



RADIO WORLD

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After the Test, FEMA Is Busy in The Lab

Centeno: 'We've Established a Baseline'

BY LESLIE STIMSON

It's time to take a deep breath, absorb the data coming in about the national EAS test and figure out what worked and what didn't — then go from there.

So says FEMA IPAWS Program Manager Manny Centeno.

IPAWS, the Integrated Public Alert and Warning System, was conceived to allow the president of the United States to send a message nationwide quickly and simultaneously through multiple communications pathways. Centeno's position makes him a key figure in testing of broadcast's national EAS capability.

Regulators believe that despite reported audio problems (see related story, right), more than 80 percent of EAS participants received the Novem-

(continued on page 3)

EAS Planners Look Beyond the National Test

Industry and Regulators Digest Test Results, Consider Next Steps

BY RANDY J. STINE

WASHINGTON — In the weeks since the national EAS test, the FCC and FEMA have continued to collect data about whether broadcasters

ALERTING

received the test message and were able to retransmit it.

Broadcasters have until Dec. 27 to file their reports with the FCC, but some themes have emerged in discus-

sions of what must be done before a presumed second national test.

States and localities test EAS regularly but the November trial was the first nationwide activation of an Emergency Alert Notification code, which the president could use in an emergency.

Some observers deemed the test a failure because the alert was not delivered consistently and audio quality was impaired. Others say discovering such problems was an important goal.

(continued on page 6)



Buc Fitch offers a holiday homage to the teleprinter.

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FEMA

(continued from page 1)

ber Emergency Alert Notification and relayed it.

Without discussing specifically how FEMA creates an originating message, Centeno said in an interview that the agency had delivered the audio to more than 60 Primary Entry Point stations, all of which were on a telephone conference bridge during the event. Asked whether the public switched telephone network was at fault for the reported audio problems, he said no.

"A second set of headers and audio message were played back on top of [the originating message] in the phone bridge."

Centeno said feedback onto FEMA's phone bridge for the Primary Entry Point system caused the double audio. In a webinar afterwards, Centeno said that although FEMA has systems in place intended to prevent phone bridge issues, a technical malfunction at "one of the facilities" produced the problem audio heard by stations. Though the malfunction produced a flawed alert



Manny Centeno

Photo by Leslie Simson

country, not a factual look at EAS across the entire nation.

"We wanted to have an accurate depiction of what the national EAS is — warts and all. No one has tested it end-to-end to the extent that we did."

"I don't think anyone went into this test expecting it to be perfect," he said, adding that malfunctions can happen with gear and transport mechanisms.

Stations have until Dec. 27 to submit their reports about the test to the FCC. The commission has not yet determined how or in what form the information being submitted would be made public.

No date for the next nationwide test had been determined as of the end of November. Indeed, during the post-test FEMA webinar, comments by speakers from various sectors of broadcasting and other affected industries disagreed on the best timing for a followup test.

Some would like to run it again soon while broadcasters are still in "test mode." Others said regulators should wait to test again, until they've gathered more data and tested possible solutions. Still others suggest that the government



message, Centeno described it as an anomaly, not a systemic failure of EAS.

When asked by Radio World whether a particular PEP station was responsible for somehow polluting the audio to the other PEPs, Centeno declined to comment, saying FEMA was still looking into what happened.

The glitch may have caused other issues as the alert traveled downstream. "In addition to the audio being attenuated and having additional distortion in the message, some of the EAS participants' EAN message got cut off when the second set of headers came through," he said. "So in some cases there was premature cutoff after the PEP stations aired the message."

Throughout November, FEMA was testing possible technical solutions. Centeno reiterated that the November national test was not the last.

"This test is not a one-and-done activity. We look forward to approaching the community with lessons learned,

hearing their observations in an open forum and continuing to improve the Best Practices Guide as well as the EAS on a national scale."

The test also proved that when all technical areas of the EAS — including updated monitoring assignments, proper device configuration and maintenance, and optimal antenna selection — are observed and proactively addressed, the system functions as intended, he said.

BETTER THAN EXPECTED

The test shone light on other technical issues that need to be addressed. Centeno said that through controlled testing, his team will build a list of issues, share it with industry and continue the dialogue that started in the year leading up to the nationwide EAS test. "We've established a baseline. We're going to retest."

Until now, he said, the industry had only anecdotal information about how EAS performed in various parts of the

conduct smaller-scope and "closed-circuit" tests of specific solutions.

Centeno said the timing decision would be made at a management level well above his but that it would be prudent to wait to re-test until all issues associated with the first test are documented and mitigated. FEMA, the FCC, NOAA and the White House would need to coordinate their activities for another nationwide test.

"Speaking for myself, I truly believe this test will motivate our EAS participants and the government to mitigate the issues we're seeing at all levels and move on and have an improved EAS in the future," he said.

"We wanted to have a snapshot of how the EAS works at the national level. Things went much better than I expected, quite frankly. We did get the EAN out. It wasn't perfect. We didn't expect it to be. The next test, we expect it to be better. I believe we're going to get there and we've got to keep this effort going."

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Radio Remains the BBG Champ

106 Million Listeners a Week? That's Nothing to Sniff at

Radio suffers its share of jabs as dated technology. But radio's critics might reflect on data from the Broadcasting Board of Governors.

The BBG recently said that its aggregate weekly audience via radio (including shortwave, FM and AM) is 106 million people, while its TV audience is 97 million and its Internet audience is 10 million.

I find it notable enough that radio remains the medium with the largest reach among BBG's efforts, given the commonly heard sentiment (and not only in government-funded circles) that radio in general is "yesterday's technology." But I was interested too in any trend lines, so I asked for more data.

Spokeswoman Letitia King gave me numbers for 2009 and 2010. I've listed them side by side and calculated growth compared to last year. (Individual numbers won't equal the totals because some people use more than one platform.)

Uncle Sam's radio and TV outlets regained some mojo in 2011 after slipping the prior year, while Internet continued to grow.

We're talking here about Voice of

Weekly Audience in Millions

Medium	2009	2010	2011	Growth '10-'11
Radio	103 million	97.5 million	106 million	8.7%
TV	83 million	79.5 million	97 million	22%
Internet	5 million	9 million	10 million	11%
Total	171 million	165 million	187 million	13%

America, Radio Free Europe/Radio Liberty, Radio and TV Martí, Radio Free Asia, Alhurra TV and Radio Sawa. Overall, those BBG broadcasters reached an estimated 187 million people every week in 2011, up 22 million, for 13 percent growth (though 2010's total of 165 million was down a bit from 2009).

We can't extrapolate too much from any one organization's broad data. Necessarily, these are only estimates and subject to survey error. Also, such trends are affected by policy and resource choices as much as consumer tastes. And while Internet consumption might be only a tenth of radio consumption right now, I suspect that proportion will change significantly in future years.

Nevertheless, these totals and percentages suggest to me that radio's role as part of Uncle Sam's face to the international community is understated and underappreciated.

We see a similar theme in ongoing media coverage of the U.S. commercial radio industry, which so often is criticized and dismissed, yet continues to post total listening statistics (241 million weekly listeners) that other media envy.

Radio — the media's best-kept secret! If you're interested in far greater detail from Uncle Sam about activities of his broadcast entities and grant-

FROM THE
EDITOR

Paul McLane



ees, read the BBG's "Fiscal Year 2011 Performance and Accountability Report" in PDF form at tinyurl.com/rwbbg2.

One of the highlights of October's AES convention was the event "A Half-Century of FM Stereo."

Held in the theater at Clear Channel's New York studios, the gathering of audio luminaries discussed 50 years of FM stereo transmission. Topics included FM stereo's birth, the merits of competing systems, early technical challenges, development of high-density FM audio processing and the future of analog FM stereo in a digital world.

As the photo below shows, organizer David Bialik knows how to put together a power panel.

Now the AES has posted a podcast of the event, which you can find at tinyurl.com/rwaes3.



Rear, from left: Eric Small, Richard Mertz, Skip Pizzi, Frank Foti, Herb Squire, Bob Orban, David Bialik. Front: Bill Sacks, Richard Burden, Arno Meyer, Scott Fybush, Jeff Smith.

NEWSROUNDUP

TAFT SNOWDON: Taft Snowdon, supervising attorney in the FCC Media Bureau Audio Division, died at 64 while vacationing in Kenya. Snowdon joined the commission in 1974. "If you had a radio deal that needed commission approval in the last 20 years, more than likely Taft looked at it and signed off on it," stated Fletcher Heald on its blog.

NEW NEWSER FOR DC: CBS Radio plans to launch an all-news format in the Washington metro in January on WLZL(FM), licensed to Bowie, Md., in the Washington suburbs. The plan would put the new 24/7 news format in competition with Hubbard Radio's WTOP(FM), the top-earning U.S. radio station in 2010, according to BIA Kelsey, which estimated WTOP's revenue last year at \$57 million.

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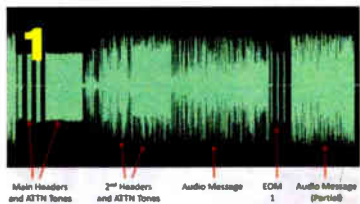
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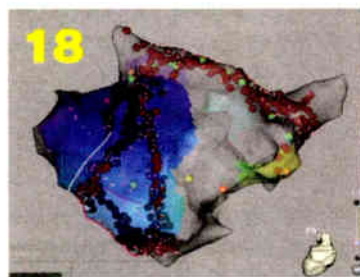
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NEWSROUNDUP

EAS CAP RULES: Alerting consultant Gary Timm said he heard that the FCC may finalize its EAS rules covering the use of the Common Alerting Protocol by the end of this month. The commission released proposed EAS CAP rules in May and has been reviewing public comments on those proposals since that window closed in August. Timm wrote on the AWARE Forum blog that despite work involving the national EAS test, the commission still feels it can meet its year-end target.

PANDORA RESULTS: Pandora believes it will bring in a quarter of a billion dollars in revenue this fiscal year. It said it took in \$75 million in Q3, up 99 percent from the same time a year ago. Ad revenue was \$66 million, up 102 percent, and subscription and other revenue was \$9 million, up 80 percent. Pandora reported "total listener hours" of approximately 2.1 billion for the quarter, saying its performance illustrates strong demand for "personalized radio." Chairman/President/CEO Joe Kennedy said Pandora's growing scale and multi-product advertising platform is enabling the company to penetrate areas once solely served by terrestrial radio.

ASYMMETRICAL HD SIDEBANDS: Publication in the Federal Register triggered comment filing deadlines on the question of whether the FCC should allow FM HD asymmetrical sideband transmission more routinely. Currently, stations that wish to raise digital power levels unevenly need a rule waiver. IBiquity Digital and NPR asked the commission to allow the change to make it easier for stations for more stations to raise digital power levels. Comments in MM Docket 99-325 are due by Dec. 19 and replies by Jan. 3, 2012.

BPL RULES: An FCC order to revise rules for "access broadband over power line" systems is to become effective Dec. 21. However, petitions for reconsideration also are due that date. Ham radio association ARRL expected to ask for reconsideration. It stated in a newsletter that the FCC had proposed a measurement standard modification for determining whether a BPL system is in compliance with allowable levels of radiated emissions. The ARRL argued

for mandatory notching of the amateur bands to a level 35 dB below the general emission limit to reduce the likelihood of harmful interference; but the commission decided not to adopt mandatory notching. Instead, it increased the requirement for BPL systems to be able to notch frequency bands to at least 25 dB, an increase of 5 dB from the prior requirement of 20 dB. The ARRL said that doesn't go far enough to protect hams.

FM IN WIRELESS: New cellphones on the market that use the Windows Mobile 7.5 operating system include FM radio, according to NAB Radio Tech Check. These join an increasing number of Android devices that include FM reception, the association's engineers wrote. The 4G-capable devices include Microsoft's Zune application. Zune features an FM receiver with RDS display, touchscreen tuning and seek/scan capability. Three new models became available in November. Two are from Samsung, the 4G Focus and Focus S. Both phones include a slide-out speaker that can be used with the FM radio. The headphones act as the FM antenna. The third phone is the Radar 4G from HTC that features a 5 Mp camera.

DUTCH DAB+: Dutch public-service broadcaster Nederlandse Publieke Omroep is looking to roll out a DAB+ network for the Netherlands with 95 percent coverage by 2017. NPO is looking to get a maximum of 20 DAB+ radio stations and up to three DMB-T video channels. Tom Visser, project manager for digital radio for the Dutch government, said the Dutch ministries are "fully committed" to digital radio.

GROOVESHARK: On-demand music service Grooveshark and Internet radio developer Livio Radio teamed up to make the Grooveshark Car Kit by Livio. The plug-and-play device brings Grooveshark and music from an Android phone to any FM car stereo. The kit also offers Bluetooth hands-free calling, USB charging and buttons to control the Grooveshark application. The device marks Grooveshark's first in-car app integration and its first branded device. It's available for pre-order for just under \$100. Android smartphone users can download the free Grooveshark app, and a three-month trial of Grooveshark Anywhere is included with kit purchase.

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EAS LESSONS

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and that the test showed a message can in fact be delivered across most of the country from FEMA headquarters.

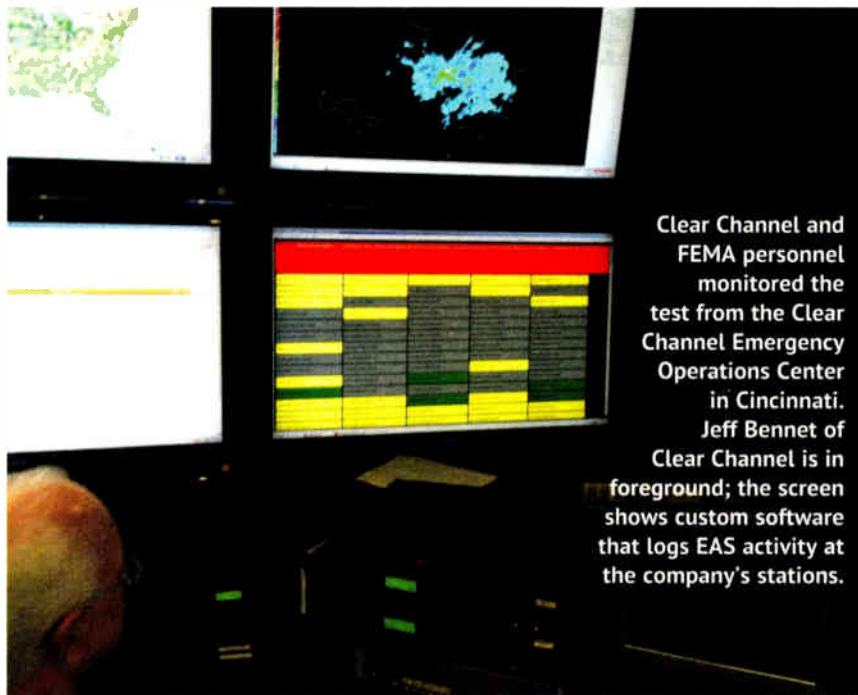
CONNECTIVITY

Regulators told some members of Congress that three of 63 Primary Entry Point stations did not receive the alert [see story, page 8].

The Primary Entry Point Advisory Committee, a group that advises FEMA and is made up of representatives from the PEP stations, already had been working with the agency to improve the analog relay, or linking bridge, network that connects FEMA with the PEP stations.

"An IP satellite system is already in place at a handful of PEP stations but will not be turned on until the final PEP station is online," said Mark Manuelian, PEPAC chair and engineering manager for CBS Radio's WBZ(AM) in Boston. "We expect to have satellite connectivity complete before the next national test."

PEPAC members have learned that preliminary reports from FEMA show that about 85 percent of radio stations in the country forwarded the Emergency Action Notification message successfully, Manuelian said.



Clear Channel and FEMA personnel monitored the test from the Clear Channel Emergency Operations Center in Cincinnati. Jeff Bennet of Clear Channel is in foreground; the screen shows custom software that logs EAS activity at the company's stations.

should contact their State Emergency Communications Committee."

SATELLITE DELIVERY?

Engineers also reported receiving double audio and poor quality audio from high up in the relay chain. FEMA/IPAWS Program Director Manny

development, & regulatory affairs for Digital Alert Systems.

Neither FEMA nor CBS, the station's owner, confirmed this detail.

The contamination of the originating alert message delivered via the PEP network is likely to be a focus of attention before a second test.

Maine Association of Broadcasters President Suzanne Goucher said, "In my view, satellite delivery [to PEP stations]

Satellite delivery should be the primary federal delivery mechanism, with the analog infrastructure of the current system left to be the last-man-standing backup. The system can no longer rely on 1950s technology.

— Suzanne Goucher, Maine Association of Broadcasters

The PEP station network is in the midst of an expansion that will eventually bring the number of PEP stations to 74, covering about 90 percent of the U.S. population, as Radio World has reported.

"FEMA has recognized that there are pieces that need work," Manuelian said. "I think we need to look next at equipment and installation on the broadcast side. Most stations had working equipment but not all. Monitoring assignments need to be addressed. If stations need help they

Centeno told Radio World the originating message was clear for the first four seconds, but that a technical malfunction at the national primary level introduced dual header tones and subsequently decreased the original audio quality of the message for downstream stations. This resulted in distorted audio, according to Centeno.

EAS equipment manufacturer Digital Alert Systems examined audio captures from the national test and concluded that a problem in a connection between the FEMA Operations Center and PEP station WCCO(AM) in Minneapolis caused the "mystery header" that resulted in looped audio.

"We were able to fully decode one of the feedback headers that erroneously appeared in the audio. The string identifies the PEP station (WCCO) that was the source of the audio," stated Edward Czarniecki, senior director of strategy,

WHAT SOME STATIONS TOLD THE FCC

Here are excerpts from a few of the Form 3 reports sent to the FCC identifying audio problems with the EAN message. Call signs, licensees and manufacturer information have been omitted at the request of the broadcasters.

"EAN was received ... Operator heard first 7–10 seconds of audio ending with 'United States ...' then silence. Activation tones were audible behind the audio. Audio received and recorded truncated to 13 seconds: The two-tone alert signal for 8 seconds followed by 'This is a test of the emergency alert system this is only a ...' (silence) was recorded and forwarded by the [EAS encoder/decoder]." Message forward start then ensued.

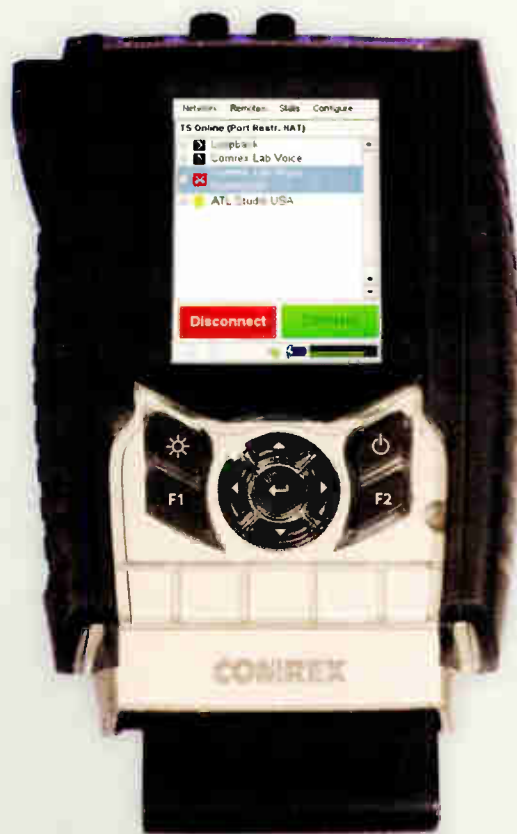
"EAN was received ... The entire message passed through the [EAS encoder/decoder]. The audio had cascading activation tones and audio. The recording shows 8 seconds of two-tone attention signal, then message text. At :13 into the audio activation tones are heard behind the message, followed by the two-tone attention signal and the text again. At :31 seconds the activation tones are heard again further beneath the message." Message forward start ensued.

"Two problems: First, the message encoding called for a 'valid time' beginning at 2:03 p.m. ET. The ... EAS box considered this to be a 'future alert' and would not send it until the time-of-day actually reached 2:03 p.m. Second, the crosstalk in the audio message included low-level SAME tones, and when the playback of the message reached the point where the SAME tones started, the [encoder/decoder] considered that to be the end of the message, truncated the rest of the audio and sent its own [End of Message] tones."

"We forwarded the audio we received, but it had substantial crosstalk and noise, as if the original audio message was delayed and repeated at a lower level. SAME encoding and another Attention Signal were audible under the audio message."



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World Radio History

EAS LESSONS

(continued from page 6)

the FCC should regulate how encoders/decoders handle time-stamp and double message header issues. Others believe the industry should develop a solution such as best-practices guidance for manufacturers to standardize how units function.

A BASELINE

All of the corporate-level broadcast engineers contacted by Radio World shared stories of poor audio and minor glitches but agreed that the test served its primary purpose of strengthening the system for the future.

Dave Redmund, vice president of engineering for Townsquare Media, said, "From the observations I have received from across the country, it appears FEMA needs to get its act together before we try [a test] again."

At Clear Channel Radio, "A vast majority of stations successfully received and retransmitted the EAN alert and the test served the purpose for which it was intended, to identify and remedy any issues to improve the system," said Jeff Littlejohn, executive vice president of engineering and systems integration.

Clear Channel and FEMA personnel monitored the EAN test from the Clear Channel Emergency Operations Center in Cincinnati, according to Littlejohn.

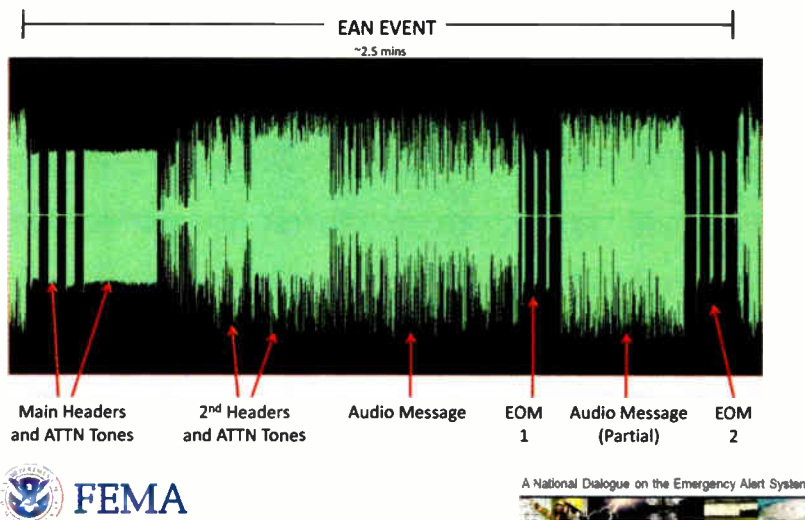
"It was not quite what we had hoped for," said Milford Smith, vice president of radio engineering for Greater Media, "but it certainly can serve as a baseline and diagnostic tool to begin and improvement effort for the EAS. This test certainly exposed some significant concerns when expanded to the national level."

Centeno of FEMA echoed the baseline argument. After the test, he posted a message on the SBE EAS Listserv, emphasizing that he was commenting as an individual and an engineer in this instance. He said that through controlled testing, his team plans to build a list of issues to fix and share it with industry. "We've established a baseline. We're going to re-test," he stated.

Immediately after the test, concerns flared about how various EAS devices handled the EAN, though they seemed to lessen once federal officials said the looped audio and time stamp issues had been triggered near the top of the broadcast chain, several observers said.



Nationwide EAS Test



This waveform is a representative sample from the test, representing what most people heard, according to FEMA.

Harold Price, president of EAS manufacturer Sage Alerting Systems, said, "For the most part, EAS equipment at broadcast stations functioned properly. The alert was damaged when it arrived at the broadcasters. It had multiple headers." FCC Part 11 rules don't spell out what to do in that case, according to Price. "Each manufacturer made its own

decisions at the time the equipment was produced, causing various results."

Price wants the FCC to initiate a development effort with EAS equipment manufacturers and other stakeholders to recommend technical solutions to handle such scenarios.

Czarnecki of Digital Alert Systems said the company's DASDEC units per-

formed "very well overall in the field despite the problems encountered with the source audio."

DECENT AUDIO

Engineering forums captured the flavor of how broadcast engineers felt following the November test and anecdotal evidence of what went wrong in some instances.

"We know now that EAS can be used to issue a national warning, we just need to solve the problems with the audio at the source. All FEMA needs is a good audio or broadcast engineer," wrote Adrienne Abbott, adding that broadcasters face these kinds of issues daily.

The Nevada SECC chair stated: "We also have to make sure the public and our media know and understand what happened."

Broadcast engineering consultant Bob Gonssett, publisher of the CGC Communicator, commented in his newsletter, "The first-ever national EAS test was a serious disappointment. One big problem: The federal government needs to deliver decent audio to the LPs." Local Primary stations monitor PEP stations for presidential alerts.

Some commenters on the SBE EAS listserv were more philosophical.

"We need to take into consideration that the people at FEMA are not broad-

(continued on page 10)



Selected content from Radio World's "The Leslie Report" by News Editor/Washington Bureau Chief Leslie Stimson.

WALDEN: EAS 'SORT OF' WORKS

Rep. Greg Walden, R-Ore., expressed satisfaction with answers he received from the FCC and FEMA about what happened and what didn't during November's national EAS test. He doesn't plan to hold hearings or ask for a formal report on the event.

The chair of the Communications and Technology Subcommittee of the House Commerce Committee says regulators would continue to update lawmakers as more data arrive.

Sixty of the 63 Primary Entry Point stations "functioned according to plan" during the national EAS test, while three didn't; regulators are trying to figure out what didn't work and why, Walden told reporters after a private briefing here in Washington in November.

The subcommittee chair told reporters afterwards that as of mid-November, the FCC had heard from some 60 percent of stations; of that number, about 78 percent told the commission they were able to receive and re-transmit the test.

In Walden's state of Oregon the test didn't work. In response to my question he said Oregon has no PEP station at present but is slated for two, in Eugene and Portland, with construction to begin this winter. As we've reported, the PEP system is being expanded.

Stations on the east side of Oregon actually received the

national alert from neighboring Idaho, but the rest of his state got no alert, he said.

Asked whether there was any commonality at the failure points, Walden said regulators are still evaluating what happened and would get back to the subcommittee.

"You hope to never have to use the system, but if there comes a day where you have to use the system, we better make sure it works. What they've proven is it sort of works. That's not good enough."

Walden, a former broadcaster, expects another national test will be held once more is known, and he commended regulators for conducting this one.

"Their report was very helpful and they answered most of our questions," he said. Walden has not asked for a formal report on the findings but says regulators will keep in touch with the committee and says at some point he expects the gist of what occurred will be made public.

He doesn't think a hearing on the issue is necessary. "I think they're on it. I think they get it. I think they want to make it work," Walden said in response to my question about his overall reaction to what regulators were telling lawmakers.

FEMA IPAWS Division Director and Project Manager Antwane Johnson and FCC Public Safety and Homeland Security Bureau Chief Jamie Barnett briefed lawmakers, who, in addition to Walden, included Marsha Blackburn, R-Tenn., Donna Christensen, D-V.I. and Anna Eshoo, D-Calif.

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Steve Lampen Sings a Hymn to Junk

Thank Goodness for Those Purveyors of Old Bits and Parts

BY STEVE LAMPEN

Dear readers, it is confession time: I am hooked on junk.

Not just any junk, mind you, but technological junk. I am a founding member of "Tech Junk Lovers Anonymous." Except, of course, I am now no longer anonymous.

WIRED FOR SOUND

Read more Wired for Sound articles at radioworld.com

For a long time there was a store just north of the Oakland airport called Mike Quinn's. Mike "wheeled and dealt," buying and selling old technology.

Old doesn't mean "bad," and I was a really good customer, especially when I was chief engineer at nearby KJAZ(FM). And when I moved the station (with pretty close to zero budget), you would not believe what I scrounged from Mike Quinn's to make it all work.

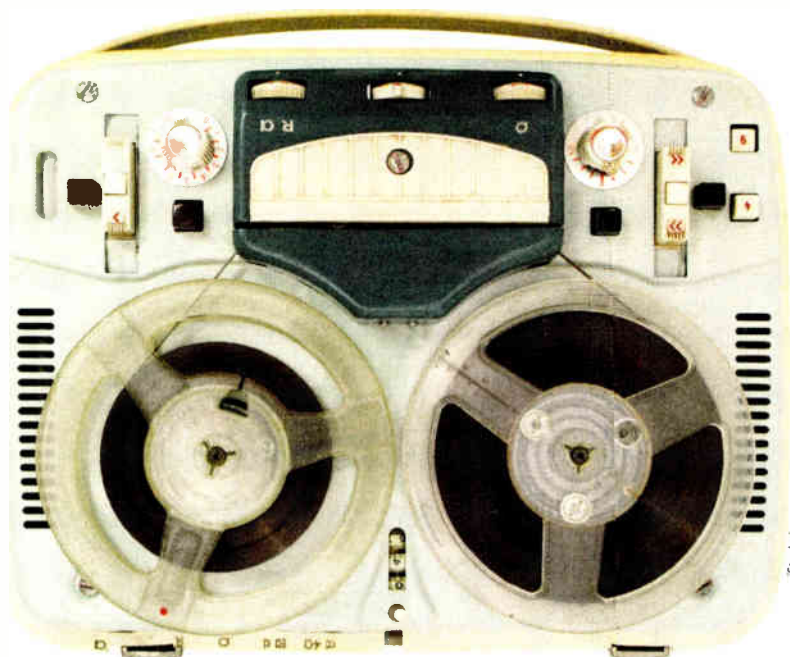
OOOH

Behind the counter you'd find quite a cast of characters, the lead being "Vinnie." Don't remember his last name but his knowledge of electronics and of the junk in his store was encyclopedic.

I found Quinn's way back in 1969 when a friend told me he needed a magnetic core memory (boy, that dates me!) and we drove there. Those magnetic cores were rumored to be made by housewives on their kitchen tables to make some extra "pin money." (They sure looked like it.) Even in 1969, this was yesterday's technology.

I recall a day years later when Vinnie and I walked in his outside lot, which was filled with rusting racks and detritus. He pointed out a particular rack, one of a bunch the store had just purchased. The front of the rack bore the hand-lettered word "Dykstraflex."

I knew instantly from my movie background that here was the hand-built computer John Dykstra had used for the "go motion" camera control on the original "Star Wars." Without this, George Lucas could not have done that



Let's face it, old junk is cool.

epochal film. The equipment allowed him to do all those amazing shots of spaceships careening through space. Today, of course, such effects are all CGI, drawn with a computer.

It was a monster; it was a mess. It clearly was the one and only Dykstraflex. So here was breakthrough technology of 1977 sitting in a junkyard, with nobody even interested. It brought a tear to my eye.

EAS LESSONS

(continued from page 8)

casters," stated Jerry Mathis, who handles engineering for Clear Channel/Urban Radio Broadcasting in Tupelo, Miss. "They are not up on all the tricks of the trade we deal with all the time, like computer time synchronization. They are trained more to deal with disasters and government red tape than with IP systems and certainly audio feeds. This was a successful test of the system, the audio problems notwithstanding."

Gary Timm, chair of the Wisconsin SECC, wrote on the AWARE alert blog, "While some PEP stations reported the test sounded fine, other PEP stations sent the EAS header code but had no audio of the test in states such as Minnesota and Indiana, and another PEP station in Utah never received the test."

Others said audio and video alerts did not appear in parts of New Mexico and Oregon. Meanwhile, television and cable reportedly also had their own unique challenges.

NEXT

Immediately after the test, the FCC and FEMA stated: "The nationwide EAS test served the purpose for which it was intended — to identify gaps and generate a comprehensive set of data to help strengthen our ability to communicate during real emergencies.

WHAT'S YOURS?

Yet in my travels for Belden I have found other places that were very much like Quinn's.

One of them is Skycraft Parts & Surplus on West Fairbanks in the Florida community of Winter Park, near Orlando. Since my travels often take me to that area, I usually steer my rental car over and wander the aisles. More often than not I bring home a tool or some cool devices. They describe themselves as a self-service surplus sales outlet that sells to the public and businesses, including "hobbyists, model builders, audiophiles, artists and the do-it-yourself electronic enthusiast." Go check them out if you're visiting Orlando or live nearby.

Skycraft carries a lot of "surplus" Belden cable. When I first went there, I think the company name on my shirt scared them. But no, I wasn't there to shut them down. I wanted to tell them that the descriptions they'd been using were incomplete or wrong. I wanted them to sell more, not less. It wouldn't be the first time that some surplus cable introduced a customer to my products, who then went to a real distributor to get more.

If you have a favorite electronic junk store of your own, tell me about it. Maybe in a year or two, we can provide a list to other readers.

I love junk!

Steve Lampen is multimedia technology manager years and product line manager — entertainment products for Belden. His book "The Audio-Video Cable Installer's Pocket Guide" is published by McGraw-Hill. Reach him at steve.lampen@belden.com.

"Based on preliminary data, media outlets in large portions of the country successfully received the test message, but it wasn't received by some viewers or listeners. We are currently in the process of collecting and analyzing data, and will reach a conclusion when that process is complete."

But the need for another national test is clear, observers say. As of late November, a date for another test had not been set [see story, page 1]. Manuelian, the PEPAC chair, doubted a test would take place before 2013, given that the coming year includes a presidential election cycle.

"This test made a lot of people in high places very, very nervous about the outcome. No one will want to run the risk of another one in 2012," said Manuelian, emphasizing that he was expressing his personal opinion and not necessarily those of PEPAC or CBS Radio.

Many of the possible "fixes" for EAS require funding and/or more formal and frequent coordination of the public/private partnership of EAS participants. Maine Sen. Susan Collins, ranking Republican on the Senate Homeland Security and Governmental Affairs Committee, announced plans to introduce a bill to establish an IPAWS advisory committee composed of federal, state and local representatives as well as industry groups. The measure would also ensure FEMA uses new technology such as Twitter, Facebook and other social media platforms to deliver emergency alerts on smartphones and other devices (RW, Dec. 1).



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This Backup Gear Is Useless

Useless, That Is, If the Equipment Doesn't Function When Needed

Hammett & Edison's Dane Ericksen, P.E., sends a note about the battery corrosion we discussed in the Oct. 19 *Workbench* (see Fig. 1). Dane adds: Don't wait too long to

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

check for corrosion and clean, because the rot may migrate along your wires. That almost happened to Dane's treasured B&K Model 162 transistor tester. See Figs. 2 and 3.

As we've suggested, Dane now makes it a point to check his infrequently used and battery-powered electronics at least annually.

You already replace your smoke detector batteries or "memory keep-alive" batteries once a year; add your portable test gear to avoid disappointment later. (That includes the DVM rolling around in your trunk!) The New Year is a good time to make this annual check.

Dane Ericksen is co-chair of the Engineers for the Integrity of Broadcast Auxiliary Services Spectrum (EIBASS) and serves on the SBE National Certification Committee. He's also active with SBE Chapter 40, San Francisco. Reach Dane at dericksen@h-e.com.

(continued on page 14)



Fig. 1: A solution of vinegar or baking soda, depending on battery type, will clean corrosion like this.



Fig. 2: Corrosion can migrate along insulated wire, rendering it useless.



Fig. 3: Remove the wire insulation to see the damage caused by the corrosion.

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World Radio History

WORKBENCH*(continued from page 12)*

I've received comments from readers upset at the diameter change discovered and described by Bob Meister in the Oct. 5 issue.

More than a few readers feel an almost religious attachment to the venerable "Greenie," Xcelite's R3322 screwdriver. I'm sure some of the originals can still be found. It's probably time to turn to your search engines.

I located stock at both MCM Electronics and Newark through an Internet search.

Engineer Frank Hertel of Hertel Engineering and Newman-Kees RF Measurements in Evansville, Ind., tells us he always looks forward to *Workbench*. Thanks Frank; I'm really glad you are getting information you can use from the column.

Frank prepared the attached schematic, shown in Fig. 4, and says it may be of use to readers wanting to do repairs or provide an emergency power source for their Broadcast Tools ACS8.2 Plus or SS8.2 Switcher.

Frank also passed on a neat WMV file from a company in Asia. It shows a unique drill bit that oscillates in various elliptical patterns to "drill" a square hole! The price is not listed — of course. But for those of us who

painstakingly used a file and aluminum nibbler to cut holes for square switches, something like this would have saved a lot of time.

I've posted the video here: <http://tinyurl.com/wbdrill>. Reach Frank Hertel at nkeng@insightbb.com.

Quick, do you know where your transmitter flashlight is right now? Would it work if you turned it on?

Good engineering practice: Use a spring clip to mount a flashlight near the door entry, as shown in Fig. 5. Remember to check that the batteries work and aren't corroded.

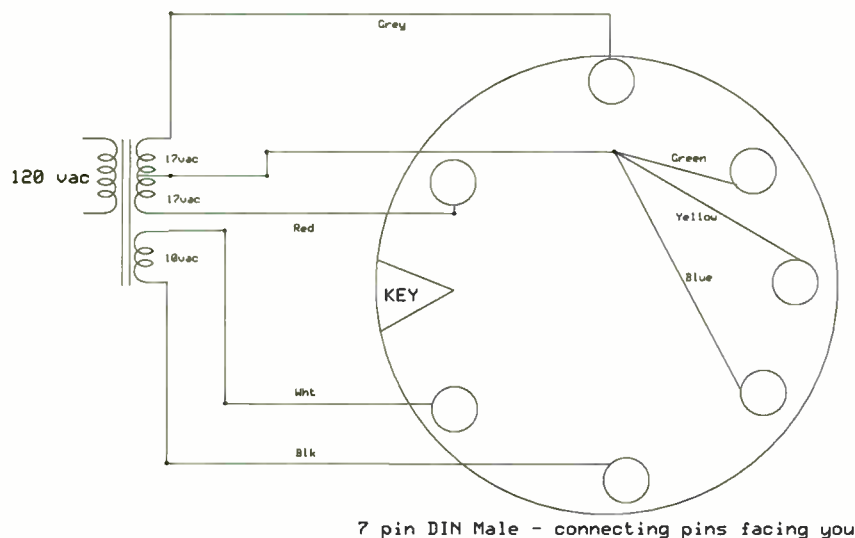


Fig. 4: A simple power supply test setup for a Broadcast Tools Switcher.

Hertel Engineering- Newman Kees RF Measurements

Derived By Circuit Tracing		
ACS8.2+ & SS8.2 Pwr Pinout		
Frank Hertel	10/28/2011	Page 1 of 1



Fig. 5: Secure a flashlight near your transmitter entrance — and don't forget to check its batteries too.

Backup gear — whether it be a spare transmitter, a generator or a flashlight — is useful only if it works.

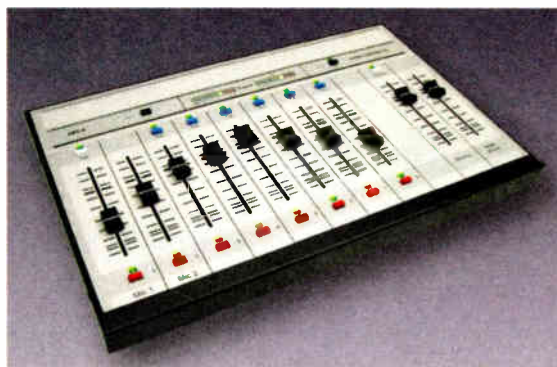
Contribute to *Workbench*. You'll help your fellow engineers and qualify for SBE recertification credit. Send tips to johnpbisset@gmail.com. Fax to (603) 472-4944.

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.

MARKETPLACE

FIELD SERVICE: From Arrakis comes word that field service guides including schematics are available for the ARC series consoles (the ARC-8, ARC-10, and ARC-15) on the company website. The field service guides include detailed instructions on how to field-change switches and slide faders. The Advanced Radio Console series was introduced in 2007. Arrakis built PC sound card capabilities into the console, blending console and PC media capabilities. The console can control Arrakis Digilink radio automation workstations as well as operate directly with Windows or Mac audio software.

Info: www.arrakis-systems.com



HANDHELD: The handheld digital recorder arms race continues with TASCAM's DR-40. Expected street price is \$199. The battery/USB-powered, four-track DR-40 uses SD/SDHC cards as media. A USB port allows for transfer of recordings. Twin onboard microphones can be arranged in A-B or X-Y configurations. XLR-1/4-inch inputs and phantom power allow use of outboard condenser mics. Other onboard treats include speaker, two-second recording buffer, EQ, reverb, level aligning, limiter, low-cut filter (40/80/120 Hz), variable speed playback and a chromatic tuner. Recording performance is up to 24-bit/96 kHz. Optional AC adapter and external battery pack are available. Ships with a 2 GB SD card.

Info: tascam.com/product/dr-40/



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WURD Up: Station Uses Towerstream STL

In Philadelphia, AM Station Chief Tries a Different Approach

BY DANA PUOPOLO

I took over as chief engineer at WURD(AM) in Philadelphia about a year ago. The RF plant was in almost perfect shape; yet in going through the

FIRSTPERSON

records, I found that the station had gone off air a lot in the previous few years, for up to days at a time. The problems seemed to be with the STL, a 15 kHz analog line leased from the local ILEC, Verizon.

Over the years, the station had tried many things to keep it working, including building new premise phone cables into the transmitter building (twice). The problem with the phone lines was not just with the program circuit; the ISDN, DSL Internet and POTS lines also had failed frequently.

Within a week of my arrival a micro-burst came through the transmitter site, knocking down two phone poles and breaking the 50-pair cable through which everything ran. We were on the air for over a week with a 500-foot piece

of Cat-5 cable run through the parking lot (we are located in Philly's reconditioning site for Hertz rental cars), and spliced into the broken cable.

Even after this was fixed the program circuit would still go out or become distorted. This was happening every few weeks. Verizon would exercise a card, power something down and so forth, and the problem would clear — for another few weeks.

My first idea was to try to get the ISDN line fixed so I could have a better backup than dialing into the transmitter on a POTS line and putting that on the air. After a month it became apparent this was not a viable option. The ISDN line would be fixed, only to die the next day or week.

Next I had Verizon lower the DSL to the slowest possible speed (1000/384) because the DSL modem spent much of its time re-syncing. This improved things well enough that I could install a set of Barix boxes to serve as backup to the program line — and I'll freely admit that we spent a lot of time running on them.

I set them up as a mono 32 kHz stream of about 64 kbps. It didn't sound

quite as good as the analog line (when it was working, that is) but certainly sounded better than a POTS dialup.

Unfortunately, the DSL would still re-sync, punching 30-second holes in the on-air audio every few hours while the Barixes were in use. By heavily RF suppressing everything (including putting the modem itself in a shielded box and running shielded Cat-5 everywhere), I was able to reduce the re-syncing to once or twice a day. Better, but still not perfect.

FROM HERE TO THERE, TIMES TWO

My boss (who had fondly nicknamed me MacGyver) called me into his office after one outage and said: "Can't we bounce our stream off another tower, MacGyver?"

Stream? Tower? Where had I heard something like that before?

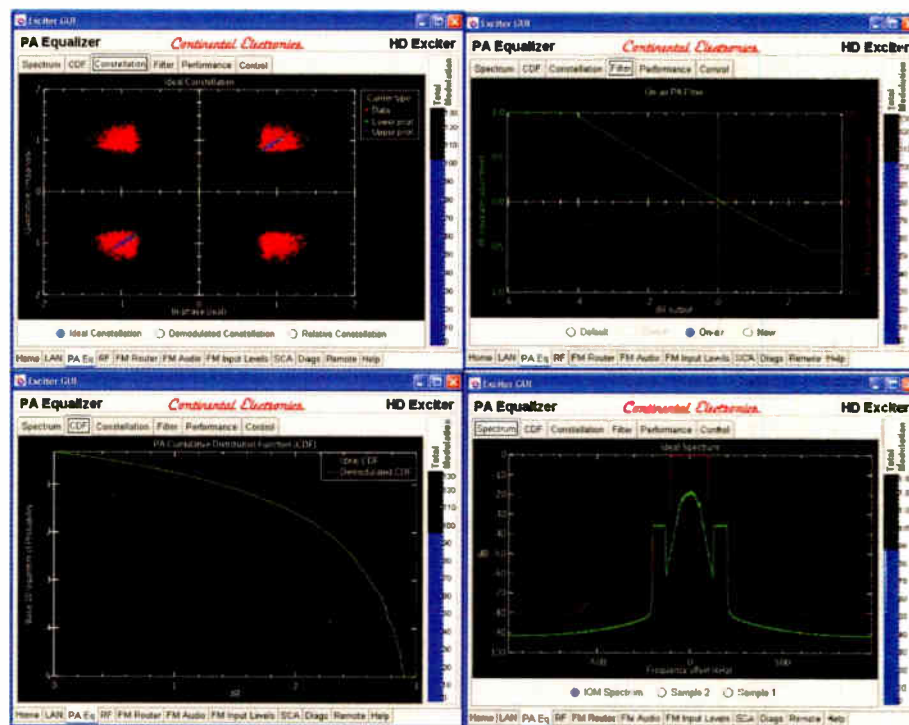
Towerstream had called me a few times marketing its wireless T1 service. The company uses licensed WiMax spectrum it owns, so there is no chance of interference from other users. Since we already had Internet from two other providers, Comcast Business Class cable and Cavalier DSL, I'd not had any real interest.



But at one point Towerstream had told me that its Philadelphia point of presence was atop One Liberty Plaza downtown and that they had a gigabit Internet connection there. They also used "segmented" radios, meaning that instead of a single omnidirectional system shared by everyone, they had several directional panels mounted around the perimeter of the building.

I thought to myself: If this is their POP, what if I bought two connections from them — one to my studio and a second to the transmitter — and hooked a pair of Barix boxes to them so that the stream would stay strictly on their network? A call to Towerstream confirmed this was possible and that the only thing wired

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FEATURES

unexpected bonus.

The sound is, in two words, just amazing. It runs rings over what we got with the program circuit.

The bass sounds transformed; it is nice and tight, with a solid quality. The rubbery bass of the program line sounded vastly inferior. The midrange is nice and smooth without being edgy. The high end is sparkly clean.

Finally, noise level is nonexistent. I measured the on-air noise at better than -65 dB down, and this is on an AM station. AM radio does not completely show the huge difference between the

program line and the PCM link, but a good headphone amplifier and headphones do. It is truly night and day. That said, even non-trained ears could hear the improvement on air.

We used the return link (the Annunicom provides a two-way circuit) to feed our modulation monitor back to the studio. Latency is about 50 milliseconds, which is fine because WURD is always on delay.

The STL has now been in use for three months with nary a glitch. It just sits and runs, sounding great. Recent measurements show the line to have

ruler-flat frequency response from 15 Hz through 12 kHz (better than half a dB flatness), distortion below 0.08 percent (noise limited) and noise better than 70 dB below our operating level (which is 12 dB below clipping).

Dana Puopolo is chief engineer at WURD(AM) in Philadelphia and has been involved in major-market radio and TV engineering for 30 years, including building and operating his own 100,000-watt FM station.

Radio World welcomes reader stories about solutions to technical problems. Write to radioworld@nbmedia.com.

between the two radios would be a switch.

The brain wheels began turning; but then the costs began dampening the movement. The two circuits would cost \$598 a month total. Fortunately, Towerstream was open to negotiation and agreed to match its monthly rate to what we were paying Verizon for its program line, \$464 a month.

Installation would also be free if we were willing to enter into a three-year agreement. This caused some concern. What if we were to move to another studio location? The company replied that in the event we decided later to move studios, it would overbuild service to any new studio location for free.

We signed and faxed the contract. Within a couple hours they called to schedule the installations. Both ends were done in three days.

They installed a one-foot-square antenna (plate) atop the studio roof and a two-foot plate on a pole at the single-story transmitter building. Both have excellent line of sight to One Liberty. Both showed speeds in excess of 1650 both up and down, more than the 1544 a standard T1 has.

SUPER SOUND

Then a problem: RF was getting into their radio at the transmitter.

First, I tried tying their support pole and radio (which is mounted to the back of the antenna) into our station ground. This improved things but did not eliminate the RF. I called Towerstream and they sent out the installer within a day; he realized that he had forgotten to ground the shield on the Cat-5 cable that ran between the antenna and the power injector in the building. This eliminated the RF (the cable runs within five feet of one of our two AM towers).

With everything running OK, I acquired two Barix Annunicoms and installed the latest IP intercom firmware on them. This gives me a mono 24 kHz sampled bidirectional PCM audio link (384 kbps) that is completely wireless. Even better, since we're not using any Internet bandwidth, we discovered that we still have the full T1 Internet bandwidth available to us at both ends — an

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How Radio Saved My Life

The Doctor Asked if I Was Comfortable
With a High-Tech 'Radio-wave' Approach

COMMENTARY

BY DANIEL BRAVERMAN

When my co-workers heard that I had suddenly canceled a trip to Chicago where I'd planned to install a radio station, they assumed that I must be dead. Turns out that they were almost right.

In truth, I really wasn't feeling well at all. And when I finally got to my GP's office, he offered me two options:

Option #1: Go directly to the emergency room
Option #2: DO NOT IGNORE OPTION #1

Seems that although I had been sitting quietly in his office for 45 minutes before he checked my pulse, my heart was racing at 165 beats per minute. That was way too fast, and based on the history he took, he surmised that my heart probably had been beating at about that rate for a month or more, putting me squarely in the league of a man in congestive heart failure.

The good news is that any preliminary diagnosis with "heart" and "failure" in it gets you to the head of the line at the OR. And it was no time at all before the great triage team at Bryn Mawr Hospital in suburban Philadelphia had an IV delivering a cocktail of drugs

that had me right back down to my good old 68 bpm.

But it was the next morning when I got the good news/bad news: While the proper dosage of beta blocker medication could keep me at a healthy 68 bpm for a good long life, the list of potential side effects was long and scary, especially for a man anxious to avoid any drug therapy at all. And while my nurses assured me this was a great alternative — considering, well, "the alternative" — I wasn't so sure.

CIRCUIT DESIGN

A normal heartbeat is regulated via a complex and elegant on-board series of pacemaker cells that control the orderly chemical depolarization and repolarization of the heart muscle. The messengers are electrical impulses originated in the right atrium, which from this upper chamber are conducted via heart fibers to the lower chamber ventricles, which have their own pacing system that serves as a backup. When all is in sync, a healthy heart displays the classic waveform: a "sinus rhythm" of standard waves, segments and intervals. And the beat goes on.

But in my case, not so much. Pathways apparently were misaligned, causing these signals to interfere and create an arrhythmia, so that my heart constantly raced rather than beat at a normal rhythm and pace.

Map Data

Map name: 2-la fam

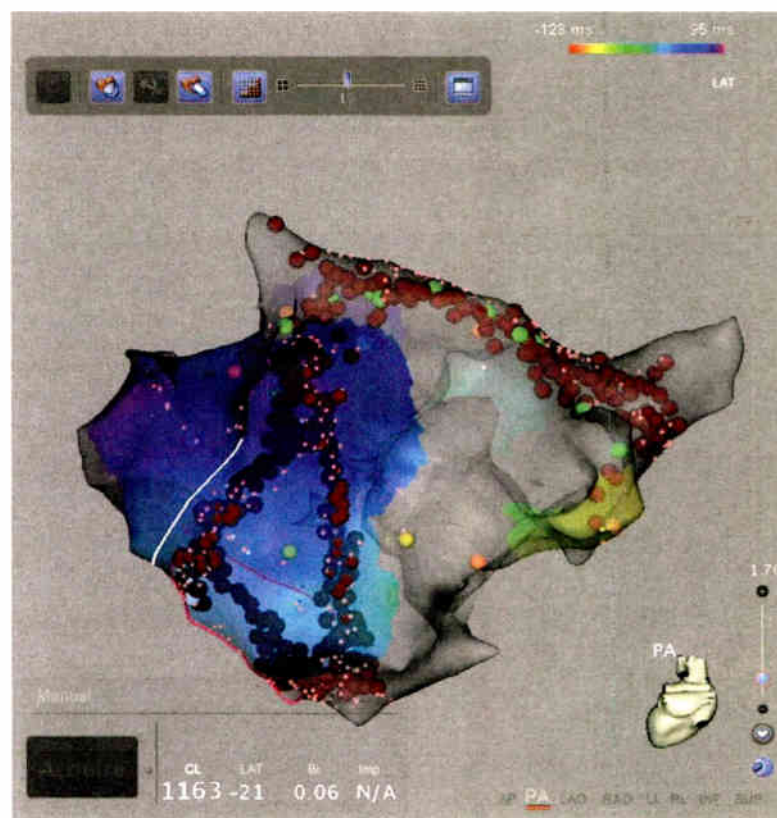
Projection: (RAO: 95°; Cranial: 24°; Swivel: -145°)

Start time: 29-Jul-2011 17:51:45

End time: 29-Jul-2011 21:20:53

RF applications: 45

RF time: 00:00



A 3D cardiac map guides the surgeon by imaging each RF-administered 'ablation' made to the heart muscle in this cross-section of the left atrium.

Dr. Sheetal Chandhok introduced himself to me as an "electrophysiologist and arrhythmia specialist" and asked if I'd consider an "ablation."

Yes, I had to ask what that was too. Seems that over the last 15 years, a drug-free procedure had been developed and refined in which a miniature electrode is inserted into the heart via a small catheter. Once precisely in location, RF energy is used to create hundreds of tiny burns or "ablations," isolating the misfiring cells by creating an electrically insulating barrier of scar tissue, thus stopping the transmission of the errant electrical pulses and in most cases, the arrhythmia.

He asked if I was comfortable with this high-tech "radio-wave" approach. I said, "Funny you should ask ..."

Awaking the next morning in my hospital room to a wonderful, drug-free 68 bpm, I learned that I had been under full

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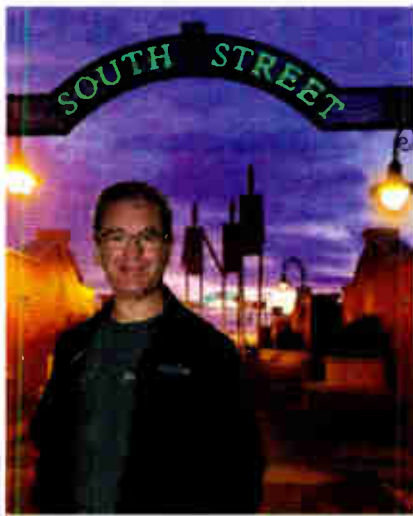
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The author on an early morning run (again) on South Street in his native Philadelphia.

equipment to original factory specifications? And while the motivation for our hard work, dedication and tenacity may not be as laudable as saving a life, I write this article in the most profound appreciation to every practitioner in every trade who embraces this spirit of excellence and keeps their clients on the air.

For me, it's just great to be back to full effective radiated power.

Daniel Braverman is president and founder of Radio Systems Inc. and now again enjoys easy morning runs along the Delaware River near his home in downtown Philadelphia.

anesthesia and on the operating table for a startling 6-1/2 hours (cardiac ablation normally takes just two to three).

Seems that the first set of 150 30-second RF pulses didn't work. That is, the tenacious misfiring heart cells in the upper chamber of my heart simply found another conductive pathway via different muscle fibers to reach and

A third set of 150 RF burns around the top of the atrium did the trick and the circuit was repaired.

confuse the lower heart chambers. And two hours and another 150 scars later (each represented by a colored circle in the accompanying 3D image), the errant electrical signals again found a route to the ventricles, this time by circling above to find yet a third pathway to undo my normal sinus rhythm.

But my surgeon, too, was "tenacious" (his word). I say, he's a hero. Instead of going home to wife and child in the wee hours of that Saturday morning and consigning me to the 5 percent of patients for whom ablation is not effective, he kept at it.

Finally, a third set of 150 RF burns around the top of the atrium did the trick and the circuit was repaired. So that next morning (and every morning since), I awoke to a normal heartbeat.

THE HEART OF THE MATTER

Does any of the above sound familiar? How many of us radio engineers have spent late nights chasing a ground loop or oscillation trying to return a piece of

MARKETPLACE

CODEC SIGHTSEEING: Digigram Pyko IP codecs are used as satellite-fed information conduits in the Grand Canyon Highway Advisory Satellite Radio System. Placed aboard solar-powered mobile transmission/signage units provided by the InfoGuys Satellite Radio Network, the Pykos allow for monitoring and updating of the systems and their messages by park personnel. A custom user interface was created by Digigram's distributor Point Source Audio and InfoGuys for control via Internet. The system provides traffic, parking, shuttle, event and emergency information to visitors via mobile solar-powered transmission/signage units.

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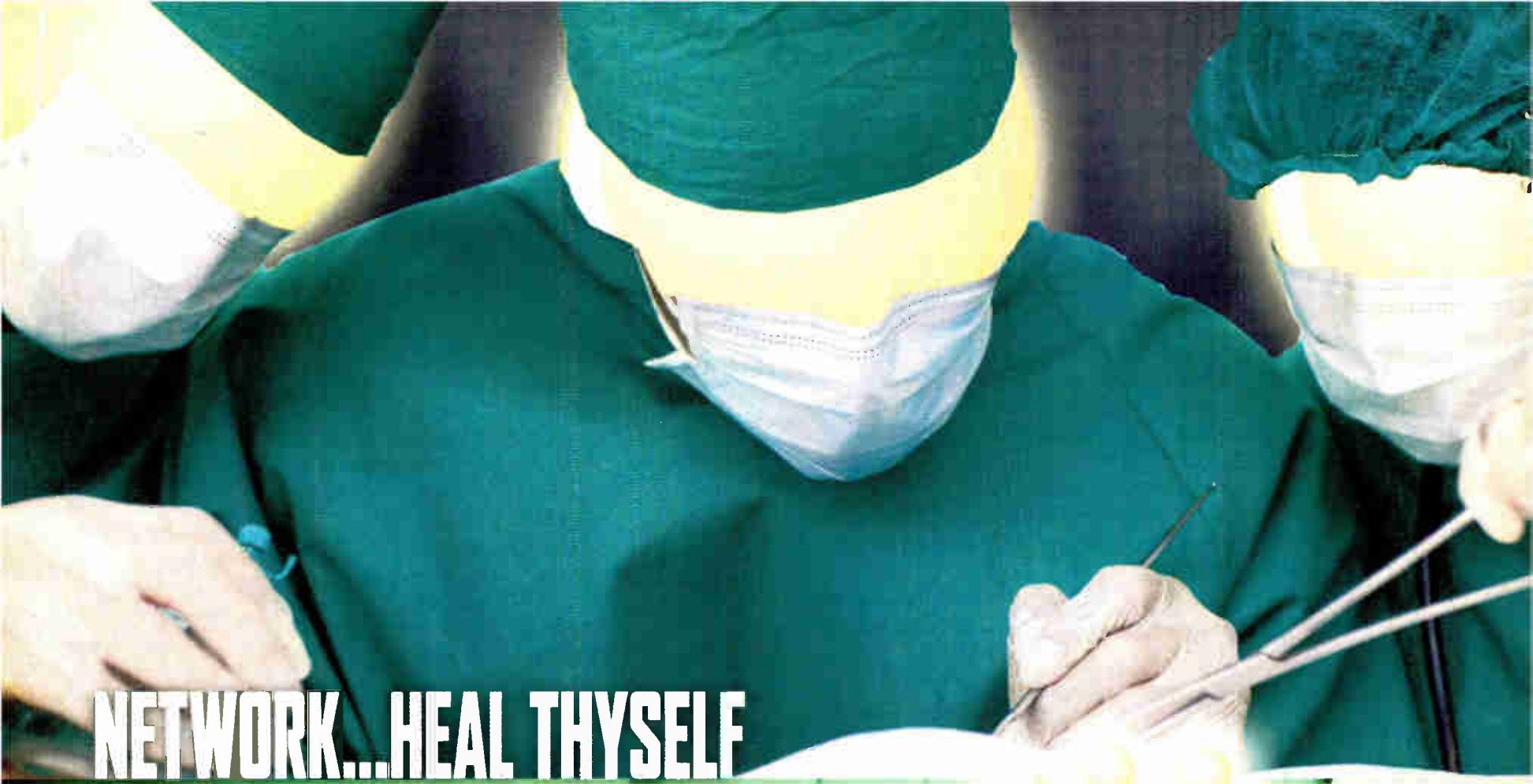
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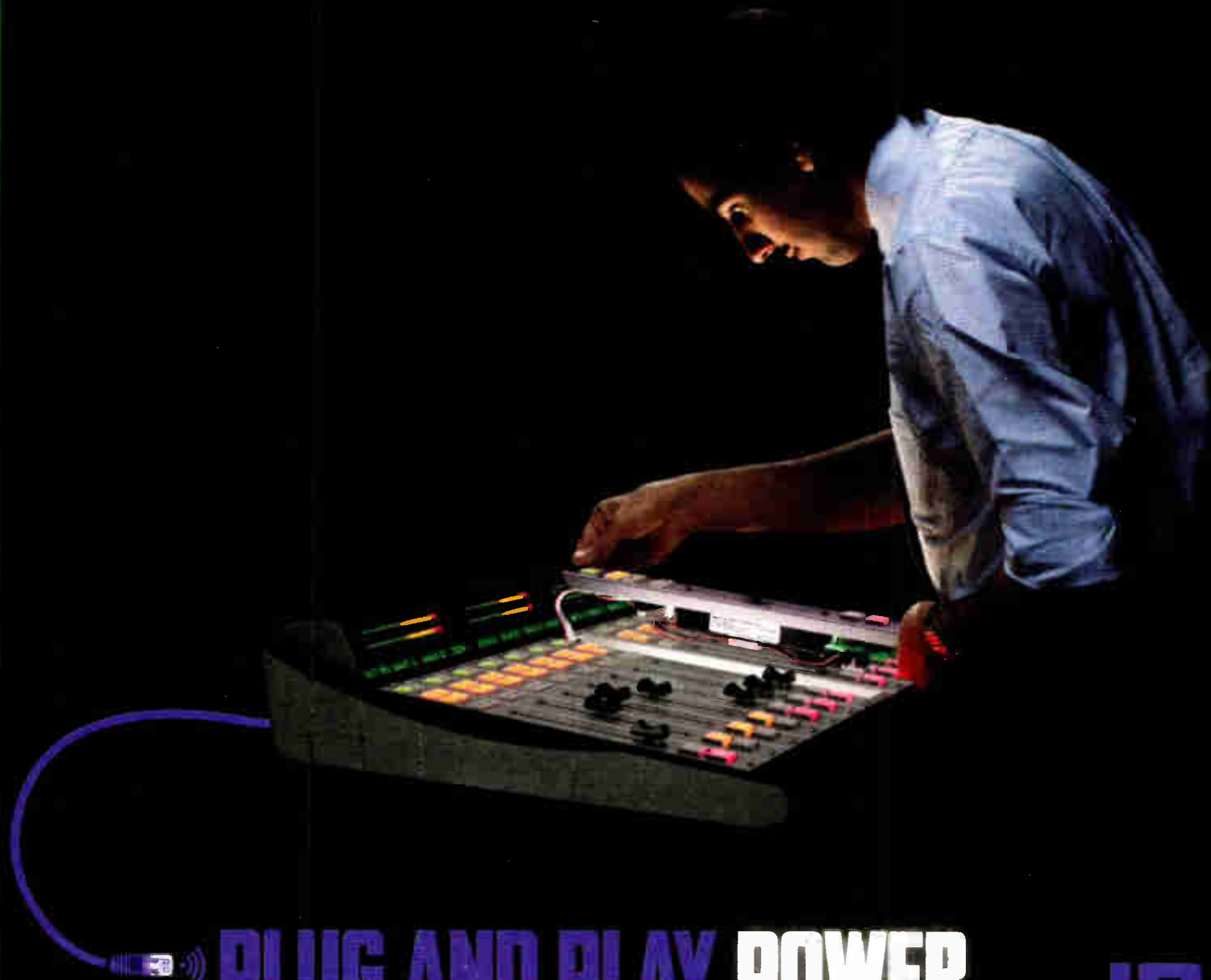
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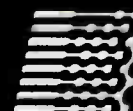
First, its modern, modular design moves all audio, logic and control outside the control surface and into a single rack-space audio interface/mix engine (called a BLADE). This gives you much greater mixing/processing capabilities as well as the ability to network when you have more than one console. Imagine simply calling up any audio sources on any of your consoles anywhere in your facility. And, if you've already got the WheatNet-IP Intelligent Network, it fits right in.

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AUDIOARTS

Clack-Clack-Clack-Clack-Clack

Buc Fondly Recalls the Staccato Tattoo of the Radio Teletype

BY CHARLES S. FITCH

For several years in the 1970s I commuted from near Camden, N.J., to Baltimore, usually in the middle of the night. As I drove down I-95, KYW(AM), the all-news outlet in Philadelphia then owned by Westinghouse

MILESTONES

Broadcasting, was a regular companion, keeping me awake and informed.

KYW's on-air people — less pontificating and definitely more locally focused than those of my other favorite, the BBC — used a professional, conversational tone and a calm, even vocal delivery. Behind the announcers' voices and between news items, listeners could hear the cadence of teleprinting machines.

The station used this effect to add drama and credence as well as fill the voids between items as they spaced stories and information pieces apart.

Many radio newscasts in America at that time aired the sound of teleprinters, setting off the news from other program elements. Machines from the Teletype Corp. dominated newsrooms, with the company name placed boldly on the front. Most industry folks just called any printer a teletype machine.

Recently I dug out a 1960s-vintage aircheck (yes, Virginia, before I became an internationally recognized consulting engineer, I'd been a lowly disk jockey). During my news read one can hear the background sounds of teletypes — played off of audio cart — lending a compelling rhythm and aural authority to the headlines.

However, a young girl hearing this tape asked me, "What's that noise in the background?" Ahh, what youth have missed.

CHECK THE WIRE

When news on radio was an important program component and not just an interruption in an hour music sweep or rant, teletype machines were standard equipment, as common as a bathroom (although the machines probably were kept in better repair).

This had not always been the case. In radio's infancy, stations for a time actually were forbidden to air news. Newspapers had forced the regulation into the books; they didn't want the upstart technology to scoop their headlines or usurp their ad business and readers.

Eventually a symbiosis was reached wherein stations would air the headline and a little of the story, essentially a tease to get people to buy a newspaper for the "rest of the story."

The spread of radio into areas not covered by newspapers and a move by papers toward features and data brought a rescinding of restrictions on radio news altogether.

Stations also began acquiring news using their own resources, looking beyond the newspaper telegraph services or rewritten newspaper copy. Eventually stations

started developing their own news services.

But how to get information from many different locations into the station? The answer was the radio news service teletype.

In 1914, the Associated Press had introduced the teletype machine using primarily telegraph wire circuits to disseminate news to and from member newspapers. Eventually membership was opened to radio stations, although few had origination capability.

When I entered radio, it was not unusual for stations to have multiple teletype machines, providing material from several sources. In my time, United Press International, the Associated Press, Reuters and the emergency weather wire of the National Weather Service were the usual suppliers of information that kept those teletypes in a constant cacophony.

REMOTE TYPEWRITER

A teleprinter, in its simplest description, was an electric typewriter commanded by a pulse chain sent sequentially (serially) down a pair of wires or aurally over a radio link. These units were cousins of today's RS-232 standard serial computer printers.



San Francisco NBC announcer Bud Heyde checks a row of teletypes in 1954.

In its debut version, a standardized Baudot code was used consisting of five bits for transmission items, such that 44 different characters and/or commands could be achieved. The code contained a regular, repetitive bit, a singular piece of positive information used to alert the decoding process that a character or command was coming. The ensuing bits of data selectively would activate small relays, setting up the striking of a particular typewriter key or activating a command such as ringing a bell once.

The first teletype used a code speed of 45.5 baud, the equivalent of about 60 words per minute. Later, the carrying capability of these machines and their connection circuits evolved, until teletypes of my generation (still just shortly after the dinosaurs ruled the earth, around 1967) were about 100 baud.



Courtesy James O'Neal

A Model 15 AP teleprinter from the collection of James O'Neal (including box of paper labeled 'Fanfold Teletype, Property of the Associated Press').

These wire services provided a near-instantaneous view of the world for stations and their listeners. Every word was made to count and the amount of material available was stunning.

For instance, at KELP(AM) in El Paso circa 1968, the AP wire transmitted the headline summary at, say, 15 minutes after the hour, so that these could be used in a 20-20 news format (with news at 20 minutes after and 20 minutes of the hour) or headlines at the half hour.

A pre-written 3-1/2 minute (average delivery speed) story block was transmitted at something like 15 minutes before the hour, to be used in a five-minute, on-the-hour newscast (3-1/2 minutes of news, 30 seconds of commercial, 30 seconds of sports, 15 seconds of weather with bumpers including the open and close billboards filling the five minutes).

Filling the wire throughout the day were sports, stock closings, obits of famous people sent in advance for the file, backgrounders, human interest stories, almanac copy, pronunciation guides, even jokes.

There was even a time slot in which all the radio newsroom teletypes in Texas would be fed Lone Star material from the Texas AP or UPI bureaus in Dallas or the capital, rather than the national wire.

IT TOLLS FOR THEE

The "bell" was an interesting feature, its sequence of rings famously announcing an important story.

For example, a ring of four bells on UPI wire service

(continued on page 24)

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World Radio History

WHO'S BUYING WHAT

Logitek Electronic Systems this fall listed various radio and TV orders for its new ROC control surface and its AoIP and TDM audio platforms.

ROC consoles were ordered by **Backyard Broadcasting's WNK1(FM)** in Elmira, N.Y. Backyard Broadcasting's three ROCs in 6-, 12- and 18-fader configurations will be paired with two JetStream Mini AoIP units. **KIII(TV)** in Corpus Christi, Texas, ordered a ROC console paired with an AE-32 TDM audio router. In Ludington, Mich., **Synergy Broadcast Group** placed an order for two JetStream Mini AoIP units and a Pilot-12 console for its radio stations.

Logitek also received orders from **Diversified Communications TV** stations in Bangor, Maine and Gainesville, Fla., as well as **Wyoming Public Television**.

Dial Global expanded its broadcast center in Denver this summer, adding eight radio control rooms to the existing 24 and creating an upgraded Network Operations Center. An SAS 32kd-based audio routing network and consoles are part of the facility. The project was managed by Senior Vice President of Engineering and Operations Eric Wiler, while Executive Vice President of Technology Conrad Trautmann was "chief architect of the new facility's creation."

The **Pittsburgh Penguins** are using a **Telos Zephyr Xstream ISDN** codec for road games. The hockey team is in the Atlantic Division of the National Hock-

ey League's Eastern Conference. ...

An unusual cross-border cooperative agreement is in place involving two communities in Michigan and Ontario. Authorities there have combined efforts for a localized emergency messaging system.

Using the **Alert FM system** from Global Security Systems, **St. Clair County, Mich.**, and **St. Clair Township, Lambton County, Ontario**, developed the Bluewater Community Alerting System, which is also the first Canadian deployment of Alert FM, which sends alarms and text messages via FM stations' RDS signals. Alert-FM receivers sound an alarm and display small text messages; they are being sold to the public at a discount funded by a St. Clair Township subsidy. Several area stations carry the signals. ...



At the Dial Global ribbon cutting this summer were Dial Global's Pat Crocker, Conrad Trautmann, Kirk Stirland, John Paul, Eric Wiler and Phil Barry.

Nautel said **KDKB(FM)** in Phoenix was one of the first to implement its HD PowerBoost system, aimed at stations that want to run HD at injection levels greater than 20 dB below carrier. Nautel released a summary of the KDKB project, which involved a new transmitter site on Phoenix's South Mountain in a city park. The job included a new Nautel NV40 transmitter, with a Nautel NV7.5 as backup. The station is feeding 25.5 kW analog output power into the antenna system; HD operation is adjusted for -10 dBc, or 2.55 kilowatts. **Jim Stanley of Stanley Broadcast Engineering** was on-site for the facility construction and handled FCC licensing for Sandusky. Clayton Creekmore is chief engineer of the station. The dealer was **Broadcast Connection**, which helped with the pattern analysis, structural studies and system design as well as providing equipment.

TELETYPE

(continued from page 22)

machines meant an "Urgent" message, five bells was a "Bulletin" and 11 bells was a "Flash," used only for really big news.

An 11-bell signal usually meant that the story was so significant that it required immediate airing and might even change history. Such bells might herald war or the death of a president.

Newsrooms of the day, and KELP was no exception, were filled with hanging files of copy "to be used," boxes of marked-up copy that had aired (the lawyers, even then, wanted every word read on air saved to avoid liability) and huge trash cans full of printer paper, material that would not be or could not be used.

With the din of all those machines in the KELP newsroom, news announcers like gravel-voiced former Master Sgt. Ed Gilbow would work close to the mic, giving our news an urgent gravitas enhanced by the teletypes' paradiddle in the background.

News teletype went to quiet hot print or dot matrix technology fed by satellite circuits in the early 1980s, replacing clack-clack with zip-zip. In the 1990s paper could be eliminated altogether and a wire service could send copy direct to word processor, with not a scissor, eraser or trashcan needed.

Although the staccato tattoo of the teletype generally is absent now, its nuance is still felt in the music of many news programs and the theme that has appeared in every James Bond picture since "From Russia With Love." In New York, listeners to WINS(AM) still hear the sound effect of the teletype under the news copy.

But newsrooms today are far quieter places. The electronic cutting and pasting of stories compiled from diverse information sources including the Internet mimics the sound of silence. The choir of striking keys pounding out the history of the day is long gone, forgotten by most.

Another time we'll talk about the technical details of how these teletypes worked, including the differentiation of receive-only and receive-send systems.

If you have never heard a teletype machine or would like a few moments of aural nostalgia, take a look and listen to <http://tinyurl.com/fitch3>.

Share your recollections of the teletype and its environs. Email radioworld@nbmedia.com.

Charles S. Fitch, W21P1, is a registered professional consultant engineer, member of the AFCCE, senior member of the SBE, lifetime CPBE with AMD, licensed electrical contractor, former station owner and former director of engineering of WTIC(TV) in Hartford, Conn., and WHSH(TV) in Boston.

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World Radio History

When Sample Loops Just Won't Do

Atlanta Station Provides MoM Test for Kintronic's VSU-1 Voltage Sampler

USERREPORT

BY ROBERT LAFORE
Market Chief Engineer
CBS Radio-Atlanta

ATLANTA — When the FCC approved Method of Moments as a valid tool to verify AM directional performance, I was immediately interested in employing the approach at CBS Radio's WAOK(AM) 1380 in Atlanta. However, because WAOK had a mix of tower types, and by virtue of their height, we had to wait just a bit longer to employ MoM.

I had heard that Kintronic Labs was working on a voltage sampling device specifically for stations that could not employ sample loops.

WAOK is a 5 kW NDA-Day/4.2 kW DA at night. The night antenna system consists of two self-supporting towers and two uniform cross-section towers, each 360 feet tall.

In December of 2010, I was contacted by Tom King at Kintronic Labs. They had just finished developing the VSU-1 voltage sampling device. I was interested in testing these devices on WAOK.

A few weeks later the VSU-1s arrived at our facility. The initial inspection of the units revealed that installation would



Kintronic VSU-1 is at work in the field at the WAOK(AM) transmission site.

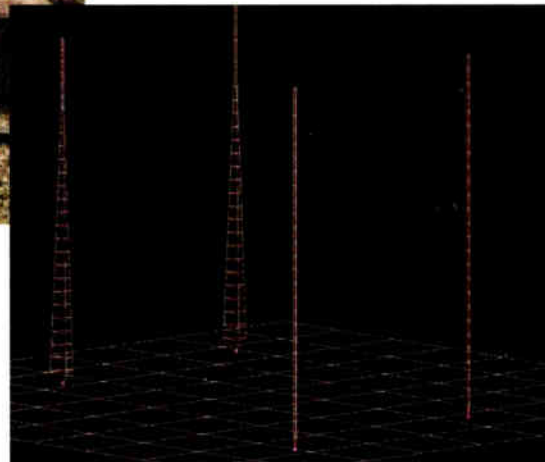
be fairly easy. Each VSU has an N connector, to attach to the existing antenna monitor. There is also a bowl insulator and threaded stud to attach to the tower base. This connection is routed through a J Plug, so the VSU-1 can be installed and then connected to the antenna when ready. The J Plug is also handy during the testing phase. A grounding point is also provided.

INSTALLATION

Each VSU was attached to the tower using copper tubing. The existing sample lines were disconnected from the old loops and attached to the antenna

monitor.

Physically, the VSU can be installed in a number of ways. Each VSU has four "ears" that enable the user to select the best method for installation. In our case, two of the VSUs are installed using galvanized



The WAOK Array

fence posts. At the other two towers we elected to install the units on the sides of existing equipment at the tower base.

Each time I connected a VSU-1 to a tower, I checked the parameters of our antenna system. In three of the installations, the VSU-1 had little or no effect on the antenna system. On the fourth

tower, we did detect a slight change in the tower parameters. This was attributed to numerous items across that tower base. We were able to "wash" this change out in the day and night LTU.

Consulting engineer Don Crain came in and did extensive measurements of the WAOK antenna system. This included verifying sample line length, transmission line length and the self-impedance of each tower.

Armed with this information, Don established the theoretical MoM parameters we would need to achieve the pattern. The night phasor was adjusted to these theoretical numbers.

The next day, we went to the "old" monitor points to verify that the night pattern was correct. To my amazement, all of the points were in tolerance. We then ran the required set of reference measurements for the array. We obtained a license for the MoM operation in late spring of 2011.

These VSU-1 units survived a stormy spring and summer here in Atlanta. In late April, our Tower 3 was apparently struck by lightning. The top beacon was heavily damaged, including vaporized wiring, burned sockets etc. The VSU-1 connected to the base survived and to this day is providing stable samples of the tower. A peek inside the VSU-1 revealed no damage from this strike.

The VSU-1 Voltage Sampler is designed for easy installation and appears to handle "real-world" conditions with ease. For stations using tall towers or other nonstandard antenna configurations, the VSU-1 offers a way to move forward with MoM, and take advantage of the significantly easier monitoring of directional performance.

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

ABOUT BUYER'S GUIDE

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

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PowerClamp Is Worth the Price

Thanks to My 'Magic Box,' It's Been 14 Months Since I Replaced a MOSFET

USERREPORT

BY **BOB SOUZA**

Managing Partner & Chief Engineer
KCKM(AM), KTXO(FM)

ODESSA, TEXAS — In the first three years of ownership of KCKM(AM) 1330 in Monahans, Texas, I spent a great deal of time changing MOSFETs in my 5 kW solid-state transmitter. I went through an average of 50 per year, something I had never experienced before.

I asked Mike Vanhooser from Nova Electronics in Dallas to take a look at the situation. Mike quickly zoomed in on the source: "dirty power."

Our AM transmitter is in the middle of an active oil field eight miles from town. We are surrounded by pump jacks cycling on and off around the clock.

Recently, KCKM received a CP to increase our day power, and I wanted to protect the new transmitter. I had heard positive comments about the PowerClamp TVSS from several southern California engineers. Mike

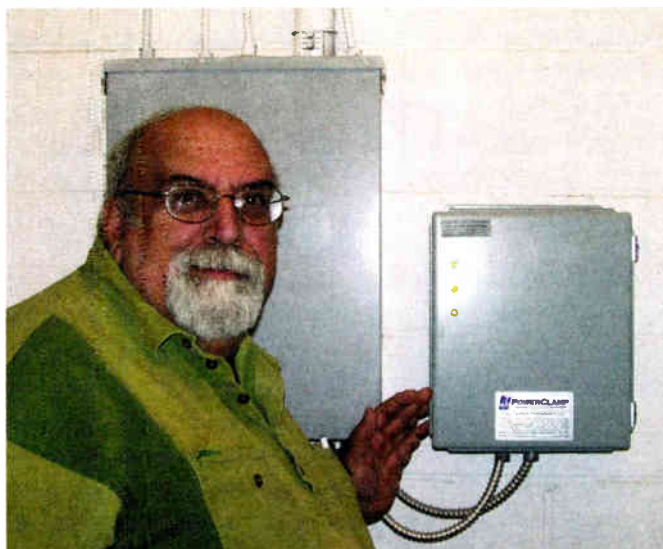
and I discussed our options and decided to go with the PowerClamp TVSS, which is made by Sine Control Technology.

Our PowerClamp TVSS arrived about two weeks after I placed the order. Mounting and installation took less than 30 minutes and that was it. We wired it to a breaker on the electrical panel and just turned it on.

Did the PowerClamp solve our problem? You bet. I sometimes refer to our PowerClamp unit as the "magic box" because it's been 14 months since I replaced a MOSFET.

The price of the PowerClamp TVSS wasn't an issue with me, I just wanted to resolve the problem. Every large-market radio station should have one, period.

But I have been in broadcasting long enough to know there are some small- or medium-market managers who will look at the price of the PowerClamp TVSS



If your station transmitter suffers from some unique, recurring problem that is affecting your ability to stay on the air or maintain licensed ERP, the unit may pay for itself by saving on engineering fees and component costs.

(Sine Control emphasizes that the size of the PowerClamp does not depend upon the size or power of the transmitter; it's based on the lightning risk of the area. For most areas in the U.S., the company suggests a Series 8 PowerClamp, rated at 150,000 surge-amps of suppression. For very high lightning areas — e.g., the Southeast — it suggests a Series 10 unit, rated at 200,000 surge amps.)

We just built a new Class A FM from the ground up. The transmitter site has a PowerClamp TVSS on the wall, next to the main breaker

box. Soon, there will be a PowerClamp at a location often neglected but still worthy of the protection offered by the PowerClamp TVSS: our studio.

For information contact **Hank Landsberg** at Sine Control/Henry Engineering in California at (626) 355-3656 or visit www.sinecontrol.com.

and find it to be a bit costly. According to Sine Control, a typical single-phase installation would cost approximately \$2,600, with three-phase configuration approximately \$3,200.

I understand that every purchase must be justified. But I am talking about reliability.

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TECHUPDATES

TRANSRADIO ADDS iPad CONTROL



Transradio's TRAM line of AM transmitters is now available with a wireless iPad 2 control interface. The company says the TRAM premium LCD is intended to offer helpful additional information on a user-friendly screen.

Transmitter functions can be supervised and monitored by the iPad-based control interface whereas safety functions of the transmitter are still implemented

using CMOS logic to protect the system. Analog parameters are monitored by AD converters for remote monitoring and integration into the GUI, based on iPad 2 technology.

The WPA2-secured Wi-Fi connection between transmitter and iPad 2 and the possibility to remove the iPad from the front panel makes supervision more comfortable.

If the whole new computer control system would fail, basic functions of the transmitter would still be controllable via local pushbuttons.

The TRAM premium LCD offers a choice among TCP/IP, BIT bus, RS-232 or dry contacts for remote control.

The focus of the Transradio TRAM premium LCD line is to offer more comfort for local and remote control while maintaining reliability.

All models in the TRAM line power range — from 5 kW to 600 kW as standalone transmitters or up to 2 MW in a combined version — are available with the TRAM premium LCD option.

For information, contact Transradio in Germany at 011-49-30-339-78-0, or visit www.transradio.eu.



SUPERIOR GIVES TOTAL POWER

Superior Electric promotes its "Total Power Quality Strategy" for protection of transmission sites and studios.

The company makes Stabiline power quality products including automatic voltage regulators, uninterruptible power supplies and transient voltage surge suppressors/surge protective devices.

Superior says Stabiline's Line Interactive Buck and Double Boost technology ensures pure sine wave output voltage to critical loads without using batteries. The battery management design doubles battery service life,

optimizes recharge time and provides warning of pending battery failure. Hot-swappable batteries and cold start features are included with cabinets and 19-inch rack models.

For information, contact Superior Electric in Connecticut at (860) 507-2056 or visit www.superiorelectric.com.

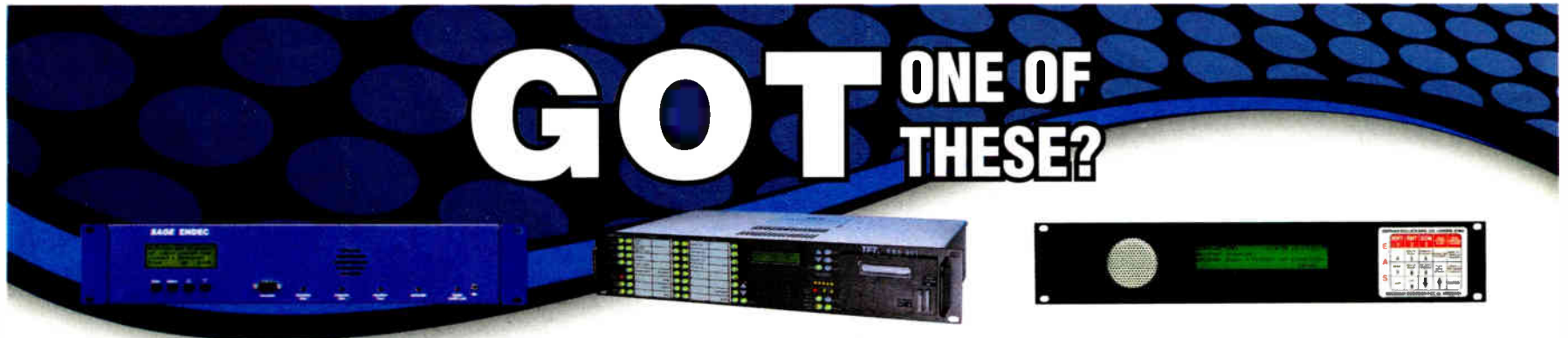
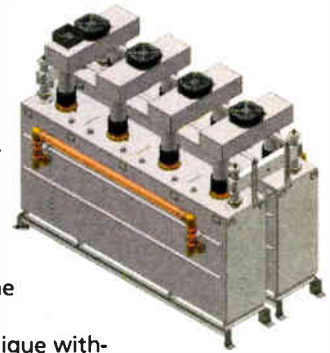
MYAT DEBUTS IBOC FILTERPLEXER

Myat Inc. has introduced a patented technique for combining FM and digital sidebands for IBOC transmission to a single antenna.

The system uses filters to combine digital sidebands (MP1 or MP3) operating at -20 dBc, or up to -10 dBc. It is designed for early adopters wanting to increase digital power without significant investment and for high-power stations where common amplification is not practical due to excessive peak voltages in the transmitter.

Operating cost is reduced using this "green" combining technique without the need for circulators or isolators to suppress RF IMD products to meet NRSC-5B emissions requirements.

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



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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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 >> Time-of-day clock can slave to your NTP server.
 >> Do it yourself or do it automatically: Event timer has manual or auto reset option.
 >> One touch lets you talk back to phone callers, codecs or any source with a backfeed.

>> Silky-smooth, side-loading 100mm, conductive-plastic faders beg for your touch.
 >> Avionics-grade switches with LED lighting
 >> You've always wanted a convertible? Remove bumpers, swing meters back and voila! you can rack-mount your Radius.

>> Rugged, anodized, machined aluminum surface has laser etched markings that can't rub off. Backed with our 5-year warranty.
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www.AxiaAudio.com/Radius



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TECHUPDATES**ERI PROVIDES 100A SERIES DIRECTIONAL FM ANTENNAS**

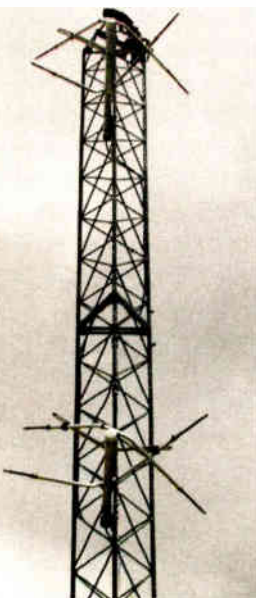
Electronics Research says that its 100A Series FM Antennas are an economical solution for single-channel FM applications.

Available in one-, two- and four-bay models, the 100A Series has power handling capabilities of up to 2 kilowatts. Recent FCC activities create a requirement for a cost-effective directional FM antenna. These activities include the FCC's authorization of rebroadcasting AM stations on FM translators, changes made by the FCC to allow easier relocation of FM translators and the significant number of pending FCC applications for new FM translators. ERI believe its 100A Series FM antenna fulfills this need.

The directional 100A Series FM Antennas are available with full-scale pattern measurement

on ERI's Test Range and can include directional FM antenna proof of performance documentation when required.

For information, contact ERI in Indiana at (812) 925-6000 or visit www.eriinc.com.

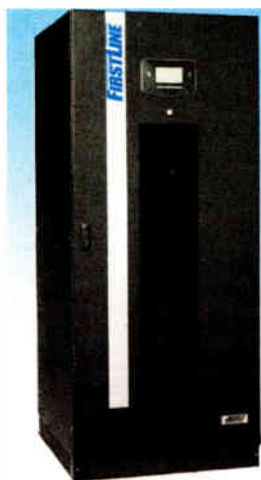
**PHASE TECHNOLOGIES OFFERS OPTION ON CONVERTER**

Phase Technologies Phase Perfect Phase Converters are available in an optional EMI version that deals with electromagnetic interference.

A gasketed powder-coated aluminum enclosure helps mitigate radiated electrical noise while the three-stage LC filtering helps eliminate conducted EMI.

Standard Phase Perfect Phase Converters are now available with a 32-character LCD text display option that will show operating parameters as well as fault codes if they do occur.

For information, contact Phase Technologies in South Dakota at (866) 250-7934 or visit www.phaseperfect.com.

**STACO INTRODUCES FIRSTLINE P SERIES**

Energy product specialist Staco Energy Products has a line of "mission-critical" three-phase uninterruptible power supplies, the FirstLine P series, which it says is well suited to radio and other broadcast applications.

The line, designed for 80-125 kVA jobs, can be run in parallel to up to eight units. It uses insulated-gate bipolar transistors (IGBT) technology and DSP for double conversion and an input power factor of 0.99 along with an input current distortion of 3 percent or less, according to Staco. These models are highly efficient, according to the company, and notable for their battery performance.

The units are hot-swappable and carry a two-year warranty.

According to a release: "The compact and reliable FirstLine P is ideal for information technology (IT) applications such as those found within the broadcast arena's highly digitized environment, especially to protect transmitter exciters and HD Radio encoders, monitoring, remote control and Emergency Alert Systems, links to remote programming sources via digital telephony, satellite, etc., as well as office computers, standalone computers and computer networks for audio playback, program scheduling and more."

For information, contact Staco Energy Products in Ohio at (866) 261-1191 or visit www.stacoenergy.com.

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THE JAMPRO JSWB HANDLES HIGH POWER

The Jampro JSWB FM side-mount antenna is designed for multiple frequency applications that require moderate to high-power capability.

The company says each element is made with high-strength, thick-wall brass and copper with outside diameter of 1-5/8-inch. Capable of handling 10 kW to 100 kW, the JSWB is one of the highest-power side-mount FM antennas available, according to Jampro.

On a single frequency, VSWR is 1.2:1 ±200 kHz, optional 1.10:1, and 1.15:1 typical for multiple frequencies. The JSWB is a circularly polarized antenna suited for HD Radio digital broadcasting simultaneously with an analog signal.

The JSWB is supported by a hot-dipped, galvanized steel mounting bracket for good grounding. Standard round leg mounting brackets for uniform face tower are included, and custom brackets are available. Silver-plated inner conductor connectors are used for maximum contact life and minimum power loss.

The antenna is available with fractional wavelength spaced bays for downward radiation control, when needed.

For information, contact Jampro Antennas in California at (916) 383-1177 or visit www.jampro.com.



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LBA TECHNOLOGY'S CAMI FACILITATES AM REBROADCASTS



With the blessing of the Federal Communications Commission, AM stations now can rebroadcast on FM translators in some circumstances, reaching a core service area using both FM and AM signals. LBA Technology says it developed the CAMI series coaxial AM isolators for this cross-service translation mission.

The CAMI is a simple medium-power isocoupler. According to LBA, its chief virtues are that it

is cost-effective and applicable to several situations where an antenna is mounted on a "hot" AM tower. The company says that while some isocouplers isolate single auxiliary broadcast coaxial cables for studio translator links, or FM translators, or low-power FM and television translators, CAMI works for all of these applications.

The CAMI also passes AC or DC current to tower top amplifiers and is resistant to extreme weather events and lightning. The device is lightweight and installs simply.

CAMI general specifications: broadband transmission frequency DC-2,500 MHz; broadband impedance 50 ohms, VSWR <1.2/1; power (averages) 1,500 W @100 MHz, 500W @1,000 MHz, 250 W @2,500 MHz; insertion loss 1.2 dB @100 MHz, 2.6 dB @1,000 MHz, 4 dB @ 2,500 MHz; broadband power capability 2 kW @100 MHz, 250 W @960 MHz; AM isolation frequency range 500-2,500 kHz; AM working voltage 3.5 kV peak (typical 10 kW into 1/4-wave tower, other ratings on request).

For information, contact LBA Technology in North Carolina at (800) 522-4464 or visit www.lbagroup.com.



SPX DCR-M IS FOR HIGH-POWER FM

SPX Communication Technology says its DCR-M series of FM antennas is optimized for use in high-power broadband applications.

The antenna's wide bandwidth and power input capabilities are suitable for supporting multi-station broadcasting. With circular polarization, a single-bay power rating of 18 kW, and the ability to stack arrays of up to 16 bays, the DCR-M provides an input rating of up to 40 kW.

The stainless steel construction, low ice sensitivity and optional integrated deicer make it suitable for harsh environmental conditions. The DCR-M is supplied with a fine matcher for field optimization and is available with directional arrays custom built to the needs of the station. In addition, a custom feed design allows for reduced downward radiation via shorter spacing in a series-fed configuration. Beam tilt and null fill options are available.

For information, contact SPX Communication Technology in Maine at (561) 447-2123 or visit www.spxcomtech.com

AUSTIN INSULATORS LIGHTS UP WITH LEDS

Austin Insulators has introduced LED tower lights, the A-L810 Obstruction Light and A-L864 Beacon, designed for use on "hot" broadcasting towers.

According to Austin Insulators, these products use high-intensity red/white LED elements. They are direct replacements for existing light sources and last up to five times longer while using up to 90 percent less power than older incandescent lamps.

Controllers, GPS synchronization and the Austin Ring Isolation Transformer provide a "one-stop package" for new and replacement tower lighting systems, says the company.

Austin also offers a range of RF insulators for use on low- to high-power guyed and self-supporting broadcasting antennas and towers covering the VLF to MF bands.

For information, contact Austin Insulators in Ontario at (905) 405-1144 or visit www.austin-insulators.com.



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

WANT TO BUY

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

CONSOLES/MIXERS/ROUTERS

BE Spotmaster 8-chnl mono console, \$200; Gate/Harris 5-chnl stereo console, \$250. C Haynes, 601-636-7944.

MICROPHONES/HEADPHONES/SPEAKERS/AMPS

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

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

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SCA Decoders, 417-881-8401.

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Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035.

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

Equipment Wanted: obsolete, or out of service broadcast and recording gear, amplifiers, processing, radio or mixing consoles, microphones, etc. Large lots preferred. Pickup or shipping can be discussed. 443-854-0725 or ajkivi@gmail.com.

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

can email me at ronwtamm@yahoo.com.

Looking for a broadcast excerpt of a San Francisco Giant's taped off of KSF 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 KSF radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

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

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

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Recent broadcasting graduate looking for radio job in the Tulsa area. Energetic with fun interaction with listeners. Excellent board work and production. Aaron, 918-369-1260 or 19darkprince@gmail.com.

Rookie broadcasting graduate seeking employment. Skilled in announcing, newscasting, board operations and production. Willing to relocate. David, 918-346-9232 or cortes.bz@gmail.com.

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Willing worker and leader. Interested in radio support position. Board ops, remote tech, etc. Lance, 918-833-0957 or mcleanlance36@yahoo.com.

Bilingual with Superb digital/production skills. Extensive Mixing/Mobile DJ experience. Creative copywriting/imaging. Great voice, with strong entertainment/stage presence. JJ Jimenez, 817-919-7385 or info@jammjndfw.com, web: www.jammjndfw.com.

On-air/Behind scenes. Extremely proficient digital editing, computer, engineering and technical abilities. Solid on-air/VO, prep, copywriting plus. Tencarious, catches on very quickly. JD, 214-337-2415 or phyd34u@gmail.com.

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READER'S FORUM

PROTECT LPAMS

In the Sept. 7 *Reader's Forum*, Bob Gossett expressed his opinion regarding FCC Part 15 AM transmission. I am familiar with this topic, having operated FCC-certified LPAM transmitters for over five years.

LPAMs include "talking houses" ... churches that utilize a looped broadcast of services to their immediate area ... people who broadcast the schedule of high school sports for parents picking up their children ... and yes, those who would like to have their own legal broadcast to a local community, although the range is limited.

The LPAM community is large and growing, and it shows interest in a 10-watt, licensed service, if Congress would only listen. In the United States and Canada, Part 15 is the only legal venue for an unlicensed person to broadcast; and it is cherished. This service is generally harmless and should not be discouraged.

Bruce Hammond
Columbus, Ohio

AM 'LOOPHOLE'

Recent discussion in Radio World has focused on license-free AM, including a letter from Robert Gossett about his perception of an "AM loophole."

Let's take a moment to look at the regulation under which most of these outdoor-mounted AM transmitters have been certified, namely Part 15.219. Examining the e-docket access, text-only version of Part 15 regulations from the Government Printing Office website, quoting verbatim:

15.219(a) — The total input power to the final radio frequency stage (exclusive of filament or heater power) shall not exceed 100 milliwatts.

15.219(b) — The total length of the transmission line, antenna and ground lead (if used) shall not exceed 3 meters.

The definition of the ground lead had been debated to the point where even I was curious. I actually posed the question to a couple of well-versed English professors at a university in Connecticut. Their expert opinions were that, as written, the structure or mounting apparatus to which the transmitter is affixed is not legally considered any portion of any ground lead and that only a wire lead itself was a ground lead, by definition.

There has been, however, more recent activity in enforcement targeting Part 15 AM operators.

In reviewing a sampling of Notices of Unlicensed Operation, I've seen instances where the inspecting agent apparently or inadvertently cites field strength tested against Part 15.209 alone — a regulation that is written strictly by a field strength definition. Part 15.219 does not have any field strength limitation associated with it, just the input power and antenna/ground-lead length limitation. I have seen other NOUOs where installations that should have been inspected against 15.219 apparently weren't.

Whether this is an oversight or an attempt to lessen use of these devices is something I have yet to ascertain. A legally knowledgeable operator could present a legal challenge if perceptive enough.

As we know, enforcement in this area usually is complaint-driven. Was it a licensed broadcaster having an issue with this particular AM operator? (There has been a Caribbean FM pirate operating with hundreds of watts on 106.5 in the Bridgeport, Conn., area for two years and it has yet to be shut down, yet enforcement actions are leveled against 100 milliwatt AMs. I attempted to contact the New York FM that is being interfered with; the engineer didn't return my call.)

In a Freedom of Information Act request, I was able to unearth the existence of a 22-page FCC document

that is used in inspecting such low-power AM devices operated by individuals. The document, however, was not released to me, on the grounds that its release would provide information to circumvent the regulations. This in itself suggests other "loopholes" that may not sit well with Mr. Gossett, especially if the discovery of such would allow legal operation of these devices with increased range.

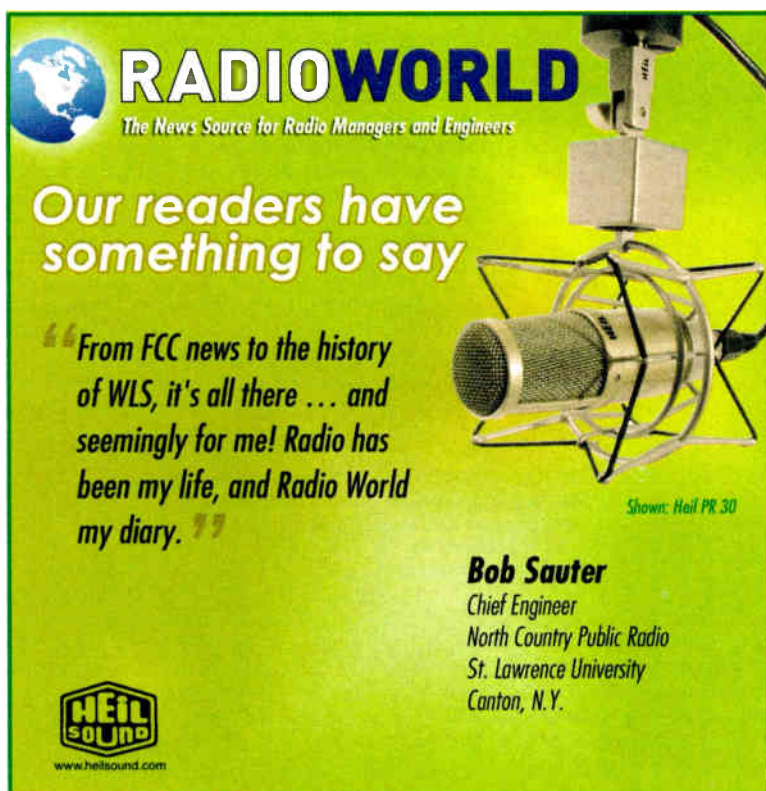
In discussing this topic, I get almost as many different answers as the number of engineers I ask. One or two are quick to whip out their NEC calculations, charts and graphs with a diatribe and a self-justifying black-and-white view of what they see as the only correct view. Others lean toward the view of my English scholars: "What is written is all you've got." Those people view the English definition of a ground lead actually being a wire from the ground terminal of the device to the point where the wire's end is secured, whether it's the mounting structure of the device or a ground rod driven into the earth.

Much to Mr. Gossett's chagrin, 15.209 does deal with field strength but only as an alternative to operation under 15.219. Many of my forum membership also operate campus-limited stations under Part 15.221, yet another regulation defined by a specific field strength dealing with AM band operations on the grounds of an educational institution.

But it's comical that anybody is all distressed about an AM signal of one-tenth of a watt. If a consulting engineer or even a licensed, full-power terrestrial broadcaster is so worried about a Part 15 AM "station" taking away audience, they have bigger problems. If they feel threatened by a signal whose ultimate building penetration is so poor, they really need to re-evaluate their station operation.

Bill DeFelice
Webmaster

CampusBroadcaster.net
HobbyBroadcaster.net
Fairfield County, Conn.




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North Country Public Radio
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Exploit Change, Don't Impede It

Barry Thomas Offers Perspectives for New Members of the SBE's Board

COMMENTARY

BY BARRY THOMAS

As I rotated off as a voting member of the SBE board of directors, I asked outgoing President Vincent Lopez for an opportunity during our fall meeting to share some observations from my time near and on the board, and as president. This commentary reflects the message if not the actual words read into the meeting minutes.

I'm extremely happy to see the large number of new faces joining the SBE board of directors. A vibrant, changing leadership is vital to the health and long-term survival of the SBE. Changes like this keep the society relevant and responsible to our chapters and members. I personally thank our board members and officers for stepping up.

In the past years, the SBE began to address some perceptions that were discussed at the last national strategic planning meeting and demonstrated during a later online member survey, including a disturbing perception that the SBE was disconnected from the individual member.

More than one national board member has observed a perception that SBE was about "BAS, EAS, frequency coordination and nothing else."

We've started some bold efforts to

make changes in recent years to concentrate our limited volunteer time, money and people on efforts that have attributable and, ideally, direct member benefit, and also to focus on battles the SBE could actually win ... and in doing so remind our members and our industry just how vital the SBE is to all of us.

The turning of this ship has been slow and sometimes painful. In the process I have made enemies of some people who were my inspiration, my teachers, my mentors, both in the business and in the SBE. This pains me greatly because these people have been close and important friends. Perhaps this is the price of helping the SBE achieve what its board chose to do and to ensure the survival and success of the society. Perhaps I will have to resign myself to that consequence.

SLOW CHANGE

The society started well before 2007 improving our public and industry face through increasing the level of member communication and improving the sophistication of our marketing efforts in order to educate our members and our industry about what we truly do.

Unfortunately perceptions change slowly. It's going to take years of educational programs, member outreaches and programs to make the impression stick. It will take all SBE members, not

just the faithful, to be the evangelists of what we are about, the purposes written on the back of our membership cards: supporting, educating and certifying broadcast engineers.

As our new board considers the society's current efforts and looks at new projects, I urge them to be careful and suspicious. Just because something should be done, or someone important asks, or even if we might be good at something, it doesn't mean we should be responsible for it.

As broadcast engineers we often are asked to do things for which we should

even to attract people to the industry.

The SBE's role is to provide exposure, support, education and a measure of the skills for the people who are in the industry.

We must certainly work to preserve the knowledge within our ranks by creating opportunities for mentoring and to sharing experience with new engineers ... but the industry will change, and its appetite for talent and skill sets will too.

Business puts its own value on the people that make it go. Be that good or bad, it's a truism in a capitalist economy. The SBE just needs to be the place technical media professionals come to learn, share and measure their abilities, and a place for the industry to find those professionals to solve their unique media engineering problems.

Our job as a society is not to find the next generation of engineers, to ensure our employment or even to attract people to the industry.

not be responsible. The effective engineer doesn't take on someone else's tasks to the detriment of his own. The society must be run this way. We must find that balance between providing "customer service" while making sure responsibility remains in the appropriate place and with the right people.

And never think that "because we've always done it" is a suitable reason to do anything. Our board members must make their own decisions based on what our members want and need. We as members must count on that.

The SBE is responsible, above all, to its members — not even to broadcast engineering or to the industry, except through the excellence and education of its members. We know the best way to benefit our profession and our industry is to fill both with strong, educated, experienced, engaged and involved SBE members. Through a succession of priorities — SBE members first, then broadcast engineers — we will improve our industry, the industry of mass media.

Don't seek to maintain a status quo, or try to slow or stop an inexorable or impending change, in the society or our industry. That is the path to irrelevance and ultimate loss, as many, many industries have learned. Our best purpose is not to impede change but to prepare our members to exploit it and build a better industry through informed, active participation.

OUR JOB

As much as we can see the problem and desire to solve it, our job as a society is not to find the next generation of engineers, to ensure our employment or

As the society takes on new challenges, remember this: We are volunteers.

Look at the list of the board of directors, committee and chapter chairs. Everything that the national organization does or will do is done by these people.

The seven professionals of the SBE national office staff, John Poray, Megan Clappe, Kimberly Kissel, Hannah Trowbridge, Scott Jones, Debbie Hennessey and Carol Waite, will amplify the volunteer efforts 10-, 100-, 1,000-fold, but the purpose of the national staff is to run the business of the society.

It is the job of the dedicated volunteers to guide the efforts and, more importantly, make progress in the strategic objectives of the SBE. If there is an objective that is important for society to achieve, it is yours as volunteers to make it happen.

During the summer of 2012, President Ralph Hogan is planning another national strategic planning meeting. SBE chapter leaders and concerned members should plan to attend and help set the course for the society for the next 5 to 10 years. If you cannot make the trip, at least make your thoughts known to the leaders of the national society. Contact either one of the directors or officers you may know or reach out to the board member assigned as a liaison to your chapter. All are surprisingly accessible. Their information is on www.sbe.org.

Thanks all for the many years as one of the leaders in this society. I am proud and humbled to have been a part of this.

Barry Thomas, CPBE CBNT, was president of the Society of Broadcast Engineers in 2007–2009. He chairs its Government Relations Committee.

READER'S FORUM

IS THERE A PROBLEM, OFFICER?

Awhile back, RW asked for reader experiences with remote broadcasts.

In October of 1975 I placed on the air a 3 kW FM station to supplement my daytime AM, partially in order to broadcast our winning high school basketball games. Our first game was 65 miles away; I was certain we'd have a large listening audience because few would drive that far and this was the first time the Wayne Blue Devils team would be broadcast live. Before that, we'd recorded games and played them back next morning on the AM.

For some reason, as I left the station this time I said to the announcer, "If we go off the air, call the sheriff." Why I said that I don't know. I had never said it before nor would I again.

We arrived at the gym, found our phone line and started broadcasting, after having talked to the studio operator to confirm that all was well. Of course, we could not hear my little 3 kW station ourselves, 65 miles away in the gym.

Hmmmm, approaching halftime, two deputy sheriff officers walk into the gym, straight to our broadcast booth. Yup, we had been disconnected, and my off-the-cuff remark about calling the sheriff turned out to be a godsend. We redialed and were back on the air.

Another time we were cut off in the middle of a big game in Ukiah, Calif. It seems someone in the San Francisco office of the phone company decided that all the connection plugs should be pulled before he went home. It took awhile before we found someone at the phone company to plug us back in again.

*Ted Storck
Surprise, Ariz.*

READER'S FORUM**A VOTE FOR WAVEPAD**

I was using Audacity ("These Tools Won't Break the Bank," Oct. 5) at work to produce audio clips for the Internet, but when I got a new computer for my home studio I discovered I needed something a little more sophisticated.

For one thing Audacity doesn't use a mouse scroll wheel to zoom in and out, and I do that a lot when editing my syndicated radio program. So I did a quick Internet search and stumbled onto WavePad, by NCH Software, an Australian company.

It wasn't free, like Audacity, but it didn't cost much, around \$39; and it was money well spent because it's the easiest, smoothest and simplest audio editor I've ever used.

Gordon Govier
Scribe Media
Monona, Wis.

A CLOSER LOOK AT AUDACITY

After reading Curt Yengst's article I felt compelled to write to clear up inaccuracies in his assessment of the Audacity audio editing shareware program.

He writes, "The editing was nowhere near as easy or precise as the others. In fact, any cuts in an audio track automatically ripped; meaning the audio to the right of the portion being removed is butt-spliced to the audio on the left of the edit. There's no way to defeat this."

This statement is correct, at least in part. However, as an everyday user, I have found other methods that make Audacity one of the most useful tools in a producer's audio arsenal.

To avoid the pitfalls of the "ripped butt-splice," one can select the Split Cut feature from the Edit section of the toolbar, after a portion of audio to be excised is selected. Once Split Cut is clicked, the corresponding section of audio is removed (and placed in a buffer for pasting to any audio track or point in the timeline elsewhere), and the edited original track is cleft in twain with two separate, "movable" portions of audio created to either side of the edit and a clear "gap" remaining where the edit was performed.

This allows the audio timeline to be "slid" to wherever the editor chooses using the Time Shift Tool, and other portions of audio can even be inserted into the gap, allowing the editor to butt them up against one another if desired.

Also, wherever Split Cut or even the even easier Split edit commands are used, Audacity will allow different audio tracks to be butted up against "split points" in other tracks seamlessly (again, with the Time Shift Tool) and it shows the user graphically during the edit by illuminating the edit

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STUDIO SESSIONS

These Tools Won't Break the Bank

Curt Considers Three Final Dirt-Cheap (or Free!) Audio Editors/Samplers

BY CURT YENGST

If it's possible to produce professional audio without blowing your entire engineering budget for the year...

Free — Audacity

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

Free — iK Multimedia Sample Tank

If you've already got an audio editor but you're looking for something just to create music or some fun "ringtones" Sample Tank is a free download...

Free — iK Multimedia Sample Tank

If you've already got an audio editor but you're looking for something just to create music or some fun "ringtones" Sample Tank is a free download...

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

Sample Tank cannot be used until the Authorization Manager, a separate program which keeps track of what programs you have and whether they are properly registered...

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

No what's the best value among our contenders? Well, based on price, you can't beat Sony. As it happens, it's free. The lack of effects and processing, however, might be all putting the woe...

point with a yellow line to indicate the unbroken integration between audio tracks.

Further, Mr. Yengst states in the article that there is "no way to record additional audio onto existing tracks" and that "MP3 encoding requires a separate download." Both statements are incorrect.

I have used the Audacity platform on machines running Windows XP and Windows 7, and both versions utilize an "append record" feature that will record audio onto the end of existing tracks simply by holding the Shift key on the user's keyboard and clicking the Record button with the mouse. These after-the-fact bits of audio can then be copied and inserted into the track timeline anywhere the user chooses, moved about using the Time Shift Tool, thus giving the user virtually unlimited editing flexibility.

As for MP3 encoding, there are options under the File/Export section that allow the user to select his or her chosen encoding and output method. "MP3 file" is among the many choices.

Dean R. Amsler
CEO/President
MadKid Media
Rochester, N.Y.

Curt Yengst replies:

I was surprised to see that I had apparently missed several features of this program so I went back and tried it again. I still could not find them. I checked the Help file, to no avail.

Finally I went back to the download site and realized the cause of the discrepancy. I had been evaluating an old version of the program. I had somehow gotten version 1.2.6. When I downloaded the latest version, 1.3.13, and ran it ... wow! What a difference. All the features you mention were there, and then some. I was very impressed, considering the program's low price (nothing). I also was relieved, as your note had me thinking I was losing what few marbles I have left.

My humblest apologies to you and other fans, and especially to the makers of Audacity. They've done a fine job, and the program definitely is worth a try by anyone looking for multi-track production on the cheap. Thank you for taking the time to straighten me out.

The moral? When using or evaluating software, make sure you have the latest version.

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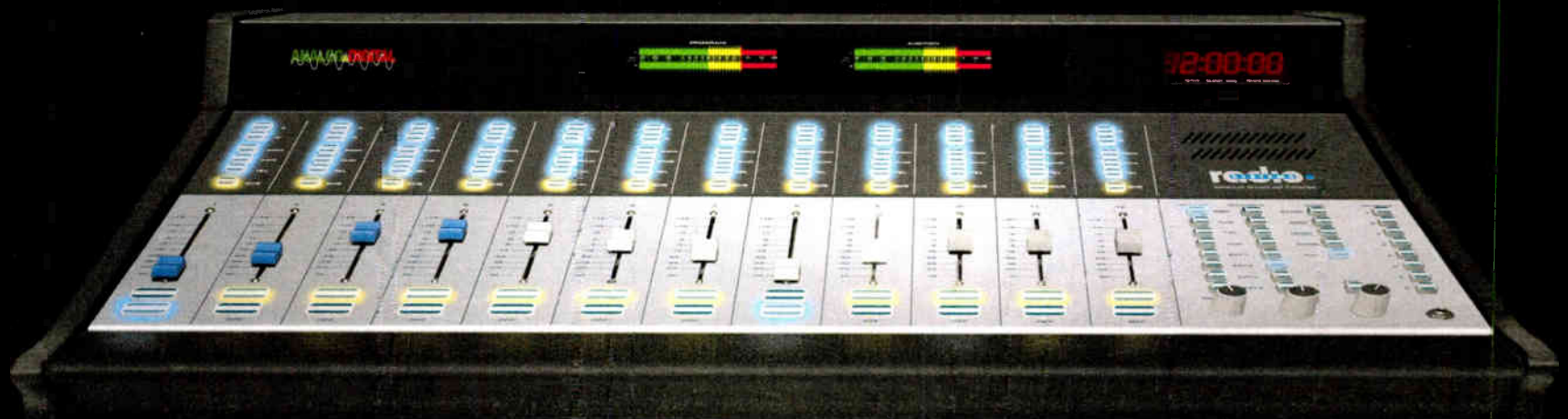
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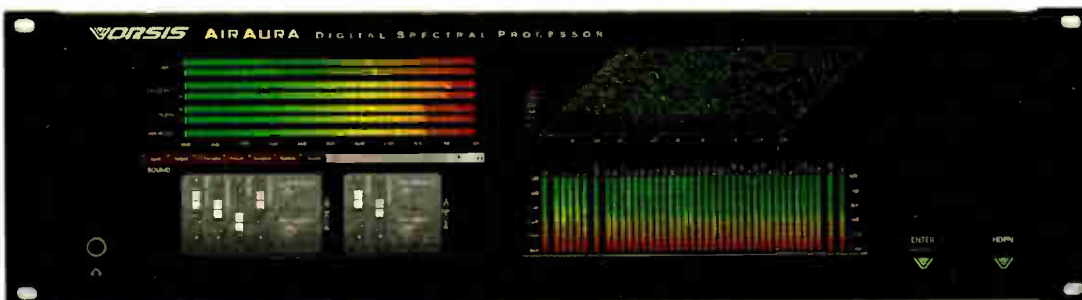
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