000 annually to a projected \$900,000 next year.

READER'S FORUM**REMEMBERING RICHARD MERTZ**

It was with great sadness that the WUKY(FM) family learned of the death of Richard Mertz (Nov. 20 issue). His advice and counsel over the years have been invaluable to us, and he will be sorely missed.

Several years ago, Richard helped us design and build our new transmitter plant, including our first-ever HD Radio transmission system.

I'll never forget one blustery winter day when Richard was at the transmitter site doing final proofs on the system with our chief engineer, Gordon Brandenburg. Suddenly, Gordon's cell phone rang. It was the tower owner, calling to relay a complaint from the crotchety engineer at another station whose antenna was right below ours on the tower. The engineer claimed our new transmission line had come loose and was flapping around and damaging his antenna.

Richard grabbed his trusty digital camera with a telephoto lens, flung open the door of the transmitter shack and snapped a series of photos of our firmly secured transmission line. The photos were immediately emailed to the tower owner, and we never heard another word from that engineer — not on that subject at least!

That's the kind of man Richard was: Always prepared to help and to resolve problems, even imaginary ones, quickly and definitively.

Tom Godell
General Manager
WUKY(FM)
Lexington, Ky.

ONLY SO MANY OPTIONS FOR AM

Regarding "AM Efforts Should Include Tech Solutions" by Paul Thurst (Nov. 6), I believe C.E. Thurst has competently zeroed in on the subject of AM broadcast future: There are limited solutions to "saving" the AM spectrum and modulation methods.

Let's be perfectly candid: Maintaining an AM station is expensive due to aging towers, feed lines, transmitters and pattern proofing. The FCC NPRM offers no lasting solutions.

Additionally, engineers who are experienced in AM station maintenance are in very short supply. Next, listeners are, in my opinion, migrating away from AM to other modes of program content delivery.

The AM spectrum is being hammered with manmade noise, and there appears to be no technical/engineering solution. Again, in my opinion, AM IBOC, which is proprietary, is not going to save the AM band. DRM can be tested, but America has a reluctance to adopt European formats.

Receiver manufacturers are not going to switch to adding a new format to in-dash electronics after the big push to IBOC (no big success in my opinion).

The front-page story in the Nov. 6 Radio World, "Brazil Broadcasters Push AM Migration," says it all.

Lastly, slim profit margins for AM stations do not encourage station owners and managers to support a fading and expensive radio modulation-dependent carrier level technology.

Ross F. du Clair
Transmitter Engineer
EMF Broadcasting (K-LOVE & AIR1)
Rocklin, Calif.

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