



RADIO WORLD

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INSIDE

NEWS & ENGINEERING

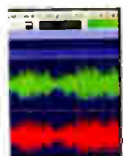
• How WJON in St. Cloud, Minn., solved a little NRSC surprise. — Page 16



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• Audio production without breaking the bank. — Page 34



Jeff Haley of RAB says, "Some look to nascent pure-play audio brands and see a radio problem with innovation. I do not."

'Let's Embrace Mobile. It's Our Birthright'

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Feds to Reexamine Automation Patents

With Participants Mostly Tight-Lipped, The Technical Legal Battle Continues

BY RANDY J. STINE

WILMINGTON, DEL. — The U.S. Patent and Trademark Office will reexamine two patents at the center of a

legal dispute between radio broadcasters and a company claiming to own key automation technology.

Broadcast Electronics — which makes AudioVault products and is not a defendant in the patent infringement lawsuit — had asked for the review and received word in mid-September that the Patent Office had granted the request. A favorable finding could render the lawsuit moot, though that's not assured.

Attorneys for the radio broadcasters involved in the litigation have requested a stay from the judge overseeing the

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CAP-EAS — Let's All Exhale Now

Extension Gives Stations More Time, But Earlier Adopters Are Frustrated

BY LESLIE STIMSON

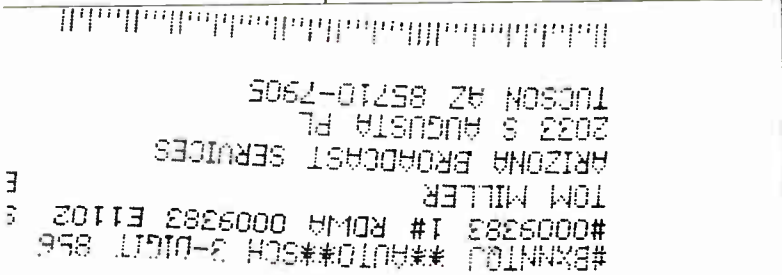
Reactions are divided within the industry about whether the FCC should have delayed its deadline for stations to upgrade EAS encoders/decoders to become compliant with the new Common Alerting Protocol.

Two weeks before the Sept. 30 deadline, the FCC pushed it back again, to June 30, 2012. Some engineers who had bought new equipment to comply — generally at larger radio groups — were peeved at the decision. Some at smaller stations were relieved, saying they needed more time to come up with the money to pay for new gear.

Before the commission released its decision, manufacturers seemed to expect some sort of extension but were surprised that the FCC had moved the deadline so far out, by nine months.

One benefit is that this may help stations better focus on the separate, upcoming Nov. 9 national EAS test, according to some broadcasters and FEMA; indeed, an engineer who handles a cluster for a larger group recently told Radio World it was difficult

(continued on page 5)



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NEWSROUNDUP

CUMULUS: Cumulus Media Inc. completed its acquisition of Citadel Broadcasting Corp. in September. The company now has 570 stations in 120 markets and a network operation with some 4,000 affiliates. It positions itself as "the largest pure-play radio broadcaster in the United States," whereas Clear Channel, for example, owns more stations but is active in significant other media segments. The deal earlier received sign-offs from regulators, with conditions.

THE KIT: Livio Radio announced availability of its Bluetooth-enabled Internet Radio Car Kit, which CEO Jake Sigal believes will change the way consumers listen to radio in the car. "The Kit," about which RW wrote at the 2011 Consumer Electronics Show, is a plug-and-play gadget that brings Internet radio and music from a listener's iPod or iPhone to any FM car stereo. The kit also offers Bluetooth hands-free calling, USB charging and buttons to control the Livio Car Internet Radio application. An app offers 45,000 Internet radio stations when connected to the kit. The device is available at Amazon.com and Livio Radio's online shop for around \$120. It is compatible with iPod touch (second through fourth generations), iPhone 4, iPhone 3GS and iPhone 3G.



at iTunes App Store; Facebook; MySpace; Google; Twitter; and Internet service providers Comcast, AT&T, and Verizon. Of those, only Twitter would pass First Amendment muster if judged by traditional Supreme Court free speech principles, NRB said group. "All of the other new media platforms and service providers have written policies in place that violate fundamental rules of free expression, particularly as applied to religious free speech," it said.

COLLEGE: The 2011 National College Media Convention, sponsored by College Broadcasters Inc., is scheduled for Oct. 26-30 in Orlando at the Renaissance SeaWorld hotel. One topic is likely to be the recent sale of student stations at colleges such as the University of San Francisco, Texas Tech University, Rice University and Johns Hopkins University.

MUSICAM USA: Christopher Tobin joined CCS/Musicam USA as president. He'll report to CEO Alvin Sookoo. Tobin is former engineering supervisor at CBS Radio and manager of technical operations at ABC Radio Networks.

RATINGS: Several cities moved up the Arbitron ladder in the updated fall list of market ranks based on population. Several markets chose to be redefined under Arbitron's new Metro Redefinition Policy. These include New Orleans (which moves up from market 52 to 47); Des Moines, (91 to 73); and Corpus Christi (137 to 111). Portland, Maine, redefined itself from market 168 to market 90, a change of 78 slots. Brand

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NRB: The National Religious Broadcasters association wants a dialogue with new media companies about the potential for censorship of religious speech. Broadcasting & Cable reported that an analysis by Craig Parshall, senior vice president and general counsel of NRB, stated: "Christian ideas and other religious content face a clear and present danger of censorship on Web-based communication platforms." The study looked



Craig Parshall of NRB speaks; listening, from left, are Suzanne Caruso, Liberty University School of Law; Colby May, American Center for Law and Justice; and Harold Furchtgott-Roth, former FCC commissioner, of the Center for Economics of the Internet at the Hudson Institute. Brian Walsh of the American Religious Freedom Program at the Ethics and Public Policy Center is at podium.

new to the rankings is Hudson Valley, which joins at market 39 and has an estimated 1.46 million people age 12+. In the top 10 markets, Atlanta fell two slots to the ninth position, while Philly and Washington moved up to 7 and 8.

AUCTIONS: More than 120 new FM CPs will be available by auction come March. On the blog of law firm Fletcher, Heald & Hildreth, R.J. Quianzon reviewed the decision. "If you've followed the commission's auction process, you know that there's plenty of paperwork to get out of the way before the bid paddles start going up on March 27 and the gavel starts coming down some time later," Quianzon wrote. "The first step? A request for comments on proposed procedures, upfront payments and minimum opening bids." Comments are due Oct. 7 to AU Docket 11-146.

"One thing to watch for this time around: the possible effect revisions to the 'move in' rules that kicked in earlier this year," he wrote. "Historically, an FM auction provided an opportunity for creative folks to figure out how an up-for-grabs channel in some obscure and distant community might be leap-frogged or hop-scotched into a more populous, and thus lucrative, situation. Last spring the commission sought to slam the door on such things." He believes this auction will see little "post-auction jockeying of channels and communities," and ultimate dollar values of presumably will go down.

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FCC Decision Could Save You Money

Do You Own an AM Transmitter? This Media Bureau Ruling Is for You

The FCC Media Bureau announced in September that it will allow AM stations to use technologies to reduce transmitter power consumption that have been available to broadcasters elsewhere for years.

In the United States, Nautel and Harris offer such technology. Alaska Public Broadcasting Inc. Director of Engineering Chuck Lakaytis has been particularly active in pushing this forward recently, and Nautel brought his efforts to my attention earlier this year. Radio World has reported on the renewed interest in this topic in recent months.

Stations will need a waiver of rules to proceed; the Media Bureau set up procedures to seek the waiver and indicated it will approve requests that use the Nautel and Harris options.

REAL MONEY

"Such technologies, known generally as Modulation-Dependent Carrier Level control technologies or algorithms, have long been used by international broadcasters operating high-powered AM transmitters," the FCC staff wrote. "Easier implementation of MDCL algorithms and higher energy costs have recently made these techniques more attractive to domestic broadcasters."

The amount of energy savings depends on various factors, but the FCC said that in typical cases, power consumption of an AM transmitter can be reduced by 20 to 40 percent.

Tim Hardy of Nautel was quoted by RW's Leslie Stimson earlier this year saying, "It would be fairly easy to save \$20,000 a year if you have a 50 kW AM transmitter running 24/7, based on

modest electricity rates of 10 cents per kilowatt hour."

The Media Bureau in its announcement noted that in the 1980s, European entities like the BBC, AEG Telefunken and ABB Group developed such techniques.

"These algorithms, known variously as Dynamic Amplitude Modulation, Amplitude Modulation Companding, Adaptive Carrier Control or Dynamic Carrier Control, decrease carrier power

The decision could save larger stations thousands of dollars a year.

by amounts up to 6 dB, with the power reductions applied at different modulation levels depending on the algorithm."

In the U.S., Harris offers Amplitude Modulation Companding (AMC) and Adaptive Carrier Control (ACC) features for its AM transmitters, and can add the feature to some older transmitters. Nautel includes an option, Dynamic Carrier Control (DCC), on NX series transmitters, and can install it on other models. The FCC said it will consider waiver requests for implementation using other transmitters, if any come forward.

The commission staff noted that the reduction in AM signal power at certain modulation levels "inevitably exacts some penalty upon audio quality. Depending on the content of the audio program, MDCL

algorithms may introduce some audio distortion or may decrease the signal-to-noise ratio in the receiver." They may also erode coverage slightly at the fringes of your protected service area.

"Both the long experience of transmitter manufacturers and broadcasters abroad, and the initial reports from experimental operations in Alaska, however, indicate that such adverse effects are generally imperceptible."

The FCC also noted that field strength readings could be affected, so it encouraged stations to disable the technology before doing field strength measurements. "We expect licensees to cooperate with field strength measurement programs by other stations."

It also said it would allow AM stations broadcasting IBOC to implement the technology if the hybrid signal continues to comply with spectral emissions mask requirements and the relative level of the analog signal to the digital signal remains constant.

HOW TO APPLY

AM stations that want to implement the technology should send a letter requesting a waiver of Section 73.1560(a) of the Rules, addressed to:

MDCL Waivers
Federal Communications Commission
Audio Division, Media Bureau
445 12th Street SW, Room 2-B450
Washington, DC 20554

The FCC said applicants should also email a copy to ann.gallagher@fcc.gov. The letter should spell out which

FROM THE
EDITOR

Paul McLane



technology you plan to use and how it will be implemented. If approved, the division will issue a modified station license indicating that a waiver has been granted to permit use of a specific MDCL technology, resulting in the variation of transmitter power to levels below 90 percent of the station's nominal licensed power.

But note, the FCC will still require that your transmitter achieve full licensed power at some audio input level, or when the MDCL is disabled temporarily. "This requirement will permit stations to use energy-saving MDCL technologies, which preserve licensed coverage areas, while distinguishing between such operations and simple reductions in transmitter power, which do not." It said it will also continue to authorize operations for stations that want to evaluate MDCL technology. Those requests require only an informal application, typically a letter.

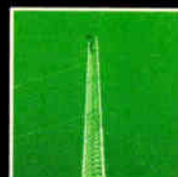
As I noted in a blog post earlier, this is good work on the part of the FCC, Chuck Lakaytis and the folks at the transmitter companies who have been pushing these ideas forward. (There's a side lesson to this story: Folks in the "real world" can in fact influence regulators to make productive changes, despite cynicism about that — especially when ideas are put forward with persistence and technical care. Such activism is even more important in an era when the FCC and other regulators may have fewer technical resources on staff.)

For questions about the waiver requests, email ann.gallagher@fcc.gov.



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EAS

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to prepare facilities for both CAP compliance and a national test when the dates were so close together.

BROAD SUPPORT

In issuing its latest extension, the commission was acting on a joint petition from NAB, broadcast associations for 50 states and the District of Columbia, NPR, the Broadcast Warning Working Group and associations representing the cable industry and public television stations.

They'd asked for an extension of at least 180 days, saying EAS participants needed time to take into consideration any changes to the FCC's Part 11 rules before making a final purchase decision on EAS equipment.

NAB also argued that an extension was necessary because the industry didn't know whether the commission would implement its own equipment certification testing, separate from FEMA's conformance testing — again potentially affecting equipment purchase, installation and operation decisions.

The FCC agreed, saying the extent to which it will require EAS equipment to be certified as compliant with its revised rules is "an open issue" that must be resolved.

In May, the commission had asked for comment on several tentative conclusions regarding EAS, including whether it should grant another extension. Now, in the Fourth Report and Order released Sept. 16, the FCC says it received 30 initial comments, with the majority favoring an extension of the

compliance deadline.

The FCC expects to adopt CAP-based revisions to its Part 11 EAS rules in a subsequent order, and it expects those new rules to be out sufficiently in advance of the June 30, 2012 deadline in order to allow EAS participants ample time to come into compliance with those new rules.

"While we agree ... that the CAP standard is well established and that there is equipment that has already been deployed that complies with that standard, we nonetheless [also] agree ... that until the commission has completed its rulemaking process, it cannot meaningfully impose a deadline by which EAS participants must 'receive CAP-formatted alerts,'" wrote the FCC in its decision.

That, of course, is exactly what the FCC did in establishing a series of deadlines, which has led to industry frustration.

But the commission has not finalized all the key technical specifics necessary for receiving CAP-formatted alerts, it stated. "Without having these specifics, no EAS participant can claim that it is currently capable of receiving CAP-formatted alerts, even if it has equipment that could receive such alerts under one or more of the technical specifications being considered by the commission."

Suzanne Goucher, president and chief executive officer of the Maine Association of Broadcasters, was pleased with the move, saying the extension "will help smaller stations."

But of the process in general, she said final rules should be in place before stations are obliged to purchase new EAS



Photo by Jim Peck

FEMA IPAWS Program Manager Manny Centeno speaks during the Radio Show in Chicago.

equipment. "I would much rather we all do this once and do it right." Another state broadcasting association executive commented, "It's like saying, 'Buy this DTV transmitter and then we'll tell you the rules.'"

Just the day before the extension, one small-market radio broadcast station owner, speaking to Radio World during the Radio Show in Chicago, said he hoped for an extension because he wanted to put off the expense until the next fiscal year.

But several engineers for large radio groups said the decision benefits those who took a gamble that there would be an extension and hurt those who played by the rules.

(continued on page 6)

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EAS

(continued from page 5)

"We took the deadline seriously," the CE of a major broadcast group said disgustedly. And some proponents of EAS feel deflated. "We've lost momentum," one said.

The FCC says it doesn't want stations to wait until the last minute to buy CAP-compliant gear: "Our extension of the CAP compliance deadline should not prevent those that wish to purchase FCC-certified, integrated CAP-capable EAS equipment from doing so or otherwise hamper the marketing activities of manufacturers of such equipment," it wrote.

I would much rather we all do this once and do it right.

— Suzanne Goucher,
Maine Association of Broadcasters

Yet manufacturers say exactly that could happen. Harold Price, president of Sage Alerting Systems, said that after the first announced extension last November, "orders dropped to zero and stayed there a long time."

Sage and Monroe Electronics, owner of Digital Alert Systems, had opposed further extensions, saying that roughly 70 to 80 percent of the market has devices and the rest weren't planning to buy a new unit, either at all or until they had to.

Monroe told the FCC there were few if any outstanding potential compliance issues that could not be resolved after the deadline using software/firmware upgrades.

HOLDING OFF?

Another issue is order cancellations. Manufacturers believe most customers who have units on order will take delivery and pay for them, but that some could cancel current orders and re-order in 2012.

"I am canceling my order for a new ... unit," one standalone broadcast owner wrote on a radio listserv. "I will probably buy one eventually, but I don't see any reason to spend money now when it isn't needed till next year."

Such cancellations would leave manufacturers in a bind. To meet the short-term spike in demand, some had to take out loans and take other unusual steps to pay for materials and then build the units, according to a broadcast engineering source familiar with the process. Also to be considered are inventory

storage space and costs. The extension could mean that EAS manufacturers, which generally are small companies, must sit on parts or completed units rather than finish them and ship right away, one manufacturer told Radio World.

At the Radio Show, both Sage and Monroe said they've been engaged in a concentrated buildup to build, sell and support the new units in recent months. "We need to keep that selling mode ramped up longer now," said Price.

"We re-tasked people for this," said one of three Monroe representatives who spoke to Radio World on the show floor. Now, "I'm going to send people home," presumably a reference to scal-

ing back work force.

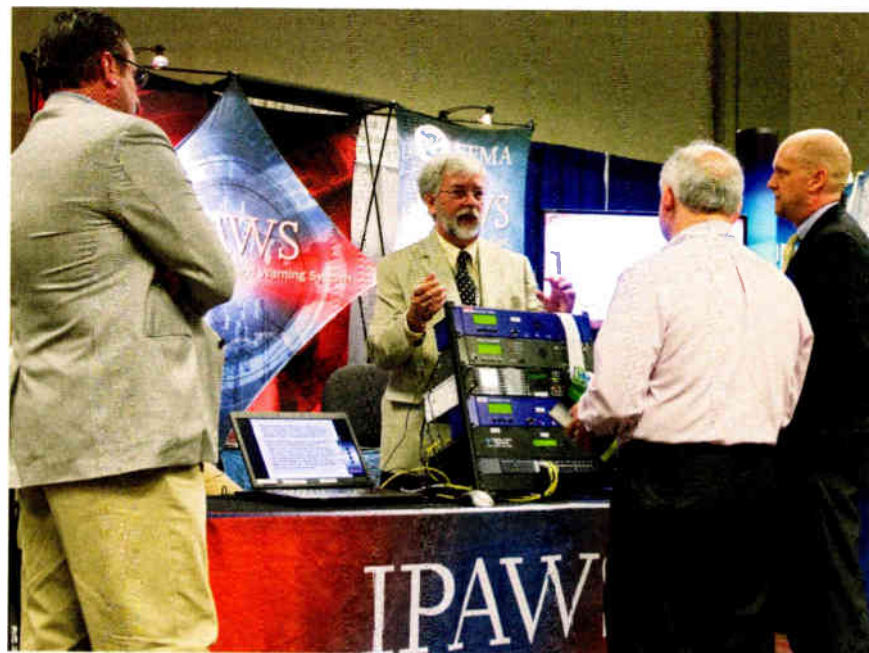
Some broadcasters have speculated that manufacturers, with units now ready to go, will have a fire sale in 2012; but both companies said the delay will not translate to such bargains.

After the convention, Sage sought to assure customers who've already purchased a unit: "People need to know that nothing has really changed, other than the date," said Price. "The FCC has simply admitted that they can't get all the changes into the Part 11 rules by the deadline. They didn't say that the existing integrated devices won't match the new rules, or that any technical changes will even be necessary. They did say they believe that technical changes, if any, can be handled by a firmware update."

CONVERTERS

The FCC also said the extension will give it time to resolve the question of what to do about "intermediary devices," converters that connect in some fashion with previously certified EAS equipment to allow receipt of CAP-formatted alerts. The commission still needs to decide whether such intermediary equipment must be certified under the agency's rules and whether converters will satisfy the new CAP requirements at all.

Noting that some stations "may have purchased such equipment," the FCC cautioned stations that EAS encoders/decoders must be FCC certified and said it remains unclear whether CAP converters or "any equipment that does not meet these current baseline requirements



Al Kenyon takes questions at the IPAWS booth.

will be able to satisfy and CAP-related rules we may adopt in the future."

The agency urged licensees who may have purchased or are thinking about buying any EAS equipment to verify with manufacturers and/or vendors that the gear complies with current FCC EAS equipment rules.

Touchstone Consulting Group EAS expert Gary Timm wrote on the Alerts, Warnings & Response to Emergencies blog after the convention that one FEMA executive believes the FCC could finalize its CAP-EAS rules by the end of the year.

"We will continue to push forward on CAP-EAS," said Antwane Johnson at an EAS session at the end of the show. Johnson is division director and program

manager for FEMA's Integrated Public Alert and Warning System Program Management Office.

"We've put up an EAS server, which developers are testing" now in preparation for CAP-EAS. He told Radio World FEMA expected to issue IP addresses to PEP stations in late September so that they can connect to the IPAWS server and retrieve the EAS message that they, in turn, will transmit to other stations in the daisy chain.

And finally, FEMA, one of three federal agencies responsible for EAS along with the National Weather Service and the FCC, said it will proceed with testing in preparation for the national EAS test, which will test legacy EAS and not involve CAP.

SYMPOSIUM ADDS VIRTUAL ATTENDANCE

The IEEE Broadcast Symposium is trying something new this year: a "virtual attendance" option.

The annual event in Alexandria, Va., is produced by the IEEE Broadcast Technology Society; dates are Oct. 19-21.

For the first time, the organizers will stream the symposium live and provide archived on-demand viewing later. Sessions are on a "pay for view" basis; keynotes will be posted for public access.

"Not merely a webcast, the virtual venue will offer a global audience an engaging, immersive and interactive experience that replicates the feel of the familiar physical conference event," the group said. That platform allows virtual attendees to network, download material and participate in Q&As. Production services are provided by NewTek, InfoNeedle and Certain Software provide the virtual events platform.

The symposium features technical presentations including two half-day tutorials on "Connected TV" technology and HD Radio. Keynote speakers include John Luff, media technology consultant; Peter Doyle, FCC audio division chief; and Sterling Davis, chair of the Open Mobile Video Coalition Technical Advisory Group and recently retired VP of technical operations for Cox Media Group.

Info: <http://bts.ieee.org/broadcastsymposium>

61st Annual IEEE Broadcast Symposium

19 - 21 October 2011
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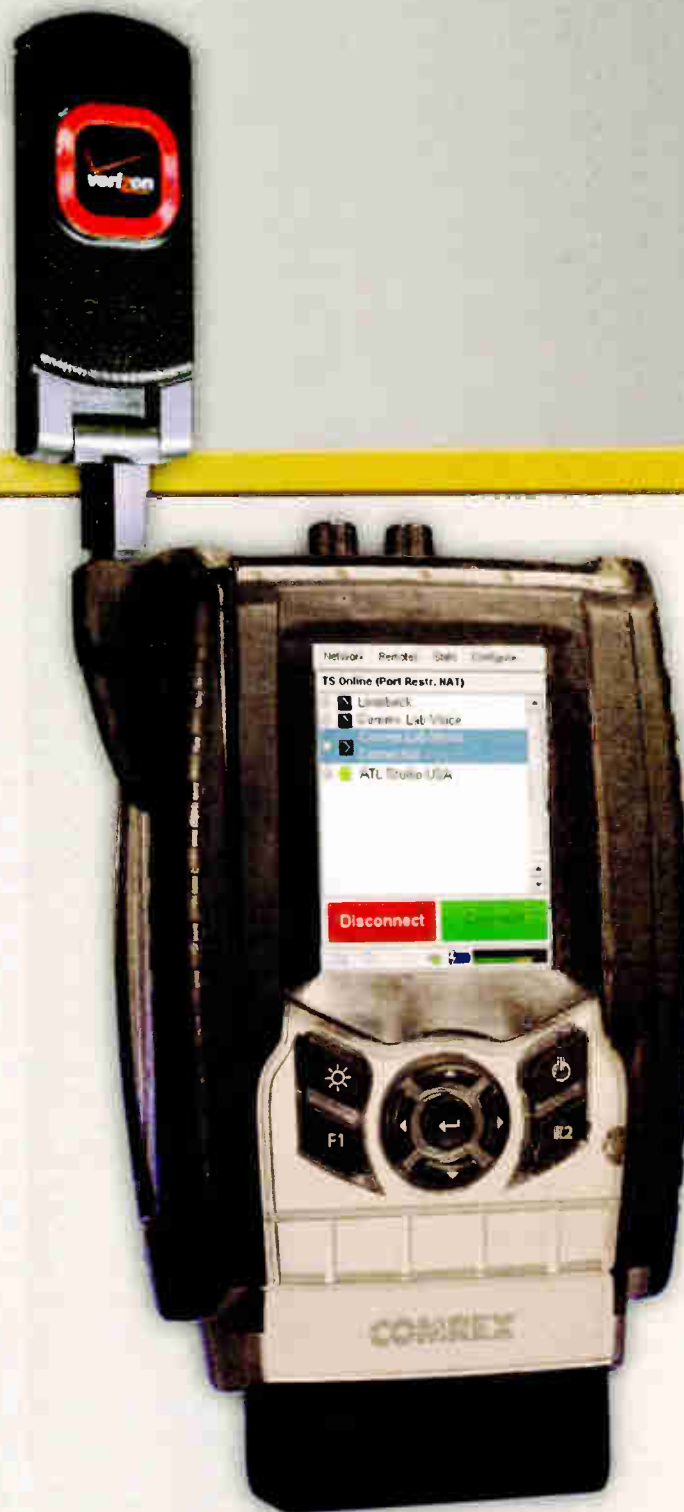
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AUTOMATION

(continued from page 1)

case in U. S. District Court pending the patent review.

Radio World also has confirmed that the plaintiff in the suit, Mission Abstract Data, was previously owned by Intellectual Ventures, a controversial patent holding company founded by former Microsoft Chief Technology Officer Nathan Myhrvold in 2000. Unclear is why that relationship changed or whether the change would affect the legal battle.

STAY LIKELY

Mission Abstract Data, doing business as DigiMedia, claims it holds several patents for an all-digital, hard drive-based system able to store songs for music storage and playback for broadcast. The patents were issued to Robert J. Goldman in 1997 and another in 1998 (see sidebar).

Earlier this year Mission Abstract Data sued CBS Radio, Townsquare Media, Beasley Broadcasting, Cox Radio, Greater Media and Cumulus, which own approximately 900 stations in total, for patent infringement. Townsquare has since been dropped from the suit.

Bill Ragland, a patent attorney with Womble Carlyle Sandridge & Rice, said the Patent Office's reexamination typically takes 2-1/2 years to determine patentability. Ragland, who is not involved in the suit, believes it is "highly possible" the judge in this case will grant a stay. He said that has been a trend among federal district courts over the last several years.

Ragland said BE may have become involved because it had sold systems to some of the defendants and was seeking to indemnify and defend them. Ray Miklius, vice president of studio systems for Broadcast Electronics, declined to comment on recent developments.

Several other automation manufacturers, including ENCO and OMT Technologies, also declined to discuss the patent infringement case. Among them is RCS, owned by Clear Channel Communications. Clear Channel owns more U.S. radio stations than any other group but is not named in the patent infringement suit.

A Clear Channel official told Radio World earlier that the company had

not reached any settlement agreement with Mission Abstract Data; but Clear Channel representatives did not respond to subsequent requests for comment from Radio World.

Meanwhile, fewer stations appear to be affected by the case now. Townsquare Media, which owns 176 stations in 38 markets, was dismissed "with prejudice" from the lawsuit, meaning the plaintiffs can't re-file against the broadcaster in the future, according to a document filed on July 25.

"Plaintiff Mission Abstract Data through their respective attorneys do hereby stipulate the dismissal of all claims asserted or which could have been asserted in this suit by Plaintiff against Townsquare with prejudice and to the dismissal of Townsquare's counter claims with prejudice; each of the parties to bear its own costs and attorney's fees," according to the document.

This development fueled speculation by some in the radio industry that the two had reached a settlement and licensing agreement. Townsquare Media Executive Vice President and Chief Financial Officer Stuart Rosenstein did not reply to numerous phone messages and emails from Radio World.

For other broadcasters named in the suit, mediation may be an option to avoid a trial.

According to court documents, a hearing in late August in U.S. District Court in Delaware was intended to discuss types of alternative dispute resolutions available, including mediation. No further court documents have been filed on the outcome of the mediation hearing, and the impact of the subsequent Patent Office decision on that effort was unclear.

Barring successful mediation or a favorable patent review for broadcasters, observers believe the case will continue deep into 2012. The plaintiff is

The website of Mission Abstract Data offers few if any clues as to who owns the company or is managing its legal fight.

seeking an injunction and damages and demanding a jury trial.

'LIKELY'

The plaintiff states on its website, www.missionabstractdata.com, that while automation systems may have existed prior to 1994, those were used to store short music clips, jingles and stingers. The company's patents specifically mention the ability to store several hundred songs.

"Given the limitation of technolo-

gies at the time, it is likely those systems housed short low-fidelity music clips for on-air transitions and zingers," DigiMedia stated in a March blog post.

On its site, the company asks broadcasters to request a licensing consultation but gives little information about the company itself. As of press time in mid-September, that note hadn't been updated since April.

The company address on the patent data is listed in Wilmington, Del. There

(continued on page 10)

MISSION ABSTRACT DATA RECAP

Mission Abstract Data LLC, doing business as DigiMedia, filed the complaint in U.S. District Court for the District of Delaware in March 2011, alleging patent infringement by broadcast groups including CBS Radio, Beasley Broadcasting, Cox Radio, Greater Media and Cumulus. The count of radio stations owned by the companies involved totaled about 900 at one time (RW, June 1).

The defendants countersued DigiMedia in May, alleging the patents are not valid and seeking damages from DigiMedia.

DigiMedia's suit, filed by Hagens Berman Sobol Shapiro LLC, identifies DigiMedia as holders of Patent No. 5,629,867 and Patent No. 5,809,246, which were applied for in 1994 and issued in 1997 to inventor Robert J. Goldman. The patents are titled "Selection and Retrieval of Music From a Digital Database" and describe a hard drive-based computer system for use by music radio stations.

According to a 1990s press release, Robert Goldman was a division president of Haltek America Inc., who went on

to found GetMedia Inc. in 1997, a dot-com company that explored ways for consumers to download and buy music they heard broadcast on radio stations.

Hagens Berman Sobol Shapiro LLC, based in Seattle, calls itself "a consumer-rights class action" law firm on its website (www.hbsslaw.com), interested in protecting the rights of investors, consumers, innovators and the environment. It has previously filed class action suits against Apple, Verizon and Capital One and is involved in the ongoing Toyota sudden unintended acceleration litigation, according to its website.

Mission Abstract Data also is represented in the current litigation by Farnan LLC, a law firm in Wilmington, Del., that specializes in trying cases in Delaware courts, primarily in the areas of complex commercial litigation, bankruptcy litigation and wrongful death and personal injury claims, according to its website, www.farnanlaw.com.

Legal representatives for Mission Abstract Data failed to return RW's repeated calls for comment, both earlier this year and in preparation for this story.

— Randy J. Stine



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World Radio History

AUTOMATION

(continued from page 8)

is no phone number listing for the company. RW's repeated attempts to reach Mission Abstract Data representatives for comment for this and past articles were unsuccessful.

DigiMedia was owned by Intellectual Ventures when it acquired the two patents in question in 2007 from Haltek America Inc., according to an assignment history from the U.S. Patent and Trademark Office. Others listed in the assignment history as holders of the patents through the years include IM Networks (formerly Sonicbox Inc.),

tory, Mission Abstract Data assigned the two automation patents in February to Intellectual Ventures Audio Data, which reassigned them back to Mission Abstract Data several weeks later. Observers believe the transfers coincided with the sale of patents to the new investors group.

"Mission Abstract Data LLC was an Intellectual Ventures company that bought patents that have Robert Goldman as a named inventor," said Naomi Zeitlin, director of corporate communications for Intellectual Ventures. "We sold the entire patent holding company. IV no longer controls Mission Abstract Data LLC."

The plaintiff in the suit, Mission Abstract Data, previously was owned by Intellectual Ventures, a patent holding company founded by former Microsoft CTO Nathan Myhrvold.

Concert Technology Corp. and Hahek America, though the latter appears to have been a typo for Haltek, subsequently corrected. Inventor Goldman was apparently an executive with Haltek at one time.

Intellectual Ventures, the IP licensing company, states on its website that it seeks to create "an active market for invention that connects buyers, sellers and inventors." But on sites like TechCrunch.com, bloggers have disparaged Intellectual Ventures as a "patent troll" that exists mainly to extract patent-licensing fees from other companies and whole industries.

IV sued a host of tech firms including HP, Dell, Acer, Logitech and Kingston Technology over patent infringement in July, according to TechCrunch.com. It also was the focus of a lengthy report this summer on the radio program "This American Life." Read the show transcript at tinyurl.com/rwpatent.

Several financial investment chat rooms and blogs, including one called "Patent Ed" written by patent researcher Ed Gray (patent-ed.blogspot.com), speculated earlier this year about the connection between Mission Abstract Data and IV.

According to the assignment his-

But Thomas Ewing, a patent attorney and IP consultant for Avancept LLC, said while IV may not control the day-to-day operations of Mission Abstract Data, it's likely the two still have a relationship.

"Disclosure in this litigation shows Mission Abstract Data is wholly owned by DigiMedia Holding, but I wouldn't be surprised to learn that DigiMedia is owned by a group of investors," Ewing said. "IV has previously sold IP to third parties for cash and a backend revenue share. The

arrangement here is likely similar."

The Patent Office's reexamination of the patents has the potential of denting the patent enough that it will no longer be a problem, Ewing said, though maybe not.

"I would imagine whoever now owns Mission Abstract Data has the money to buy really good counsel, so I doubt if the defendants can bleed [Mission Abstract

THE SEARCH FOR PRIOR ART

A radio automation veteran said none of the broadcasters involved in the Mission Abstract Data intellectual property suit have asked him for help.

"Unfortunately, the broadcasting industry and/or its legal people refuse to contact our office to discuss the prior art of Oakwood Audio Labs Ltd. and MediaTouch of Salem, N.H.," said Ron Paley, a former executive of Oakwood Audio Labs.

Any "prior art" that existed before applications for the technology were submitted in 1994 would support the defense's position that the technology was not patentable at the time.

Paley and others contend that prior art exists to show that radio automation equipment was well established before 1994. In patent law, "prior art" represents information available to the public before a given date and relevant to a patent's claim of originality.

Paley said he has proof in the "history business files" in his possession of automation technology that pre-dates the Mission Abstract Data patents.

In a statement to RW, Paley said: "MediaTouch Inc. of Salem, N.H., with John Connell as president and Oakwood Audio Labs Ltd., were clearly the only automation vendor in North America that had prior art to the dates of the patent awarded.

"Our MediaTouch automation system featured multi (4,000+) music cuts in Dolby AC-2, file server stored, played to air over a network, servicing multiple radio station air studios simultaneously and in all fully functional in a mission-critical environment. All this functionality was designed in 1992, installed in a broadcast 'super duopoly' in the spring of 1993 and then subsequent advertising was generated in Radio World in the fall of 2003 to sell more systems."

— Randy J. Stine

Data] dry. So unless the defendants can seriously injure the patent, it likely will come roaring back later; and the damages clock is still ticking," Ewing said.

Intellectual Venture's Zeitlin said she is unaware whether IV has a revenue sharing plan with the new investors in Mission Abstract Data. "We don't disclose the financial details of any of our deals."

NEWSROUNDUP

SENNHEISER & CONNECTICUT: German audio equipment maker Sennheiser is noting the 20th anniversary of its U.S. presence in Old Lyme, Conn. "From this quiet location, Sennheiser staff markets, sells, customizes and services premium audio products that are sold to consumers through major retail outlets or to professionals such as major broadcasters, Broadway theaters and musicians throughout the U.S.," it said. The state officially recognized its 20th anniversary as a U.S. subsidiary, making Aug. 29 "Sennheiser Electronic Corp. Day." The company said its annual revenue has grown significantly from \$11.3 million in 1991 to approximately \$150 million in 2011 and that the U.S. subsidiary "represents a significant portion of Sennheiser's global business." The parent firm was established in Germany in 1945; products first came to the U.S. in 1963 through a distributor in Manhattan. U.S. headquarters were established in 1991. The office now has about 80 employees.

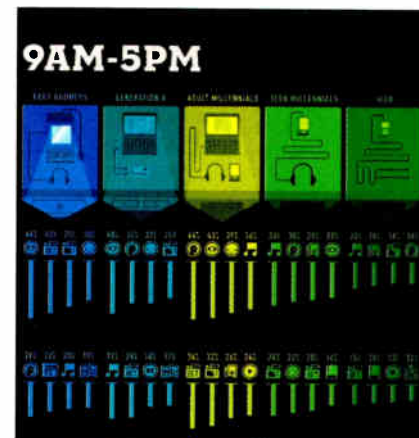
PRO AV COMES TO NEWBAY MEDIA: Radio World parent company NewBay Media acquired Pro AV magazine from publisher Hanley Wood LLC. NewBay said the acquisition is part of its efforts to become the top resource for AV professionals. NewBay AV titles include Systems Contractor News, Sound & Video Contractor, AV Technology,

Healthcare AV, Rental & Staging Systems, Digital Signage Magazine, TWICE, Residential Systems and a variety of tradeshow dailies. The acquisition increases NewBay's AV professional readership to approximately 200,000.

MEDIA CONSUMPTION:

Magid Generational Studies, using data compiled by Advertising Age, released an infographic breaking down media consumption by the hour and generation. Profiling is grouped into "Baby Boomers," "Generation X," "Millennials," "Teen Millennials" and "iGen." Consumption changes as the day progresses, with Internet activity for Generation X growing during the work day, while newspaper reading all but disappears except for the baby boomers. Radio consumption grows for adult millennials between morning and the work day, but then lessens from 5 p.m.– 8 p.m., and disappears after 8 p.m.

View the graphic at <http://tinyurl.com/rwmagid>.



SMART:



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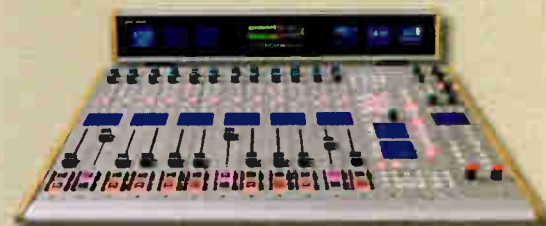
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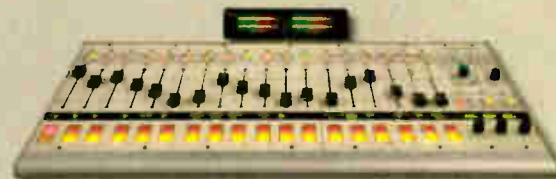
Artisan



Mosaic



Remora



Pilot



vScreen

Don't Touch My Greenie!

This Product Improvement May Render the Tool Useless

Bob Meister in Hamden, Conn., says Xcelite has evidently tweaked the design of its popular screwdriver, model R3322 (round, 3/32-inch diameter, 2 inches long), commonly called "the greenie" because of its color.

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

For as far back as Bob can remember, and until at least a few years ago, the diameter of the entire screwdriver shaft was 3/32-inch. This made the screwdriver popular for adjusting potentiometers behind small

panel holes. The design prevented mis-adjustments by would-be engineers (because a standard miniature screwdriver wouldn't fit).

But Bob's most recent batch of "greenies" shows a redesign. Most of the shaft is now 1/8-inch diameter, while just the final 3/4 inch to the tip has been reduced to the original (and model-specific) 3/32-inch diameter.

This could be a problem in some situations, where the hole in a panel through which you insert the screwdriver might not be big enough.

Fig. 1 shows the new and old models. Note the taper in the lower driver.

Xcelite is part of Apex Tool Group. Radio World

sent an email to the company to inquire about this change and we'll share any reply.

Bob Meister can be reached at walmik@comcast.net.

If you haven't covered the opening to your satellite LNB, be prepared for nesting insects, probably the stinging variety, to move in this fall.

At a recent Ennes Workshop I showed a picture of a plastic liter water bottle, cut down to fit inside the "throat."

If you haven't covered the opening to your satellite LNB, be prepared for nesting insects.

Another engineer mentioned that he has used nylon fabric, stretched over the opening and secured by hose clamps. Still others said plastic mayonnaise or peanut butter lids fit fine too. Too small an opening? Try an aerosol spray can lid.

Metal, of course, can't be used. But plastic seems to have very little effect on the satellite signal while keeping the insects out.

While you're keeping bugs at bay, inspect your outdoor equipment carefully. This includes any conduits

(continued on page 14)



Fig. 1: Hey, Xcelite, your new 'greenie' (bottom) may not fit.

"Name That Tune."



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WORKBENCH*(continued from page 12)*

with openings, as seen in Fig. 2.

Conduits that go underground can provide shelter for rodents, which like to chew on cables. Buy some stainless steel or copper wool at a dollar store; mix in a little foam sealant and you have a great plug that can be removed to use the port opening for another cable.

Dave Burns, a real broadcast history buff, provides a link to a neat slide show about the history of the cart machine. Younger engineers, see what you missed.

The slides were prepared by Andy Rector of ACC Electronix for a presentation to the Broadcasters Clinic in Madison, Wis., in 2009.

While some stations may still use carts, they are certainly in the minority; so for a trip down memory lane, follow the link to open the PDF: <http://tinyurl.com/rwcart>.

The Broadcasters Clinic, held annually in Madison, Wis., is organized by the Wisconsin Broadcasters Association and SBE Chapter 24; this year's dates are Oct. 11-13. The clinic offers sessions for both radio and television engineers. (To see more clinic archival info, head to www.sbe24.org and click on "Broadcast Clinic.")

Dave Burns is familiar to many readers from his days as an executive at equipment dealer Allied Broadcast. Dave can be reached at dbradionow@aol.com.

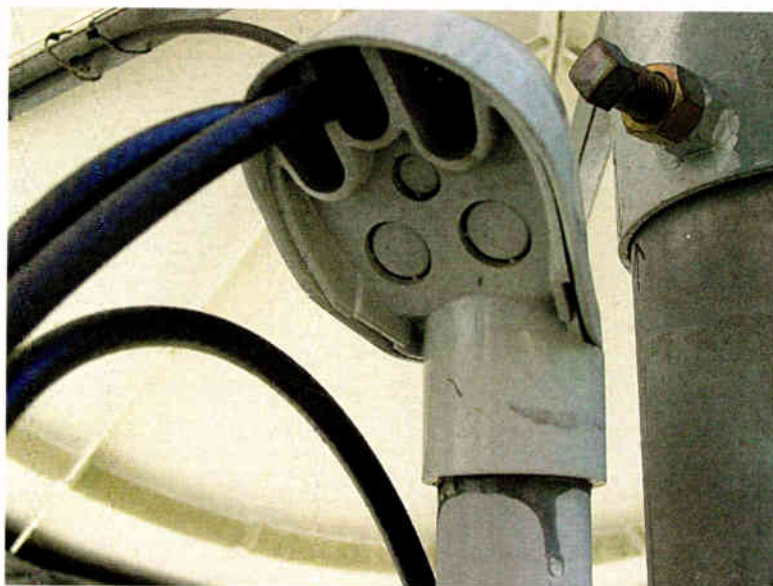


Fig. 2: Seal outdoor conduits as part of your winter prep.

EAS is on everyone's mind these days. From the Broadcast Radio Technical Forum (radio-tech@broadcast.net) comes a tip for owners of the new Sage encoder/decoders.

Gary Peterson of New Rushmore Radio in Rapid City was experiencing some difficulty in configuring his new Sage Endec. Michael Glaser, engineering manager for Barnstable Broadcasting's Long Island Radio Group, provided Gary with a helpful name: Christopher Voumazos of Sage Alerting Systems.

Chris has a "cheat sheet" that will help with the configuration and answer questions. The sheet is available



Fig. 3: Andy Rector's slides share some fun cart machine history.

on Sage's web FAQ page, in the section called "task sheets," at www.sagealertingsystems.com/faq.htm.

Chris is part of the Sage support team, and can be reached at (914) 872-4069; dial "1" for support.

Thanks Michael for sharing your knowledge on the web at B-Net and here in *Workbench*.

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 43 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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World Radio History

Hey, What's This at 1300 kHz?

How Station WJON in St. Cloud Solved Its Little NRSC Surprise

BY MARK PERSONS

On a nice sunny summer day in 2008 I was doing annual, FCC-required National Radio Systems Committee measurements on WJON(AM) in St. Cloud, Minn.

TECHTIPS

The station had passed many times, and there was no reason to believe this time would be any different.

Surprise, the NRSC test failed! We encountered an RF mixing product at 1300 kHz.

Things became perfectly clear after a moment. Just months before, KYES(AM) on 1180 kHz had been built and turned on.

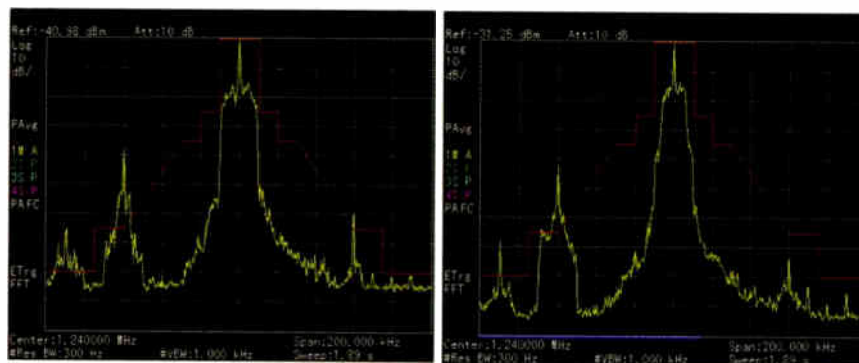
The two transmitter facilities are 15 miles apart. You would think that wouldn't present a problem, but it did. KYES runs 50 kW with a two-tower directional pattern pointed at WJON. To make matters worse, WJON is only a 1,000 watt station on 1240 kHz but has a five-eighths-wavelength tower, with a gain of about 3 dB over a standard quarter-wave tower. It makes a wonderful receive antenna for 1180 kHz.

Yes, this was a "perfect storm" to create a problem. See the "before" photo of the initial measurement using an Agilent N9340B spectrum analyzer. WJON is in the center and KYES is to the left by just 60 kHz. A mix product in the WJON transmitter, between WJON and KYES at 1300 kHz, is transmitted from the WJON tower and peaks above the NRSC mask by 5 dB.

Ouch!

FCC RULE 73.44

(b) Emissions 10.2 kHz to 20 kHz removed from the carrier must be attenuated at least 25 dB below the unmodulated carrier level, emissions 20 kHz to 30 kHz removed from the carrier must be attenuated at least 35 dB below the unmodulated carrier level, emissions 30 kHz to 60 kHz removed from the carrier must be attenuated at least [5 + 1 dB/kHz] below the unmodulated carrier level, and emissions between



Before-and-after measurements using an Agilent N9340B spectrum analyzer.

60 kHz and 75 kHz of the carrier frequency must be attenuated at least 65 dB below the unmodulated carrier level. Emissions removed by more than 75 kHz must be attenuated at least 43 + 10 Log (Power in watts) or 80 dB below the unmodulated carrier level, whichever is the lesser attenuation, except for transmitters having power less than 158 watts, where the attenuation must be at least 65 dB below carrier level.

It is clear WJON did not comply with the rules. Some would say KYES was the cause and should have been required to fix the problem at WJON. Others would disagree.

No matter how you look at it, WJON ultimately is responsible for maintaining compliance with FCC rules at its transmitter plant, or risk losing its license.

For those who are unfamiliar with this kind of problem, the transmitter is almost always where mixing of signals takes place. This is a well-known phenomenon. Each transmitter has its own "turn-around loss" in its power amplifier where the mix occurs. The good part is that KYES did not induce enough RF current to make the WJON antenna current meter read above zero.

WHAT TO DO

The station hired Kintronic Labs to design a filter to nudge WJON into compliance with FCC rules. Kintronic came back with a design to put a 1240 kHz pass/1180 kHz reject filter on the 50 ohm side of the WJON antenna coupling network. There was no attempt to filter 1300 kHz. The idea was to attenuate 1180 kHz by at least 10 dB to reduce the mixing that results in a 1300 kHz spur.

The filter is a fixed vacuum capacitor with tapped coil in series to pull/trap 1180 kHz to ground. A variable vacuum capacitor in parallel with the series trap is used to parallel resonate the arrangement to 1240 kHz. This makes the network a nearly infinite resistance at 1240 kHz with very little degradation even at

transmission line via a J-jack and J-plug. The arrangement made it possible to tune and test the network without taking the transmitter off the air except for installation of the J-jack.

IN THE END

The filter worked as expected. You can see the result in the "after" display of the spectrum analyzer.

This goes to show that you never know what might happen from year to year at a transmitter site. I uncover a problem or two every year when doing NRSC measurements for AM clients.

Yes, annual measurements are not required on FM stations, but these kinds of measurements should be made on a regular basis just to confirm compliance with FCC rules. Mixing can and does occur in FM transmitters as well.

Mark Persons WØMH is certified by the Society of Broadcast Engineers as a Professional Broadcast Engineer and has more than 30 years' experience. He has written numerous articles for industry publications over the years. His website is www.mwpersons.com.



The station hired Kintronic Labs to design a filter to nudge WJON into compliance with FCC rules.



WHO'S BUYING WHAT

Educational Media Foundation chose **Sage Alerting Systems** gear, purchased from dealer **BSW**, for its CAP compliance upgrade.

EMF includes the K-Love and Airl Radio Networks. Sam Wallington is vice president of engineering. The project involved 290 installations, including a few affiliates for which EMF agreed to install the gear. Including future facilities, Wallington said the team has purchased about 300 boxes.

Cherry Creek Radio standardized on Sage gear and purchased 20 units this year from dealer **SCMS**. Travis Cronen is director of operations and IT. The company has 60 stations.

Cumulus Media is using the Sage platform, adding new gear where needed to complement existing legacy equipment. Cumulus is doing a staged rollout of new hardware. Its initial order was placed through dealer **Broadcasters General Store**.

CBS Radio is using Sage Systems **EAS** gear purchased from **SCMS**. Glynn Walden is senior vice president of engineering; CBS has about 130 stations. "Most stations had the older Sage equipment," Walden said, "and the installation of the new CAP-compliant Sage box was almost as simple as unplug the old unit and plug in the new one and set up the options."

Moody Radio Group, based in Chicago, is using **Digital Alert Systems** **EAS** equipment for its conversion, buying about 20 units from **SCMS**. The organization owns 35 radio stations; Mark Willames is director of engineering. "A few of our AM/FM combo stations have required the addition of the **Broadcast Devices** **GPM-300** switchers to handle multiple station/audio program feeds," Willames said.

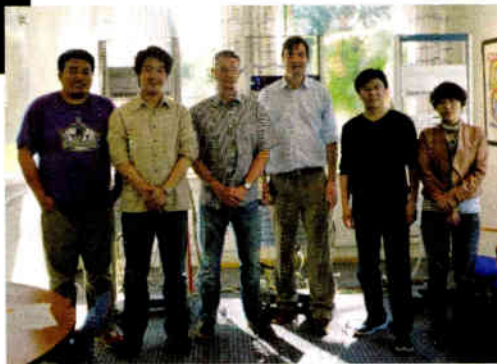
Omnia Audio said **Wyoming Public Radio** is using Omnia One processors for its 27 transmitters. Separately, **Montana Radio Company** chose Omnia for a new two-station plant in Helena, Mont. Kevin Terry is CEO and chief engineer.

The **United Nations Development Program** in Eritrea chose to use **Arrakis Systems** consoles, furniture and automation in a major rebuild for Voice of the Broad Masses of Eritrea (VOBME), the state-run radio station in that African nation. The upgrade included two air studios with Arrakis **MARC-15** consoles, Accent furniture and Digilink-Xtreme automation plus 10 support studios with Arrakis **ARC-8** consoles and Digilink-Xtreme Live Assist workstations. Systems integration occurred in Hong Kong.

Hipcricket, a mobile marketing and advertising company, said **Ramar**

Communications extended its contract for mobile marketing programs. **Ramar Communications Inc.** has five television and four radio stations in Lubbock, Texas. It uses the **HIP 7.0** platform to deliver sponsored news alerts, weather forecasts and other information and offers.

The **Australian Radio Network** is using the new **RCS** Aquira traffic system. Approximately 200 users went live Aug. 1. They are in



China Radio International's factory acceptance test team is shown at NTP in Denmark.



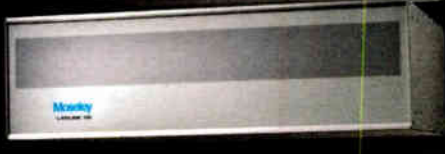

Melbourne, Canberra, Sydney, Brisbane and Adelaide.

NTP Technology of Denmark delivered 32 digital audio routing systems to **China Radio International**, external voice of the People's Republic of China. The order included two **NTP Penta 625 MADI** and 30 **Penta 725** systems for CRI's Beijing headquarters. The purchase was negotiated by NTP's China reseller **Beijing Infomedia Digital Technology**.

Send news of recent purchases or sales to radioworld@nbmedia.com with "Who's Buying What" in the subject field.

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MARKET PLACE

FEED ME: The Exstreamer 205 from IP audio distribution specialist Barix is aimed at retailers and other businesses looking for audio feeds; it could suit a radio station's needs for distributing audio in its facilities or provide quick on-site audio for a transmitter site. The Exstreamer 205, like its siblings, is an IP audio playback device, but it has a two-channel Class D digital amp outputting 25 W per channel. This relieves the 205 from needing an amplifier or powered speakers to provide end-user audio. A stereo line-in also allows for local signal input. A micro SD card slot provides prerecorded messaging input. Ducking controls offer emergency announcement options. The 205 will handle MP3, aacPLUS v2, WMA, PCM, G.711 and EtherSound audio. It can be controlled via Web or on a local network.

Info: www.barix.com



MORE RELIO-BLE: Audemat issued an upgrade to its Relio hardware/software remote control system. Version 3 promises a "faster and more powerful core operating system and new audio inputs and outputs." Compact Flash modules have been moved to the inside, allowing for additional I/O on the back. A broadcaster can use the unit to monitor audio at



a site, trigger alarms or other actions on silence and provide backup audio from the unit itself. Relio can be configured to connect with equipment through traditional status and metering inputs and commands (relays), or via connections to other equipment using serial protocols or SNMP via an IP network. Units linked to Relio can then be monitored and controlled locally and remotely communications modes both network (ADSL, LAN, GSM) and local/analog (local KVM, POTS line).

Info: www.audemat.com

BUDGET COMPUTING: The latest from DAW hardware specialist Rain Computers is an audio computer for musicians and others on a budget. Price starts at \$799. Called Stratus, the tower-style computer uses AMD Phenom II multicore CPUs. Rain says it uses a tweaked version of Windows 7 for a solid, audio-optimized DAW. A specialized cooling system is said to keep operational sound to a minimum.



The motherboard allows room for expansion and upgrades, including hard drives, memory or high-performance audio cards. Rain says that its units have been tested to be compatible with popular DAW software and hardware.

Stratus includes a 30-day trial of RainCare Encompass Creative Computer Support, a tech support system "designed to help creative minds use their complete software and hardware setup — not just the computer."

Info: raincomputers.com

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LIGHT ME UP: TWR introduced the L450-864-865 medium-intensity day/night white and red LED obstruction lighting system.

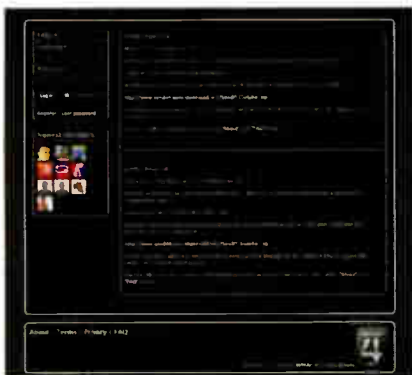
This system satisfies FAA E1 and E2 Type L864/L865 requirements; IT complies with FAA AC 70/7460-1K and is intended for towers from 201 feet to 500 feet above ground level.

The system consists of either one top beacon or one top beacon and two mid-level beacons, and either one or two levels of three side lights, plus various mounting apparatus, a cable run and CIP300 Controller. The day has 40 fpm white and night 20 fpm red flashing operating mode. Form-C dry contact closures are used for failure alert. Nominal operating voltage is 110-230 VAC, 50-60 Hz with Class D overvoltage protection. Level indicators are used to ensure correct mounting.

TWR was founded in Texas in 1981, so it notes its 30th year in 2011. It is headquartered in Houston.

Info: www.twrlighting.com

SEND IT WITH SENDIT: Mayah says its SendIt4 is an online community platform allowing audio communication over the Internet with broadcasting sound quality and minimal latency. It is also a networking and promotion platform for recording studios, voice talents and reporters.



At present the SendIt4 platform offers live audio connections in mono between two, three or four participants for any PC or Mac user.

Features include four quality profiles for optimum utilization of narrow to broadband channels; very low-latency communication over the public Internet; and low-cost subscriptions.

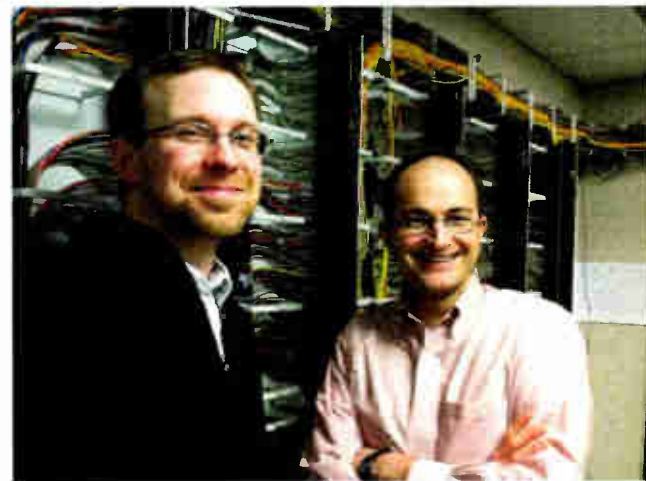
Mayah also plans compatibility with hardware codecs including Centauri III, C11 and others.

Connectivity uses professional standards-based SIP techniques for audio over IP. "However the audio encoding used by SendIt4 platform includes the FlashCast Low-Delay Algorithm, which is only available within Mayah family," the company stated.

Info: www.sendit4.com

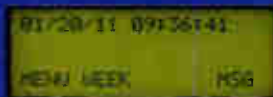
TIELINE AT NPR: Tieline recently published a summary of how NPR is using Report-IT Live Enterprise Edition. It quoted Charlie Mayer, director of operations for NPR News, saying NPR had discussed with Tieline the possibility of developing a version of Report-IT for iPhone that could be configured by an administrator, so that users only have to download and open the app and then tap one or two buttons to connect live, record and FTP audio. "Tieline agreed it was a good concept and over the next few months they contacted us regularly to obtain feedback on the functionality of the Enterprise Edition and how to implement improvements to its capabilities," he said in a summary. NPR's Chris Nelson and Charlie Mayer are shown at right.

Info: www.tieline.com



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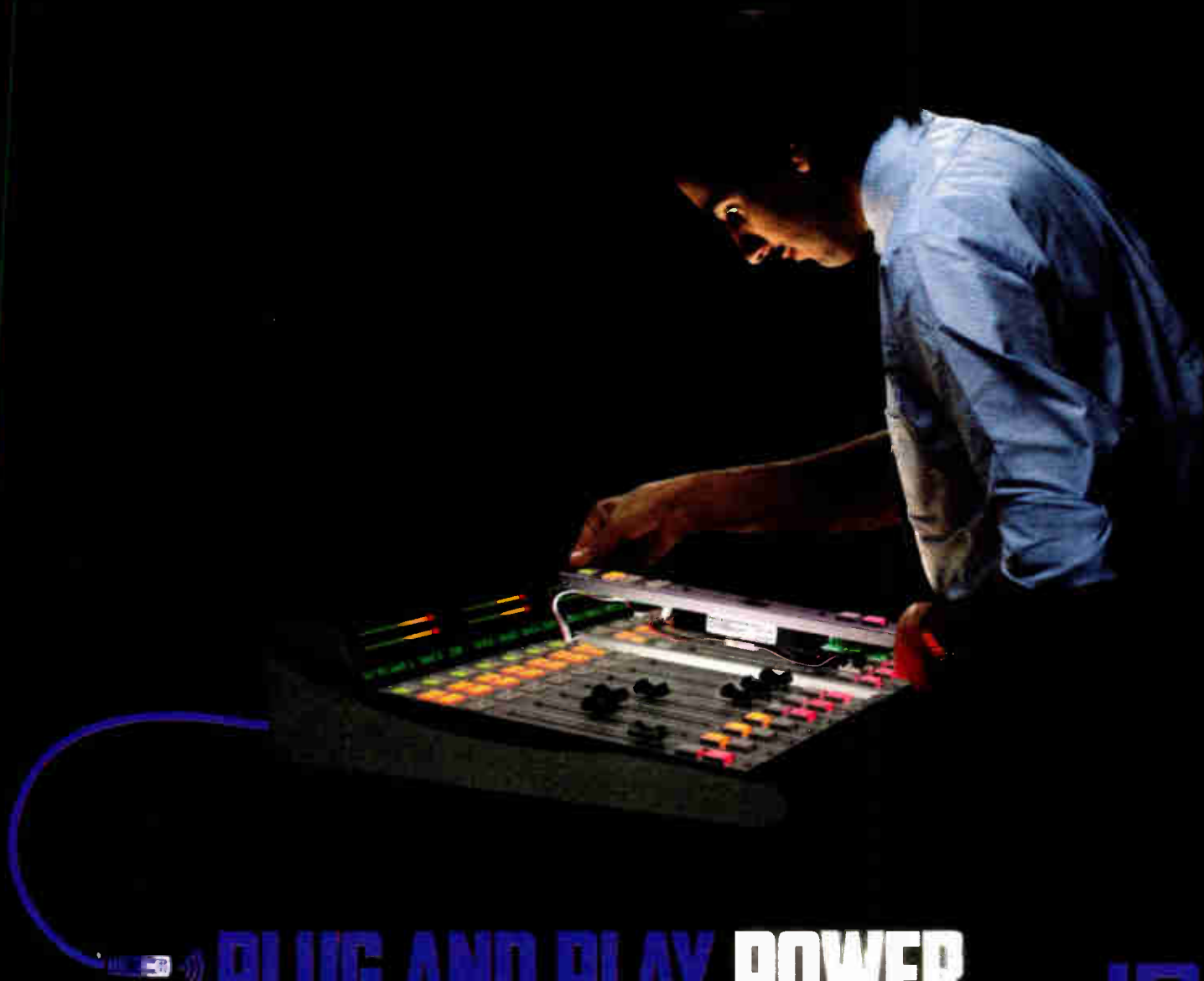
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AUDIOARTS

A Tech's Guide to Component Design Factors in AM RF Gear

BY LAWRENCE BEHR

One in a series of occasional articles to help AM radio engineers and owners enhance their operations.

Broadcast RF technicians should know some approximate design factors in selecting components for AM RF

AM TECH TALK

systems. This is helpful when selecting a component to replace one blasted by lightning, or to assess why one is running "hot."

There are no standards in this area, but here are some general thoughts that condense known industry practice and have worked reliably in our transmitter and antenna systems for years.

Actual equipment designs may use safety margins different from those I set out here. An RF design engineer must take into consideration many factors of intended use, installation and environment. As they say, "Results may vary!"

RMS CARRIER

To many techs, AM RF component labels may be a mystery.

Antenna system component computations are based on *RMS carrier* voltage and current. These computations are adjusted for modulation peaks and related to the specific labeling system used on mica and vacuum capacitors — which are different! A mica capacitor (292, G3, etc.) with a voltage rating of 20 kV is roughly equal to a rating of 35 kV in a vacuum capacitor. Current ratings do not require such an adjustment.

As a general matter, RF capacitors in mica, be they "G series" ceramic case, or "29x series" plastic molded, are interchangeable, G-1 for 291, etc. Similarly, vacuum capacitors with the same rating are interchangeable in glass or ceramic, but may be very different physically.

See the accompanying charts.

Bear in mind that these ratings are based on safety factors appropriate to a design based on "solid" parameters. In the absence of design limits, if parameters (i.e., antenna impedance, etc.) are estimated or uncertain, higher design

Vacuum Capacitor Peak Test Volts Rating	
% MODULATION	MULTIPLIER X Erms*
100%	4.7
125%	5.3
150%	5.9
200%	7.0

(Built-in 40% Safety Factor to Peak Modulation)

* Erms is the RMS (root mean square) RF voltage in the circuit.

factors are often applied, as a matter of engineering judgment. On the other hand, lower safety factors may be justified by a designer where special considerations of component cooling, placement, or operation prevail.

If you are uncertain about parameters, increasing the above values 10–15% may be adequate to accommodate variations encountered in the field.

When systems are designed based upon estimated data, it is critical to

verify the adequacy of component selection by measurement or computations based on measured parameters before applying rated system power. This is important to remember if you are commissioning new RF equipment and are uncertain of the design information.

More AM stations are sharing towers these days. Bear in mind that components shared with multiple frequencies, such as in filters for diplexers or triplexers, have a special set of rules. Basically, voltages add vectorially, and currents add on an RSS basis. Evaluation of these circuits is best left to an experienced RF design engineer.

While there is little difference between component ratings in IBOC and straight AM systems, this is not the

Mica Capacitor Peak Working Volts Rating	
% MODULATION	MULTIPLIER X Erms
100%	3.3
125%	3.7
150%	4.1
200%	5.0

(Built-in 40% Safety Factor to Peak Modulation)

case for DRM digital systems. While not a factor in the United States at this time, readers elsewhere are recommended to get good engineering advice before modifying such systems, or any high-power AM.

Lawrence Behr is founder of broadcast consulting firm Lawrence Behr Associates and RF equipment manu-



Lawrence Behr

Capacitors & Inductors RMS Current Ratings	
% MODULATION	MULTIPLIER X Irms*
100%	1.3
125%	1.5
150%	1.7
200%	2.0

(Built-in 20% Safety Factor to Average Modulation)

* Irms is the RMS RF current in the circuit.

facturer LBA Technology, headquartered in Greenville, N.C. A former radio and TV station owner, Behr was a founding member of the Society of Broadcast Engineers; he is a Radio Club of America Fellow and an active ham radio operator, K4JRZ. Reach him at lbagrp@lbagroup.com.

HEATHKIT WILL MAKE KITS AGAIN

Heathkit is back in the kit business, and wants your suggestions for future offerings. It stated on its website: "You the kit builders have spoken."

The Heathkit mail-order catalog was distributed by Edward B. Heath in 1926. According to a 2009 article in *Electronic Design*, subsequent owners of the company included Zenith Corp. and Schlumberger.

Successor Heathkit Educational Systems was launched in the 1970s to develop training materials for schools and corporations. HES is based in Benton Harbor, Mich. The kit business had been phased out in the early 1990s.

"The first kit will be a Garage Parking Assistant," the company stated on its website in September. "The Garage Parking assistant kit lets you build your own system that uses ultrasonic sound waves to locate your car as it enters the garage. The system signals to the driver using LED lights mounted on the wall when the car is detected and in the perfect spot for parking."

The second planned item is a Wireless Swimming Pool Monitor kit, "followed by many more."

Info: www.heathkit.com



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World Radio History

'Let's Embrace Mobile. It's Our Birthright'

Jeff Haley Preaches the Benefits of Radio's Scale and Live Local Content

RAB President/CEO Jeff Haley delivered opening remarks at the 2011 Radio Show in Chicago. Here are excerpts.

We remain today a little under 3 billion shy of our 2007 high-water revenue mark of \$20 billion. I'm quite confident

NEWSMAKER

that we are well on our way back to that number. But there are those who doubt our strengths.

Some look at our top five categories and they see secular radio issues in our cyclical media world. I do not.

Some look to nascent pure-play audio brands and see a radio problem with innovation. I do not.

Some look to the flattening growth rates of all measured media and lump radio in with all the rest. I do not.

I reject the shallow and simplistic analysis that reflects more of a preoccupation with the old metrics of the past than a focus on what lies ahead.

I do see short-term cyclical impact in our top five categories that challenge us to find new advertisers.

I do see incredible innovation across the whole sphere of audio that we have



'Nobody has as broad and deep a platform as our nearly 11,000 broadcast radio stations. ... Frankly, they won't ever.'

learned from and will continue to learn from.

I do see a growing diversification in our revenue mix to become true marketing partners to our advertisers rather than just spot sellers.

In other words, the glass is half full, not half empty. If we remain focused there's a great future ahead.

With the idea of focus in mind I want to share with you three things among all others that I believe matter in this very confused and shifting media world

I reject the shallow and simplistic analysis that reflects more of a preoccupation with the old metrics of the past than a focus on what lies ahead.

— Jeff Haley

today. These three things really matter; and radio's position with regard to these issues is why I am so optimistic.

First: Scale matters.

Second: Live and local content matters.

And third: Mobile matters.

So let's talk about scale, live and local and mobile, and how they indicate great things ahead.

SCALE

As far as scale is an issue in media today: Nobody has as broad and deep a platform as our nearly 11,000 broadcast radio stations.

There are niche players who after 10 years have barely scratched 20 million subscribers. There are exciting new IP and mobile businesses that have captured a share of the formerly non-sponsored music collection, or stored music experience.

None have near the scale that we have, and frankly, they won't ever. The cost, and one-to-one technology being used, are just not as efficient or scalable

as broadcast radio.

That doesn't mean they are not worthy of attention, and it doesn't mean we can't learn from and out innovate these new entrants. Over the next few days you will surely see some amazing new products on the market and on the horizon from your fellow broadcasters.

One issue with scale is measurement — credible data that advertisers can count on. This is an issue across the entire Web; but lately there have been players out there touting duplicative "listener hours" in an apples-to-oranges comparison for our unduplicated long-standing cume metrics. At a claim of just 3 percent of our reach, it may not be worthy of mention, but if we're talking about audience size, let's be fair and measure apples to apples.

If you wanted to compare "listener hours," say 1.8 billion "listener hours" for second quarter [Ed. Note: a statistic recently cited by Pandora], that claim includes duplicate reach across your user base; so it might be more fairly compared to our "broadcast hours" against the base of people who use radio. Or, live, 24/7 radio across 10,766 commercial stations, times the 12 weeks of a quarter, times the U.S. population

of 12+. Do that math and you get 6.1 trillion listener hours for broadcast radio — 6.1 trillion.

Yes, that's absurd. And more importantly it's irrelevant to our advertising customers. They deserve better than self-generated data; and I urge all of us to pay attention to the hype and understand that this data is not scale.

Scale is what enables Eddie Combs from Sears or Neil Golden from McDonalds to communicate their messages within well-targeted, appropriately formatted, live and local content to every market in the U.S.

RELEVANT

And why does live and local content matter?

Because live and local content has context and it's personally chosen by you and me. We tune in daily to hear live hosts bring us a connection to our communities.

This is an incredibly successful formula for scale. It should be of no surprise

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to us that the number-one show on television for the last eight years is music-formatted, tours the country city by city and is hosted by a radio DJ. "American Idol" is as much a derivative from the radio business as it is anything else.

Live and local, format-by-format radio matters all across America. And if it's not because of content, consider what it was like to live in America this past summer. From Missouri to Alabama in June. From Washington, D.C., and the Northeast corridor last month, or Texas and San Diego last week.

We have had the perfect storm of natural disasters: tornados, earthquakes, hurricanes, floods, wildfires and city-wide blackouts. When disaster strikes, the power is out and the cell towers are inoperable, it's live and local broadcasters that matter; and sometimes it's a matter of life and death. No other medium comes close in scale to saving and building community in times of crisis than the live and local content of radio.

OUR BIRTHRIGHT

One of the key reasons for this is we are mobile. Our one-to-many technology was designed to be mobile, and it's always been mobile.

Today mobile means a lot more because of the explosion in newer technology, which sometimes confuses the issue as to who invented this technology. We did.

It's our responsibility to be vigilant defenders of our turf. Our distribution strategy can't yield the mobile channel to someone else in the audio space.

We don't confuse music collection consumption with live radio; but we shouldn't yield the space either. In 2008 at the RAB conference in Atlanta, we set a five-year goal to have FM radio wherever you find a speaker or headphones. To date, FM receivers are in 70 percent of the MP3 market and growing nicely in smartphones.

We need to continue our push here. Consumers embrace new technology and we should embrace them wherever and however they want to get our content. This does not mean one channel replaces another, and anyone who tells you they know where this is all going is just plain crazy — but we know it matters. Let's embrace mobile. It's our birthright. Let's go out and innovate in this space and create the new frontier for radio.

The scope of what's possible is immense. Song tagging brings us Buy from FM; there's a potential return path for advertisers. We could utilize consumption data for audience measurement. The technology exists to do all of this today. But it is what we choose to unite on and innovate around that will really make mobile matter.

So let's build a common interactive

mobile platform for radio.

Let's continue our push for FM on cellphones.

Let's respond in a united way to advertisers who want us to show them the road ahead.

I ask you to keep in mind what matters over the next few days: Scale. Live and local content. Mobile.

And let's work together in the longer term to build a bright future for this great medium of ours.

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

PEOPLENEWS

David Allen was promoted to president/CEO of Howell Laboratories Inc., parent of FM antenna maker Shively Labs. He succeeds Paul Wescott, who is retiring; Wescott had been president since 1977. Allen has been with Howell since 1982, most recently as VP/COO. He is a graduate of the University of Chicago.

NRB presented its Faith & Freedom Award to Rep. Greg Walden, R-Ore., chairman of the Energy and Commerce Subcommittee on Communications and Technology and a former broadcaster. NRB presents the award to "a stalwart defender of religious liberty."

The North American Broadcasters Association said Vassilios Mimis, its director of technology, will serve as NABA's Head of Delegation, leading its international activities at the International Telecommunication Union in Geneva.

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Pandora Has Opened Its Box. Now What?

Radio Must Remind Ourselves That We Win When We're Locally Focused, Timely and Emotive

As the dental hygienist scraped my teeth, I was doing what I normally do: trying to ignore the entire process by listening to the background music coming from the ceiling.

As the first song faded, I expected to hear a production element or DJ voice from the soft AC station that my dentist has had on in the office for the last 20 years.

Instead, I was shocked to learn I was listening to Pandora. Wow! Pandora in a dentist's office?

For those who don't know, Pandora is a "personalized Internet radio music service," based on something called the Music Genome Project, which continues to "map" many forms of popular music.

Pandora's one-to-one delivery system streams songs based on a preferred sound. The listener creates his or her own "station" by picking an artist; Pandora then delivers similar artists and songs to the selected sound. By voting thumbs up or down, the listener enables Pandora to drill down further, getting closer to matching individual taste. There's an ad-supported free version and a service that's commercial-free but comes with a monthly fee.

Can it be that Pandora and other online music services are now mainstream and ready to compete with broadcast radio?

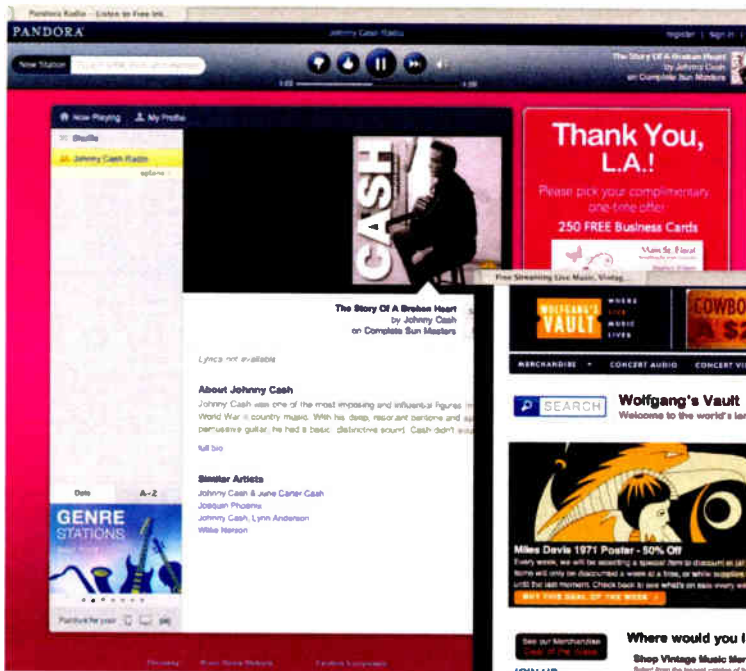
HOW DO WE COMPETE?

On a mass scale, in the immediate future, the answer is obviously not.

Radio for the masses is still like a light bulb. Most folks want to press a button and hear the product. But as Internet access makes its inevitable move into cars and as manufacturers figure out

AM-FM-HD stations, as well as creating online-only stations. Much progress also has been made in making broadcast stations available on mobile devices. Broadcasters will not easily cede Internet or mobile delivery to newcomers.

At this time, I'm not particularly concerned about the broadcast industry's willingness or technical ability to compete in the new delivery game. In the big scheme of things, what we should be vigilant about is improving our



how to make listening to online services simple, greater fragmentation will occur.

How will broadcast radio compete and what type of new services must the industry be prepared to offer?

While it's easy to be critical of big broadcast companies for various ills, it's important to recognize that over the last eight years, they have invested substantial finances, time and effort in streaming terrestrial

content by making it more relevant and compelling.

At the risk of sounding like an ancient broken record, broadcasters must continually remind ourselves that we will win when we are locally focused, timely and emotive.

As fascinating as I find Pandora, Slacker and Wolfgang's Vault, I eventually feel disconnected from my locale and drift back to local broadcast radio. Too often what I find is a well-worn music jukebox, devoid of personality — especially outside of morning drive.

To prove the point: If you're lucky enough to have a live 24/7 all-news FM station in your market, odds are good it's rated top three and maybe number one in your city. Sure, it's expensive to run; but look at the billing.

Yes, there is likely only room for one, or perhaps two, local all-news stations, and maybe two or three talk stations in most markets; so what should others do?

Focus on finding personalities and

PROMO POWER



Mark Lapidus

properly compensate them to stay for a career in radio. What used to be radio's minor league team of personalities in small markets — especially for music stations — has nearly vanished. We all know the reasons; so we have to dedicate ourselves to correcting the situation.

Groups should allocate resources in personality development, starting with kids right out of college or master's programs. There are still a number of well-known consultants for hire who are amazing at personality development.

Local focus brings ratings now and listener retention, whether they are listening on a 20th century radio or an iPad. Country and hit music stations, which seem to naturally gravitate toward local material, still and will always have hardcore fans who remember the names of their DJs, show up for local events (and at advertisers' locations), become active participants in fundraising for charities, and take part in contests in big numbers.

This can be done with voice-tracking, but the talent has to know the market extremely well and have enough time to truly focus on that one station — which is impossible to do when voice-tracking several stations daily.

Don't underestimate the power of emotion in captivating an audience. Prior to a show, does your talent stop to consider how to connect using the entire emotional spectrum? Laughter is terrific, but there is also plenty of opportunity for your station to connect with serious issues listeners care about and to engage them in the conversation on the air and online. This is an area where broadcast radio can continue to dominate.

I'm a technology geek; so, yes, I am a big fan of Pandora and other unique online streamers; but when the hurricane was coming to my area a few weeks ago, you can guess where I logged my listening hours. When the power finally did go out, I was reminded that few of us own a wind-up computer!

Mark Lapidus is president of Lapidus Media. Email marklapidus@verizon.net.

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Itching for a new console? This one's half the scratch.

So, it's time to upgrade your studio. Hey, let's be real - it's way past time. You knew those analog consoles were only good for 10 years when you bought them... 15 years ago. They need resuscitation so often, you keep a defibrillator in your tool kit.

Still, your GM says it'll cost too much to replace them. That's when you make like MacGyver and whip out your secret weapon: Radius, the new IP console from Axia. You show him the pictures. You tell him what Radius can do, with its 4 program buses, automatic mix-minus, instant-recall console snapshots, one-touch Record Mode, convenient talkback and rugged machined-aluminum construction. You show him the built-in Ethernet ports you'll use to eliminate the miles of expensive cable in your ceilings, and you can tell he's already counting the money he'll save.

Then you hit him with the haymaker: at just \$5,990, Radius costs less than you'd expect to pay for some flimsy, stripped-down, feature-free board with less brainpower than your wireless mouse. After he picks his jaw up off the floor, you get to tell the jocks about their cool new Axia consoles. And go home a bonafide money-saving, airstaff-pleasing Engineering hero, smiling with the knowledge of the envious looks you'll get at the next SBE meeting...

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>> Built-in Ethernet switch lets you network devices and studios easily.

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AES

(continued from page 28)

He feels that modern technology is coming to the rescue: "We've put a number of years into research about this very topic. The results are new algorithms designed to reduce the effect of sounding overprocessed, yet being able to maintain competitive loudness."

Orban said, "Processing should always be matched to the format and preferences of the target audience. This requires research and/or experience. In general, audiences tend to complain more about underprocessing, which makes the broadcast difficult to listen to because of inconsistent loudness and/or excessive RF channel-induced noise, than by overprocessing, which typically damages the dynamic punch of the program material and which may induce overt raspy or grainy distortion."

Orban describes his processing philosophy as "The customer is always right. That is, although I have my own preferences and find many of today's 'hypercompressed' CDs to be unlistenable, it is not my job to second-guess program directors or other station personnel whose job it is to tailor the sound of their broadcast to their target audience."

He adds, "Secondarily, I believe that it is better to expect processors to do a few things well than to try to do things automatically that should be done in the production studio, with the risk of doing such things badly and in an unpredictable, program-dependent way."

Within the last two years, Orban,



Bob Orban and John Delantoni demo an Optimod-AM 9000 prototype at the NAB convention in 1977.

Omnia and others including Wheatstone and Inovonics have launched new "flagship" digital processors in a wave of product releases. More affordable digital technology enhanced with investments in algorithm development have made powerful processing boxes available at what might be considered "affordable" pricing. That has not gone unnoticed.

"I think today's processors have a lot of advantages," Fluker said.

"First of all, by using new and powerful DSPs, we are able to achieve sounds and high-quality processed audio that was never achievable in the past. Newer processors also allow ease of setup for engineers and programmers through presets and easy adjustments. Yet the advanced user now has the ability to get in and 'micromanage' the processor.

"I do caution people that if you start getting into the advanced settings that it can be easy to create a monster and something that sounds horrible."

Another caveat might be that of diminishing returns. Orban suggests we've reached that point. "Making significant audible improvements is getting more and more difficult because of the relative maturity of the processing art in the year 2011."

Yet he too eagerly awaits the latest from behind the research lab curtain. When asked what's next on the processing front, he simply responds, coyly, "That would be telling ..."

Looking to the future of processing, when asked what else there is for processors to do, Foti responds: "Plenty. We are now able to reduce perceived



Frank Foti, train buff, in 2006.

distortion via new algorithms that control intermodulation distortion, probably the biggest annoyance to radio listening. Also, we can employ processing to add robustness to ancillary signals like the watermarked Arbitron PPM codes. Additionally, we designed new dynamic algorithms that employ acceleration and deceleration methods which make sure the dynamic processing sections get the level properly adjusted correctly, all the time. This is really the secret sauce in how quality and loudness can occur together."

Fluker, Foti and Orban will be joined on the panel by Jim Hoge, WPOZ(FM) and consultant James J. Johnston.

The AES session "Audio Processing for Radio" takes place Friday Oct. 21 from 9 to 10:30 a.m.

AES SESSIONS CHANGE WITH THE TIMES

This month's 131st AES Convention in New York offers broadcast engineers and other personnel many useful sessions. Here's a sampling from the Broadcast & Streaming sessions, chaired by David Bialik.

Thursday, Oct. 20

"Renovation and Retrofitting," 9–10:30 a.m. Studio design guru John Storyk guides a group discussing the changing role of studios and how they often need to adapt to multiple duties. Not to be forgotten are budgetary constraints and changes in priorities.

"Listener Fatigue and Retention," 11 a.m.–12:30 p.m. David Wilson of the Consumer Electronics Association talks to audio all-stars such as Frank Foti of Omnia Audio, Greg Ogonowski of Orban and recording engineer George Massenberg, among others, about listener fatigue and retaining listeners. The conversation will range from broadcast audio to audio experienced through cell phones and consumer goods.

Friday, Oct. 21

"Streaming & Encoding," 11 a.m.–12:30 p.m. Broadcast & Streaming Chair David Bialik takes the reins in this look at current and prospective methods of encoding media. Jan Nordmann of Fraunhofer,

Todd Baker of SRS Labs, Greg Ogonowski of Orban and a representative from Dolby will offer thoughts, concerns and predictions.

"A Half Century of FM Stereo," 6–8 p.m. Bialik leads a multifaceted group in a road trip to the P.C. Richards Theater to celebrate 50 years of FM stereo broadcasting. On hand will be participants like Tom Ray, Eric Small, Arno Meyer, Richard Mertz, Frank Foti, Bob Orban and Bill Sacks.

Saturday, Oct. 22

"Working With Content Delivery Networks," 3:30–5 p.m. CBS' Ray Archie heads up a session that would have been unimaginable 10 years ago but is increasingly commonplace and perhaps a perennial in the years ahead.

"Improving the Streaming Audience Experience," 5–6:30 p.m. Poorly performing streaming audio has re-created the age-old problem of bad radio reception. Contemporary listeners are less likely to put up with a poor streaming experience. Bill Sacks seeks solutions from Michael Daskalopoulos of Dolby Labs, Rusty Hodge of SomaFM, Markell Lambright of CBS Radio and Greg Ogonowski of Orban.



Sunday, Oct. 23

"New Initiatives in Digital Audio Playback and Automation," 11 a.m.–12:30 p.m. Radio World Editor in Chief Paul McLane speaks with representatives of ENCO Systems, Broadcast Electronics, WideOrbit and RCS about the rapid evolution and convergence of this part of radio station operations.

"Media File Management: Storage, Backup and Retrieval of Your Assets," 2:30–4 p.m. Another session unthinkable not long ago but now center stage. David Prentice of Dale Pro Audio and crew examine ever-changing hardware options, while considering content and software concerns now and tomorrow.

STUDIO SESSIONS

Tech Tours Are A Gem of AES

Aside from the exhibit floor and sessions, the AES show in New York features a number of technical tours. Here's the 2011 list as outlined by AES organizers:

THE DIMENNA CENTER FOR CLASSICAL MUSIC — This recently completed \$36 million showcase complex provides an exemplary home for the Orchestra of St. Luke's.

Constructed over the past year, the Center shares a West 37th building with the celebrated Baryshnikov Arts Center. The complex was created to serve a multiplicity of music rehearsal, recording, broadcast, teleconferencing, educational and streaming purposes.

Featuring an innovative acoustic design developed by Akustiks LLC, and installed by Masque Sound, DiMenna is highlighted by the Mary Flagler Cary Hall, a 50 x 50 sq. ft. rehearsal/recording studio with a 30-foot-high ceiling.

BROOKLYNPHONO — Dedicated to extending the life of vinyl in the digital age, this Sunset Park-based facility recycles old LPs with a large shredder, then feeds the used vinyl into a press to create brand new albums.

Opened by Thomas Bernich in 2003, the plant has grown from pressing 2000 LPs a month to more than 10,000 today. Catering primarily to indie-rock labels, Brooklynphono has developed a healthy niche in today's diverse music world.

SEAR SOUND: This legendary studio has hosted world-class artists ranging from Steely Dan and Bjork to Lou Reed, Bono, Wilco and Norah Jones.

Created by Walter Sear, an unswerving proponent of analog technology, Sear Sound is recognized as one of the world's best-maintained facilities. Mr. Sear's collection of rare analog gear includes 224 classic microphones, and tape machines from Abbey Road Studios, once used by The Beatles.

KAS MUSIC & SOUND: Built in 1921 as NY's

"Hollywood East Back Lot," the Kaufman Astoria Film/TV production complex has hosted stars ranging from Charlie Chaplin to Bill Cosby and the Muppets.

The KAS 2,400 sq. ft. Studio A live room offers two large iso chambers and 550 sq. ft. LEDE control room able to comfortably house a 70-piece orchestra, a 120-voice chorus or solo performers. The 450 sq. ft. Studio B is utilized for movies, TV ADR, pre-records, voice-overs and smaller music projects. Since opening in 1984, KAS has produced thousands of diverse recording sessions.

THE MARQUIS THEATRE: Opened in 1986, this Broadway venue was designed to provide maximum comfort for audiences and actors alike, while maintaining a feeling of intimacy. The theater features an expansive backstage area, high ceilings, state-of-the-art acoustics, wide aisles and 1,611 seats. Among the hit musicals hosted by this showcase are "Me and My Girl," "Gypsy," "Man of La Mancha," "The Goodbye Girl," "Damn Yankees," "Victor/Victoria," "Peter Pan," "Annie Get Your Gun" and "Thoroughly Modern Millie."

NBC BROADCAST CENTRAL AT 30 ROCK: A world-famous address, this major complex serves as NBC's national nerve center.

Among the many busy TV and radio studios housed within the massive complex is Studio 8-H. One of the world's first "floating rooms," 8-H originally housed Arturo Toscanini and the NBC Orchestra. Since Oct. 11, 1975, it has been home to the equally entertaining "SNL."

(continued on page 32)



DiMenna Center's Mary Flagler Cary Hall

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TECH TOURS*(continued from page 31)*

NEW JERSEY PERFORMING ARTS CENTER: Since its debut in 1997, this iconic venue has served as a model for programming, audience diversity and education initiatives, and plays a pivotal role in returning nightlife and economic activity to Newark, N.J.'s largest urban community.

The sixth-largest performing arts center in the U.S., NJPAC has welcomed such world renowned artists as Yo-Yo Ma; Bob Dylan; Lauryn Hill;

Alvin Ailey; the Berlin State Opera Orchestra; the Royal Danish Ballet; the Vienna Boys Choir; Sting; and Les Ballets Trockadero de Monte Carlo.

SOUNDTRACK POST: This expansive 12,000 sq. ft., New York-based post-production complex features two large mixing stages, ADR, Foley, large music library and a full range of editorial services (including production office space for long and short term clients). Specializing in servicing both major and independent filmmakers, recent Soundtrack clients include such Emmy-nominated

programs as "Boardwalk Empire," "The Good Wife," "The Big C," "Mildred Pierce," "Law & Order Special Victim's Unit" and "CSI:NY."

FREE SBE EXAM

The Society of Broadcast Engineers will host a free SBE Certification Exam during the AES Show and at the Jacob Javits Center. As of press time, Oct. 23 at 2 p.m. was the scheduled exam time. Registration and details will be available at the show.

**AES TOURS
AUDIO HISTORY**

One of the notable things about having an audio show in New York City is that there is a lot of interesting audio history around the convention hall. Taking advantage of that, AES show organizers and Historical Events Chair Harry Hirsch have put together a handful of historical "tours" for conventioners.

LEOPOLD STOKOWSKI AND THE HISTORY OF ANALOG RECORDING: Presented by Robert Auld. Any classical music fan knows the name of conductor Leopold Stokowski but what is not always known is that Stokowski was involved heavily in the audio engineering of his recordings. He was known for pushing the envelope of audio engineering practice and technology. Auld will offer historical recordings along with photos and film clips from Stokowski's personal archive.

A TRIBUTE TO WALTER SEAR: Presented by Noah Simon. The late Walter Sear was a legendary New York City studio owner. His famed museum-quality collection of vintage but still working analog gear spans decades and is still used in recordings made at Sear Sound today. His client list included Grammy winners and famous albums. Lesser known was his work as a musical instrument importer and Theremin aficionado.

CLASSICAL RECORDING IN AMERICA — FROM ONE MICROPHONE TO 24 TRACKS: Presented by Thomas Fine. Recording classical music has always presented a challenge to audio engineers. The size of the performing group, scope of the music, recording location, required fidelity, et al create perplexing problems. Thomas Fine walks attendees through the primitive early days all the way through the "golden age of recording" in the 1950s to ambitious 32-microphone recordings made in the 1960s and 1970s.


AUDIO ARCHIVING AND PRESERVATION 101 — TWO IMPORTANT BROADCAST COLLECTIONS: James Sam of the Hoover Institution Archives, Stanford University will discuss two major audio preservation/archiving projects he is overseeing: Radio Free Europe/Radio Liberty tapes and the Commonwealth Club of California collection. Though they seem to present different problems, in actuality they share similar problems found in most restoration/archiving projects.

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BY CURT YENGST

Is it possible to produce professional audio without blowing your entire engineering budget for the year?

I recently tried several audio production applications that cost little to nothing. I narrowed our search to eight contenders and asked a team of production engineers, using demos of these programs, to produce spots.

In the July 13 and Sept. 7 issues of Radio World we looked at the first five. Here are three more, and some concluding thoughts.

Free — Audacity

I feel almost stupid complaining about a free download, but Audacity is truly a case of getting what you pay for.

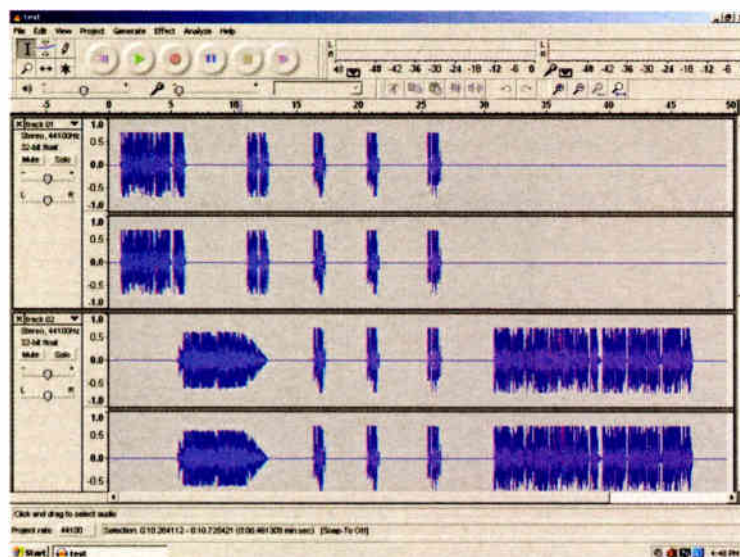
Its layout is similar to NCH Mixpad, mentioned last time. While it did allow for more editing without an additional program, the editing was nowhere near as easy or precise as the others. In fact, any cuts in an audio track automatically rippled; meaning the audio to the right of the portion being removed is butt-spliced to the audio to the left of the edit. There's no way to defeat this.

There's no support for VST or DirectX plug-ins either; no way to record additional audio onto existing tracks and MP3 encoding requires a separate download. Info: <http://audacity.sourceforge.net/>

Free — IK Multimedia Sample Tank

Let's say you've already got an audio editor but you're looking for something just to create music or some fun "zingers." Sample Tank is a free, downloadable software sampler and VST instrument. It operates as a standalone application or as a VST plug-in.

My biggest complaint was a rather convoluted download process. Registration with IK Multimedia is required before downloading (sort of like having to join Sony Acid Planet to get Acid Express). Then the



Audacity's editing capabilities are nowhere near as easy or as precise as other programs tested.

user is prompted to download the Authorization Manager, a separate program which keeps track of what IK programs you have and whether they are properly registered.

Sample Tank cannot be used until the Authorization Manager says it's okay. This requires a trip to the IK website to find the User Area, and the serial number for Sample Tank, which must then be manually entered into the Authorization Manager.

But wait! You're not finished! The enormous sample library is another separate download, and here's the kicker; you only have 30 days from the day you download Sample Tank to get the free library. Otherwise, you have to purchase it.

Beyond that, it was a lot of fun to use. It's best used with a MIDI keyboard, as trying to trigger the notes using the on-screen keyboard and a mouse, or using the PC keyboard, was awkward at best. Info: www.ikmultimedia.com/sampletankfree/features/

\$49/\$39 — Goldwave/Multiquence

Goldwave Inc. offers two separate programs that can work together, much like NCH Mixpad and Wavepad. Goldwave is a stereo-only sound editor that is essentially a Swiss Army knife for audio.

It includes several built-in effects from basic EQ and filters to noise reduction and even some very interesting effects like Mechanize, Doppler and Censor (for easily replacing offensive

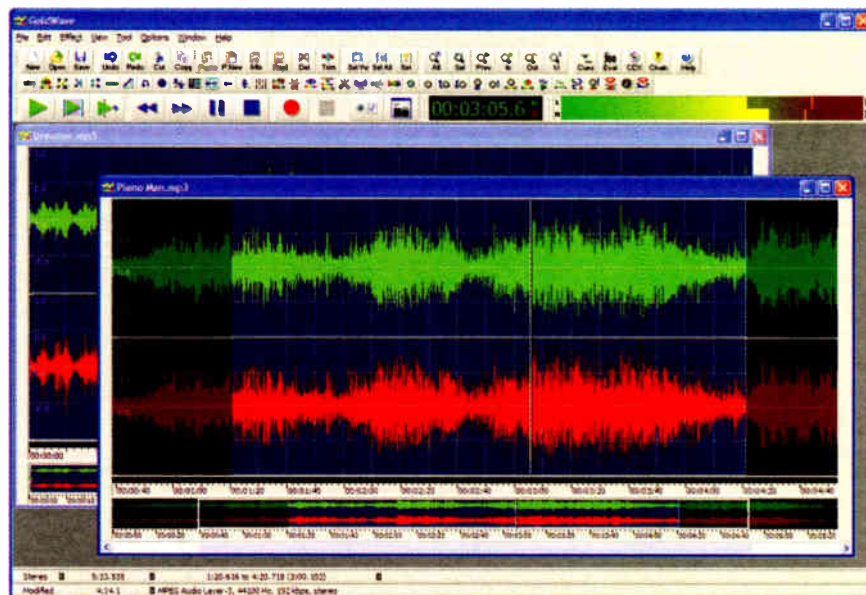
audio with the tone of your choice). It's attractive and relatively easy to use.

Multiquence is a basic multitrack recorder and editor. It also has basic video recording and editing capability. Dragging and dropping audio clips (called "sections" here) was pretty simple. Editing is rudimentary.

For more surgical editing, Multiquence can be configured to access the WAV editor of your choice, such as Goldwave.

The biggest disappointment — and this is significant — is that it is impossible to EQ or otherwise adjust the processing of a clip of audio in real time. To EQ a track, for example, the user must first select the track, then select the effect from the toolbar.

This brings up a pop-up window to make the adjustments. Here's the catch: While this window is open, it is impossible to play the audio; so there's no way to adjust by ear! This limitation also applies to third-party plug-ins. That's a deal-breaker for me. Info: www.goldwave.com



Goldwave is attractive and relatively easy to use but its Multiquence partner is more problematic.

CONCLUSION

So what's the best value among our contenders?

Strictly based on price, you can't beat Sony Acid Express (it's free!). The lack of effects and processing, however, might be off-putting for some.

I thought Acoustica Mixcraft (\$69.95) had the most value in terms of the all-in-one solution you get for the low price.

If you don't need to produce music, n-Track Studio (\$64) or NCH Mixpad (\$69.95) will get the job done, but be prepared to sacrifice features.

Bottom line: Is it possible to produce air quality audio for under \$100? Absolutely. Granted, there were trade-offs; and low price often means entry level. If you need audio production software on a tight budget, you owe it to yourself and your station to do the research, download the demos and see for yourself whether these options work for you.

Special thanks to WAWZ(FM)'s David A. Dein and Izzy Knight and WNYZ(LP)'s Abel Sanchez for their contributions to these articles.

Curt Yengst, CSRE, is assistant engineer for WAWZ (FM) in Zarephath, N.J. What's your favorite production software and why? Write to radioworld@nbmedia.com.



Much more of a sampler than an editor, Sample Tank is a lot of fun to use, though the process of downloading and configuring proved to be a hassle.

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Looking for a broadcast excerpt of a San Francisco Giant's taped off of KSFO radio from 1959, interviews with Willie Mays, Dusty Rhodes & some play by play excerpts, also features a homerun by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

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

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

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Radio World Talkback

Comments shown were posted by readers to stories that appear at radioworld.com.

“NIST Would Like to Hear From You”

www.radioworld.com/article/nist-would-like-to-hear-from-you/23080

Your various services keep all the clocks in my life running on time, at least 20 devices for myself alone; also GPS and other business considerations such as Internet and broadcasting, as well as most likely millions of VCRs owned by a like number of seniors citizens no longer having to endure the flashing 12:00 a.m. ... Thank you for your past service and hopefully, for the continuation of the time service.

“Can You Do a Lot With 0.1 Watt?”

www.radioworld.com/article/can-you-do-a-lot-with-01-watt/22781

I like what [KPFK and Alan Minsky] are doing, and not all Part-15's are pirates, many of us do follow the rules and do their homework. Mine was built with fellow amateur radio friends and former SBE engineers.

“Good Show, But for Engineers a Real Question”

www.radioworld.com/default.aspx?tabid=75&entryid=203

Yes the level of engineers [at the fall Radio Show] was down, but most of the sessions were useful. Many manufacturers only attend the spring show. They cannot afford two shows a year. With the spring show dominated by TV/video, when will the NAB wake up and split the shows? TV in the spring and radio in the fall.

“Musings on Wooden Towers”

www.radioworld.com/blog/113940

I was the group manager of the Sabre Radio Group in Elmira, N.Y., when we bought what would become WNGZ(FM), Montour Falls, and inherited that contraption of a wooden tower. We called it “The 8th Wonder of the World,” and it was in really bad shape. The poles were rotting and sagging to the point where we had Beam Tilt to Mars. Our regular tower guy wouldn't go near it, and when we asked a tree contractor to climb it with his spikes and strap, he got half way up and promptly quit. ... Thankfully, the site is now safely occupied by a nice freestanding tower. But, man-o-man, “The 8th Wonder of the World” certainly kept this GM awake on more than a few stormy nights.

“Volkswagen Includes HD Radio on Premium Radio”

www.radioworld.com/article/volkswagen-includes-hd-radio-on-premium-radio-/24318

A few cars trickling optional digital radio is a pathetic show after 10-plus years.

“Nationwide EAS Test to Last About 3 Minutes”

www.radioworld.com/article/nationwide-eas-test-to-last-about--minutes/24188

Intrusion is all this freaking government knows how to accomplish.

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Our readers have something to say

“I've been enjoying the articles in your publication so much this past year that I've stopped passing the magazine on to other guys in the shop so that I can hang on to them.”

Jan Lipski
Broadcast Consultant
Lompoc, Calif.

HEIL SOUND

READER'S FORUM**SAVE THE PSTN**

Paul, in early September, as you may have heard, much of Southern California and portions of Western Arizona and Baja were blacked out by a cascading failure of the San Diego Gas & Electric power grid.

As has been noted lately by many in the industry, yourself included, radio is the public's first and best source of information during emergencies.

This was proved once more during this blackout, which lasted between 12 and 14 hours.

As soon as the power was out, our family tuned to our LP-1, KOGO, whose generators and backup systems worked flawlessly to keep the station on-air. Their professional news staff and reporters kept information flowing into the late night; my wife and I (and many others, I'm sure) fell asleep to the radio knowing that things were well in hand.

Although radio's importance during crises is well documented, I'd like to address another essential service that often goes unmentioned: the public switched telephone network.

Less than one hour into the blackout, San Diego's cellular telephone network was overloaded and nearly useless. Residential customers who had previously ditched their PSTN-based telco services in favor of service through cable or DSL providers found that they did not work either. KOGO's news crew repeatedly warned listeners to stay off their cellular phones, and make limited use of their landlines.

In contrast, my personal home phones, which include a Western Electric 554 wall set and my wife's pretty pink Princess phone, worked perfectly.

This situation brings into sharp relief AT&T's recent filing to abandon the PSTN. Citing declining usage and the cost of maintenance, AT&T says they can no longer afford to operate an outmoded communications network.

Perhaps this is so from a purely business standpoint, but from a national security and public safety viewpoint, it is woefully shortsighted.

To gather information from the public utilities, KOGO's news team relied heavily on their station's landline telephones, making and airing calls from emergency service, law enforcement and public utility officials — private citizens, too. This vital connection would have been completely unavailable if only the cellular or IP networks were available for communications. Homeland Security and FBI operations would likewise have been disrupted, as well as local police and fire departments, if not for the PSTN. And I'm sure this is only the tip of the iceberg.

Here at Telos we love technology and what it can do for us. We are big proponents of the power and flexibility of digital networks, as our recent introduction of the first broadcast VoIP talkshow system underscores. But without the PSTN, America's communications capabilities during its most vulnerable times would be severely compromised, exactly when those capabilities are most needed.

We hope that the FCC will evaluate these public safety issues carefully when reviewing AT&T's petition, and we urge broadcasters, who depend upon the vital communications infrastructure of the PSTN, to make their voices known as well.

Clark Novak
Marketing Manager
Telos Systems/Axia Audio
San Diego

IT'S THE CONTENT, NOT THE GEAR

Funding for public broadcasting ("PTFP Shutdown Leaves Pubcasters Scrambling," July 1) is a legitimate story but



perhaps I see it in a different light.

As an owner of a standalone AM station in a less-than-wealthy market, I can hardly lean against a "wall" of expensive equipment like in the photo. I just think, "Where's my free emergency generator?" — not that I should be entitled to one. But hey, everyone's got their hand out.

The truth is, I don't want a "wall" of equipment because that's not necessary to deliver radio like it should be. You'd be surprised at how little equipment is required to deliver "Live radio, real people, in real time" (our slogan) with a quality audio stream, where content is what matters and we can think and judge music on its artistic and emotional impact.

Maybe radio can't or shouldn't go back to the late '50s and '60s, but we have pulled the best operating ideas from that era. We are vindicated when a traveler from North Carolina holds our signal from mile marker 181 to 108 on I-95 in South Carolina and makes the effort to call and say, "Best radio I've heard in years." As many have said, "It's the content stupid."

Money and equipment don't make good radio.

Jim Jenkins
Owner/General Manager
WAGS Radio
Bishopville, S.C.

DON'T BE QUIET ABOUT FM NOISE

Thank you to Steve Johnston of Wisconsin Public Radio for taking the initiative to do his own field research about noise from everyday household appliances, which interferes with broadcast reception ("Johnston Laments FM Noise," June 15). Steve has identified a big problem. Thanks to Radio World for running the story on page 1.

What's the next step? I think the NAB and the SBE should take this issue to the FCC. Household appliances often carry an FCC-compliant clause in their documentation. But are they really compliant? Are corners being cut in the manufacturing process?

The FCC needs to enforce their standards in the marketplace. Broadcasters suffer if they don't.

Roger Rafson
President
CMS Station Brokerage
Pittsburgh

TELL ME SOMETHING

I absolutely loved Mark Lapidus's article "Tell Me Something I Didn't Know" about keeping radio relevant (radioworld.com, keyword Lapidus). I couldn't have written a better article. Mark's thoughts are right on target.

Steve Tuzeneu, CBT
Worcester, Mass.

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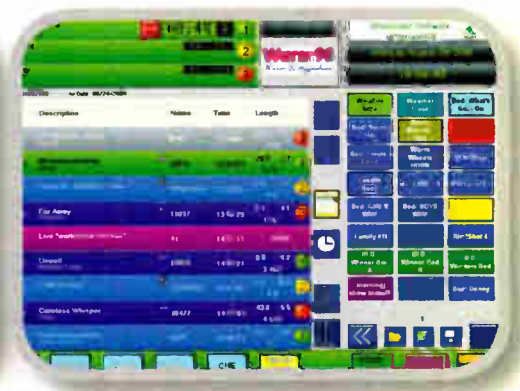
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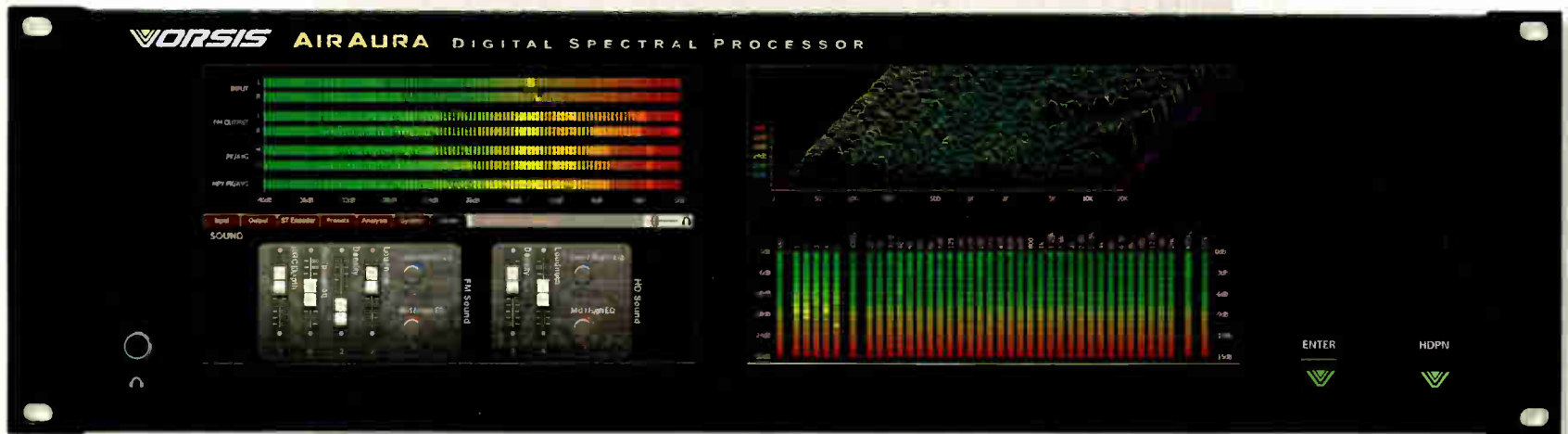


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