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Page 18

The Broadcast Engineering Conference will explore "advanced media topics" such as single-sideband suppressed carrier; modulation-dependent carrier level control; EAS Text to Speech; how to build affordable video facilities for radio; and methods to help you evaluate tower anchor failure risk and the total cost of transmitter ownership.

Beasley: Revenue May Be Fragile, But Industry Is Strong

A Pre-Show Conversation With the Chair of the NAB Radio Board

NAPLES, FLA. — Caroline Beasley has a front-row seat not only in radio's business activities but also its lobbying efforts.

NEWSMAKER

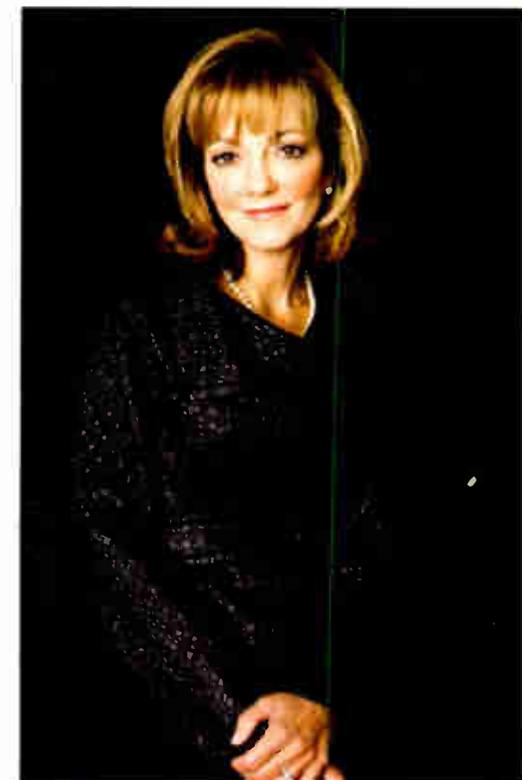
Beasley is executive vice president, chief financial officer, treasurer and secretary of Beasley Broadcast Group Inc., founded by her father, Chairman/CEO George G. Beasley, in 1961.

Caroline, 49, has played a big role in shaping the Naples, Florida-based radio group. She joined the firm in 1983 and has held various finance positions at the station and corporate levels. The company went public in 2000. Today it owns and operates 42 stations (26 FM and 16 AM) in 11 large- and mid-size markets.

Taking an industry role beyond the company, she has since 2005 been a member of the NAB Radio Board and has risen to become its current chair. She's a face of the radio industry in Washington, prominent in how commercial radio expresses its business and regulatory objectives.

Radio World News Editor/Washington Bureau Chief Leslie Stimson spoke with Beasley about the economy's impact on radio, how the medium can remain relevant in the dashboard, HD Radio and the industry's lobbying priorities.

RW: How would you characterize the health of the commercial radio industry?



Beasley: Radio as an industry is strong. When you look at the recent research, it indicates that listenership is at all-time levels. And 93 percent of the U.S. population listens to radio.

In my opinion, these facts represent a healthy industry; however, the business is fragile. Our current state of revenue

(continued on page 5)



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NEWSROUNDUP

ONLINE FILES: NAB says the FCC doesn't have authority to force broadcasters to place their political files online. Congress, the association said, required the Federal Election Commission to place certain election-related records on the Internet and make those accessible to the public. Without more legislative action, the FCC lacks authority to impose a requirement on broadcasters, according to NAB, which commented in a filing. It opposes an FCC proposal to require TV stations to place public files online. NAB, which worries the concept also could be applied to radio, argues the change would be burdensome and duplicative.

TRAFFIC: Cumulus Media plans to start a traffic reporting service in April. Initially, its own stations in the top 75 markets would use Right Now Traffic, but the service also will be offered to non-Cumulus stations. Radiate Media will provide much of the data;

JELLI ANDROID APP: Jelli says its offerings "combine group listening with game mechanics, to make radio more social and fun." Now the California-based social music service has rolled out an Android app. Features include unlimited listening; a chat room; voting for what plays next; and "Rockets" that users can apply to give a favored song a boost. Jelli says FMs in 20 markets also are playing its content live, with listeners influencing the song selection. Jelli is also available on iPhone and Facebook.



LPFM: At least one low-power FM proponent says the FCC should not forget about the possibility of licensing 10-watt stations, especially in urban areas, in addition to the 100-watt power level. As the FCC prepared to tackle FM translator and

commission to assess the economic impact of its proposed rules and identify any market failure, consumer harm or regulatory barrier to investment before adopting any economically significant rules. The FCC awaits approval of the Office of Management and Budget before its new rules affecting tall towers go into effect.

IEEE: The Institute of Electrical and Electronic Engineers' Broadcast Technology Society issued a call for papers to be presented at the organization's annual fall symposium. Abstracts are invited from broadcasters, technology developers, researchers, service providers and equipment suppliers. The deadline for abstracts is May 15. The IEEE is also seeking proposals for half-day broadcast technology tutorial sessions that will be part of the organization's symposium event. Potential presenters are asked to submit 500 to 1,000 word abstracts via e-mail to bts@ieee.org.



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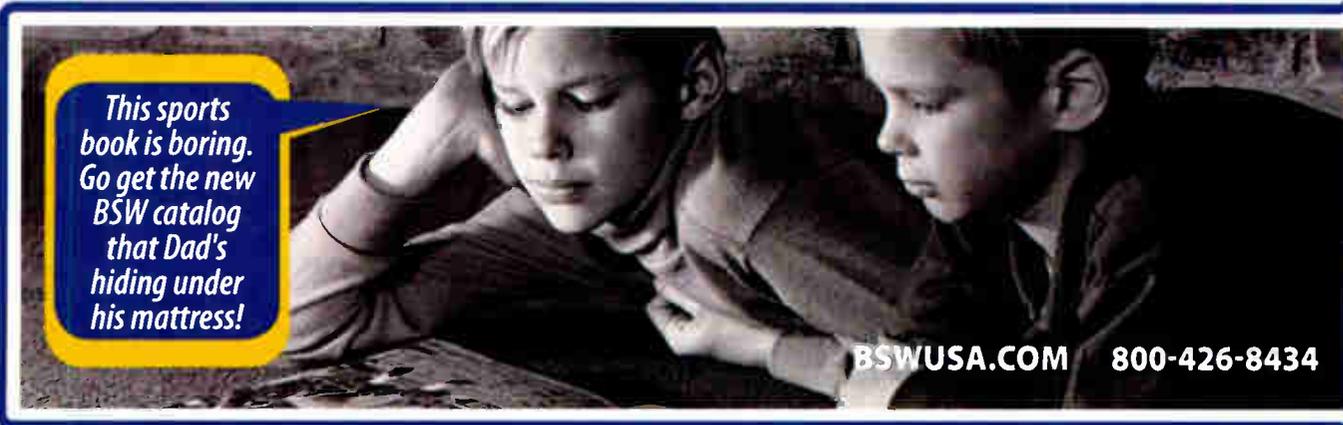


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RADIO OWNERSHIP: Relaxation of local ownership rules is long overdue, at a time when traditional radio is competing for audience and advertising against Internet audio services, satellite radio and audio programming delivered on a plethora of mobile devices. So says NAB. Media advocacy groups disagree, saying the commission should leave limits in place or tighten them. When Congress passed the Telecommunications Act that contained radio's new ownership limits in 1996, far less competition existed, NAB argues. The trade group says the local radio ownership caps and AM/FM subcaps must go. In markets with 45 or more stations, the rules limit a single entity to owning eight commercial stations; no more than five can be in the same service (AM or FM).

LPFM licensing issues in March, the Amherst Alliance reiterated that it supports possible licensing of 10-watt LPFMs. Amherst Alliance President Don Schellhardt wrote in a letter that the alliance does support 250-watt LPFMs too.

BIRDS VS. TOWERS: Another shoe dropped in the commission's plan to balance the needs of tall towers with the safety of migratory birds. More than 30 companies, including tower owners and clients, are challenging the FCC's decision not to provide a safe harbor from new tower rules for structures 350 feet or below. They say this decision burdens small businesses and does not take into account the harsh economic climate. The tower companies argue in a petition for reconsideration filed by law firm Blooston, Mordkofsky, Dickens, Duffy & Prendergast. They say legislation is pending in Congress to require the

DIGITAL ADVERTISING: Responding to audience interest in streaming and HD Radio, Donovan Data Systems, an advertising technology company, said it is automating its spot media-buying system so that agencies can more easily evaluate and buy airtime on streams and HD Radio stations. DDS said it had help from the RAB, radio rep firms Katz Media Group and MFS, as well as media sales software provider STRATA. It implemented a call letter format for identifying HD multicast and streaming radio stations. That means agencies can see Arbitron ratings for streams and HD stations. Advertising proposals, orders and invoices for these stations can be processed as they are for AM and FM stations, says DDS. The announcement comes as HD Radio multicast stations are showing up in Arbitron ratings, in part because many of those multicast stations are rebroadcast on analog FM translators.

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Radio World Editorial Staff Expands

Some Changes and Growth to Tell You About at RW and NewBay

Working for a broadcast trade publication involves its own unique skill set.

Some of us are “radio people” who find ourselves working in non-broadcast media. Whereas we may have grown up with the idea of working in a station, we have had to adapt to writing for print and the multimedia formats of the Internet. Some are technologists who have had to learn about publishing; others are journalists who have had to learn about radio and broadcast technology. You can't do the job right without both journalism and technology expertise.

I enjoy the various personality types drawn to the task, yet our editors tend to share certain traits. They're bright, they're curious. They like learning, and having new challenges each day. They enjoy passing that information to others.

I mention all this because I have some editorial changes at Radio World to tell you about.

First we say a fond adieu to our long-time colleague T. Carter Ross, who served NewBay Media and IMAS Publishing for 18 years, most recently as editorial director of our division's broadcast publications and editor in chief of Radio World's international edition.

Carter has contributed to the success of Radio World in important ways, many of which are not immediately apparent to U.S. readers. Carter leaves the industry for another opportunity but will stay on as a valued free-

lance contributor (he wrote about trends in global digital radio in our March 14 issue). Carter, *laissez les bons temps rouler*.

With his departure, I take on the title of broadcast editorial director while retaining that of editor in chief of Radio World.

That means in addition to continuing my editorial leadership at RW (16 years this summer!) and RW Engineering Extra, I now have a management role in Radio World International, Radio World América Latina and Radio World édition francophone, as well as our sister publications Radio magazine; TV Technology and its international siblings TVT Europe and TVT Asia/Pacific; News Central; Government Video magazine; the NAB Show Daily News; and the electronic newsletters and special projects that those publications include.

The strong team of veteran editors who lead those titles continue to do so. They include Tom Butts, Mark Hallinger, Terry Hanley, Michael LeClair, Deborah McAdams, Rogelio Ocampo, Chriss Scherer and J.J. Smith. And I remain very much involved in Radio World itself.

I'm delighted to report that Marguerite Clark



Radio World International Editor in Chief Marguerite Clark

returns to NewBay Media, becoming editor-in-chief of Radio World International and executive editor of TV Technology Europe.

Marguerite most recently worked in public relations for Wall Street Communications; prior to that she was editor of Radio World International for 12 years. Based in Paris, she's a veteran of the international broadcast scene, a multi-lingual communications professional with “feet on the ground” in Europe.

(In fact NewBay has made several other moves in Europe, where the company sees opportunity and is committed to building further.)

Meanwhile, the staff of Radio World's U.S. edition — the one you're reading — also expands with the addition of Alexis Hauk as associate editor.

She joins us from The New Bedford Standard-Times, where she was a features writer. Alexis also has worked at the Fund for Theological Education and The Anson Record, freelanced for the Boston Phoenix and interned at the Carter Presidential Center. She holds a bachelor's of arts in English, creative writing and Italian studies from Emory University, as well as a masters in publishing and writing from Emerson College. She'll be based here at our Washington-area regional headquarters.

FROM THE
EDITOR



Paul McLane

Alexis brings the number of editors who produce Radio World to four, including News Editor/Washington Bureau Chief Leslie Stimson, Gear & Technology Editor Brett Moss and myself.

Our editorial department also features the creative work of Karina Gerardi, James O'Neal, Erin Shipps and Brian Smith. All told, we're an editorial staff of 16, not counting many talented freelancers, columnists and advisers — a superb team of smart, hard-working people with a unique blend of technology, journalism and international experience.

Most of us will be at the NAB Show. If you attend, say hi.

As a manager, I value change when it's productive. Yet I like to come at it from a foundation of stability. Some organizations seem to advocate change for its own sake, a mindset that, in my view, often undercuts stability and can lead to chaos — or at least a great deal of unnecessary effort.

The stability and professionalism that have been hallmarks of Radio World and its sister editorial publications over the years are points of pride for me and my colleagues. But this is *your* publication. I always want to hear from you — about how we might improve RW and better help you in your job and career. Write to me at radioworld@nbmedia.com.



Former Broadcast Editorial Director T. Carter Ross, doing his best Hunter S. Thompson.

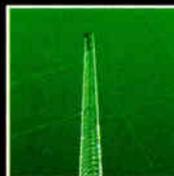


Radio World Associate Editor Alexis Hauk



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BEASLEY

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is fragile because of our economy and because radio advertising is discretionary. Radio is very much tied to the economy. So, as our economy continues to improve, our business will likewise continue to improve.

Over the last couple of years, the industry has grown. In 2010 radio revenue increased 6 percent. Last year it was up 1 percent. If you factor out political from both of those years, you'll see that radio is kind of the GDP-ish-type industry. I go back to the fact that, overall, the industry is strong, however the current state of business, in terms of revenue, is fragile.

RW: Ford Sync, Toyota Entune, Buick IntelliLink — the introduction of these systems means radio is becoming one of many, many choices in the dash. How generally can radio compete with other media in the car?

Beasley: We do have more and more media to compete with; but I think that if we do what we do best, what we're known for, then that's how we compete. And that is delivering good, local content. We also need to be able to adapt and change to all of the technological advances in today's environment.

We need to be on a number of different platforms. We need to respond to what our listeners want; and we need to be able to follow them anytime, anywhere. But at the end of the day, it comes down to content. I think as long as we are delivering good local content and we're able to follow our listener, then I think we'll be able to compete effectively.

RW: Internet personalized audio services have been getting a lot of press. Pandora specifically is hiring people to sell against radio in local markets; some of those salespeople used to work in commercial radio. How can commercial radio combat the phenomenon?

Beasley: I go back to your earlier question; it's by delivering good, local content. Pandora does not do that. As long as we do that, I think we will be able to compete with Pandora, with the other media that's in the car or on your laptop or wherever. It's our product; it's our content.

RW: And they're saying, "We want to be number one in your car, home ..."

Beasley: This is from my perspective: I really don't see them any different than, say, the perspective of satellite radio years ago. Everyone was very fearful of satellite radio; that they were going to overtake local radio. That didn't happen.

There is a place for Pandora in the marketplace. I don't think that they're

NEWS

going to come in and overtake commercial radio.

RW: Bob Pittman, chief executive officer of Clear Channel Media Holdings, has said commercial radio has let these personalized Internet radio services get away with calling themselves radio and that they should not be called radio. He likens them to personalized jukeboxes.

Beasley: I agree with Bob Pittman that these services are not radio as you know them or I know them; and I agree they're a jukebox. They are a music delivery system. They have no personality; there's no connection with the listener. Radio, on the other hand, it's a lifestyle, it's entertaining, it's engaging, informational. There's a level of interactivity between the listener and the DJ and the radio station. ... You can tell I'm very passionate about the subject.

RW: Has Beasley thought about partnering with Clear Channel on iHeartradio?

Beasley: I think it's important that radio

comes together as an industry in terms of this. So yes, we've given thought about partnering with Clear Channel on iHeartradio. Because I think it's important for us to be where our listeners are, whether that's iHeartradio or another platform.

We have not made a decision, but yes, it's something we would like to be on. We would like to be on all the competitive delivery platforms in the marketplace.

RW: Switching to your role as chair of the NAB Radio Board. You've had several board roles over the years, including a stint as the head of the former NAB HD Radio Technology Advancement Task Force. What is your interaction like with NAB President/CEO Gordon Smith?

Beasley: Gordon is one of the finest and most intelligent people that I have ever met, and the industry is very lucky to have him leading the helm at the NAB.

Honestly, I speak with him quite a bit, and on a personal level I would love just nothing more than for my kids to

(continued on page 6)

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BEASLEY

(continued from page 5)

be able to sit down in a room and just speak one-on-one with him so that he can share his wisdom. ... John David, the EVP of radio, we are so lucky to have him as well; because he looks after radio's interests every day. Over the last couple of years, I've worked closely with John. ...

[A]s far as the NAB itself, it's an important organization; and if you're not a member, you should be. Because this association, they advocate for our interests every day, all day, on the Hill and at the FCC. It's mind-boggling to me the number of groups that are out there who are constantly going after radio or TV.

Steve Newberry is still involved with the NAB, as he is past joint board chair and attends all the board meetings.

RW: What is the NAB AM engineering study? Kevin Gage, NAB's executive vice president and chief technology officer, told me earlier this year the gist was to give AM stations technical options.

Beasley: The study outlines a number of different options regarding the future of the AM band. The study did not make any recommendations. It just outlined

various options and it was to serve as a starting point for the NAB.

We have formed an AM Task Force that will be reviewing this study, along with the Radio Technology Committee. That committee is made up of engineers from the various groups around the country. So the AM Task Force, along with the Radio Technology Committee, will review the study and then report back to the board with the options that they feel that we should go with regard to AM.

Kevin Gage will oversee the task force.

RW: Would this all happen before the show?

Beasley: No, I do not see this happening before the show. It's a lengthy report and it's an important topic, so they really need to spend the time to go through it, and there could be various studies that will have to occur that will result from this study.

RW: Can you talk about some of the options they're considering?

Beasley: No, I can't. It's a confidential study.

RW: What is the future of AM? I've had engineers say to me to look for a selloff in the next few years, not of major high-



Caroline Beasley says, 'As long as we are delivering good local content and we're able to follow our listener, then I think we'll be able to compete effectively.' She is shown at the fall Radio Show.

power AMs but among the smaller stations, because they're more expensive to maintain vs. the revenue they bring in.

Beasley: You're right, so that brings us back to why the study was commissioned by NAB. We know that there's concern about the viability and the future of AM so we want to be proactive here.

RW: Are you personally worried? Beasley has AMs.

Beasley: Yes, but ... they're primarily brokered programming. That's low-cost, high-margin-type AMs.

I am concerned. It's one of those things that keeps me up at night. I think this is something five, 10 years down the road, so hopefully, it's something that we can address — for these niche, programming-type formats that are on the AM band.

RW: The FM chip topic seems to have gotten new life recently. An NAB staffer wrote a blog with NAB renewing its call for wireless companies and handset manufacturers to voluntarily integrate an FM chip or enable the chip that's already in their devices. Why is now the time to push for that and how is the effort going?

Beasley: It's going well. I think the timing now may be because of market-driven sources, if you will. Wireless companies are cutting back on offering their unlimited plans, so it might be a normal transition for the industry. And with us being able to provide HD-enhanced user experiences on mobile devices — I think that's something that the wireless companies may have been looking for, so we're responding on the technology side.

A little over a year ago NAB FASTROAD approved a project with Intel, iBiquity Digital and Emmis Interactive.

[BIA/Kelsey also has a role.] Intel is working on the chip that would be integrated into a smartphone. Which is what we were talking about; we need to be in mobile devices.

There would also be an enhanced HD app. That's going to be showcased at the NAB show. This app plays into the interactivity that we were talking about, showcasing Artist Experience, Advertiser Experience — all the exciting things that you can do with HD on your cellphone, this app will be able to do. [A press conference related to HD Radio and smartphones is slated for Monday, April 16 at the NAB Show.]

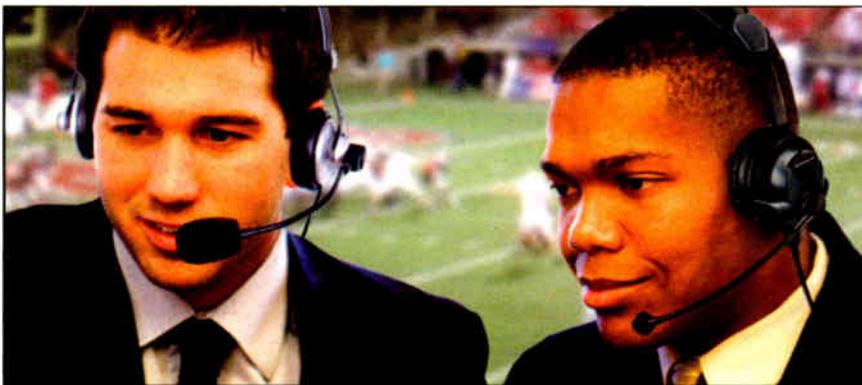
RW: HD conversions in general have slowed. What do you think can be done to spur more interest in converting?

Beasley: I think it's down because of the economy; and it's not an insignificant dollar amount to convert to HD. You had that factor; and then you had not a lot of penetration into the marketplace of HD receivers. That is improving with the number of announcements from the car manufacturers and whatnot, so we're seeing that increase.

But then you also have to be able to monetize this. And radio has not been able to monetize this to date. So it's been a little economy; chicken and egg as far as receivers; monetization — all those factors have played into not as many digital conversions over the last three years or so.

We were talking before about the wireless companies and FM or HD coming to wireless mobile devices. I think that the offerings that are available from HD, Advertiser Experience being one, allow us to be able to monetize this product. I'm actually very excited about HD Radio today compared to two or three years ago. I was excited then, but

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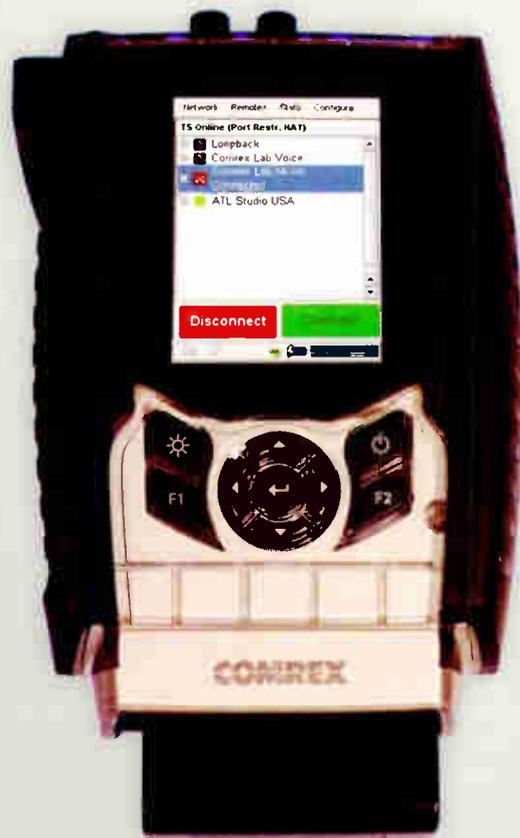
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now we see an avenue to actually really generate some dollars.

If we're able to get the HD Radio chip in the mobile devices, then I think that would be very, very significant. And I think that you would see more stations convert to HD at that point.

RW: Beasley has two AMs and 15 FMs converted to digital. Have any of your FMs increased their digital power?

Beasley: We have five FMs that have increased digital power or are in the process of increasing their digital power. We'd like to focus on the larger markets first.

RW: Beasley had announced plans awhile ago to implement the "Advertiser Experience." How is that going?

Beasley: We're ready to roll that out, and we need more receivers in the marketplace to be able to sell that. It's pretty exciting; you're bringing pictures to your radio.

Advertiser Experience is offered at one of our stations, KCYE(FM), in Vegas right now. You'll be able to see that out in Las Vegas during the NAB Show. Additionally, WXTU(FM) in Philadelphia and WKIS(FM) in Miami



Photo by Debi Pittman-Willey

The company may now be publicly held but it's still a family affair. Caroline Beasley, right, is executive vice president and chief financial officer. Also shown: Bruce Beasley, president; Brad Beasley, vice president and market manager for the Southwest Florida market; George G. Beasley, chairman and chief executive officer; Brian Beasley, executive vice president of operations. The December event marked the company's 50th anniversary.

are ready. We just need the receiver penetration in the marketplace; iBiquity is doing a great job of making sure that happens.

RW: For your Advertiser Experience

implementation, you're making a distinction from Artist Experience. Is it album art for the ads? And it still works the same way where the software has to look ahead into the automation system and see what ad is going to be playing and then match up the art to that and have it all ready to go?

Beasley: Exactly. We're using Jump2Go technology and also Que, that's the insertion system [for both Advertiser Experience and Artist Experience].

RW: Is the idea behind it that you can charge more for these ads?

Beasley: Absolutely. This is the way to monetize it. It's very exciting.

RW: It's a more engaging ad ...

Beasley: Yes, and if you're on your cellphone or whatever device, you can have options on the ads to click for coupons and then you're going back and forth, toggling between using data from the wireless companies to using your HD Radio. It's a win-win for the wireless company and the radio stations because you're using both.

The interactivity that would be allowed between the listener and the radio station, and the technology that you would use, circles back to why getting HD Radio in cell phones or mobile devices — why this might be a market-driven force, because of spectrum and the unlimited data plans going away. But you're also able to use the data plans now because you're having interactivity between the listener and the radio station that you can listen to the music over the FM HD chip.

RW: Regarding Mission Abstract Data,

Has Beasley been approached to pay a licensing fee for the automation patent?

Beasley: We are one of the defendants in their suit against a number of broadcasters. That's really the only thing I can say in that regard.

RW: What is Beasley's biggest challenge at the moment?

Beasley: Our biggest challenge is the economy. Driving local; and if the economy stabilizes, then many of our other issues will be resolved.

RW: How many engineers does Beasley have? I know VP/CTO Mike Cooney heads the department, but how is that structured?

Beasley: We've got Mike as our CTO. Most markets have at least one engineer on staff. However there are some markets, rather than have an engineer on staff they may have a contract engineer. We do have a couple markets where the chief will oversee a smaller market that's adjacent to their market. For example in Philly, we have our chief engineer there, but he also oversees our Wilmington [Del.] station; and we have a contract engineer at our Wilmington station.

RW: So on average how many stations is each engineer responsible for?

Beasley: It depends. Here in Fort Myers, we have five stations and one engineer. In Philly, we have four stations and one in Wilmington, so that would be five.

It depends on the market. They have their plate full.

RW: I realize you're in a family business. Did you hear about radio all the time growing up?

Beasley: As a child our summer vacations were actually going to visit radio stations. We grew up in North Carolina. So when we were going to Florida we would stop at every radio station along the way. My dad would just go in and start talking to whoever was there. We definitely grew up in radio. That's a very vivid memory that all of the kids have, just stopping at radio station after radio station.

RW: How did you eventually get involved?

Beasley: It's what I always thought I would do, go to college and then come back and work in the business. That's what I did.

RW: What kinds of jobs did you start out doing?

Beasley: When I was in high school my mom was the traffic manager at the local radio station. I would go in and help her do the logs. Then I went to college and came back and started working in the corporate office.

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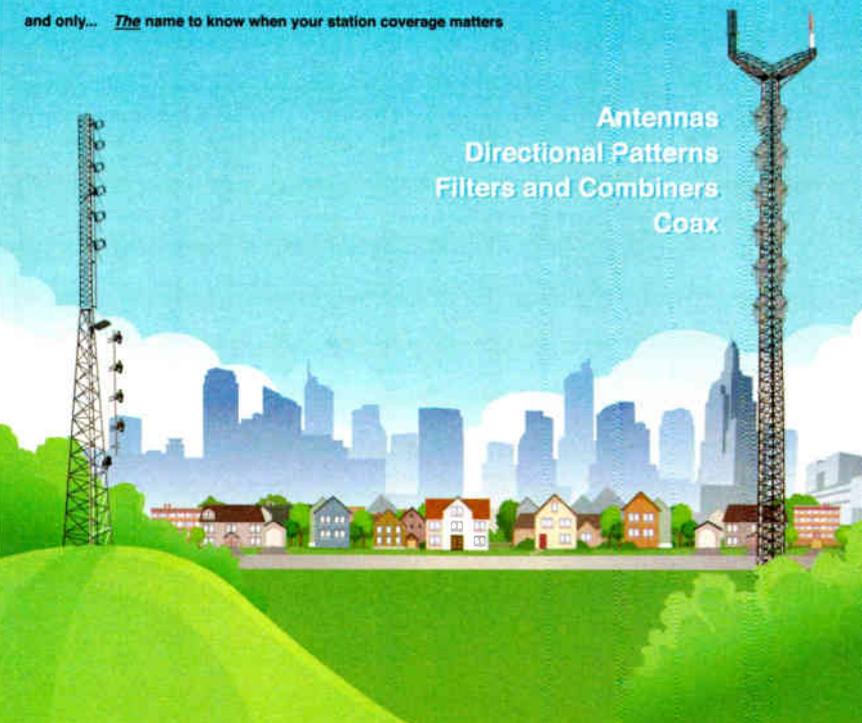
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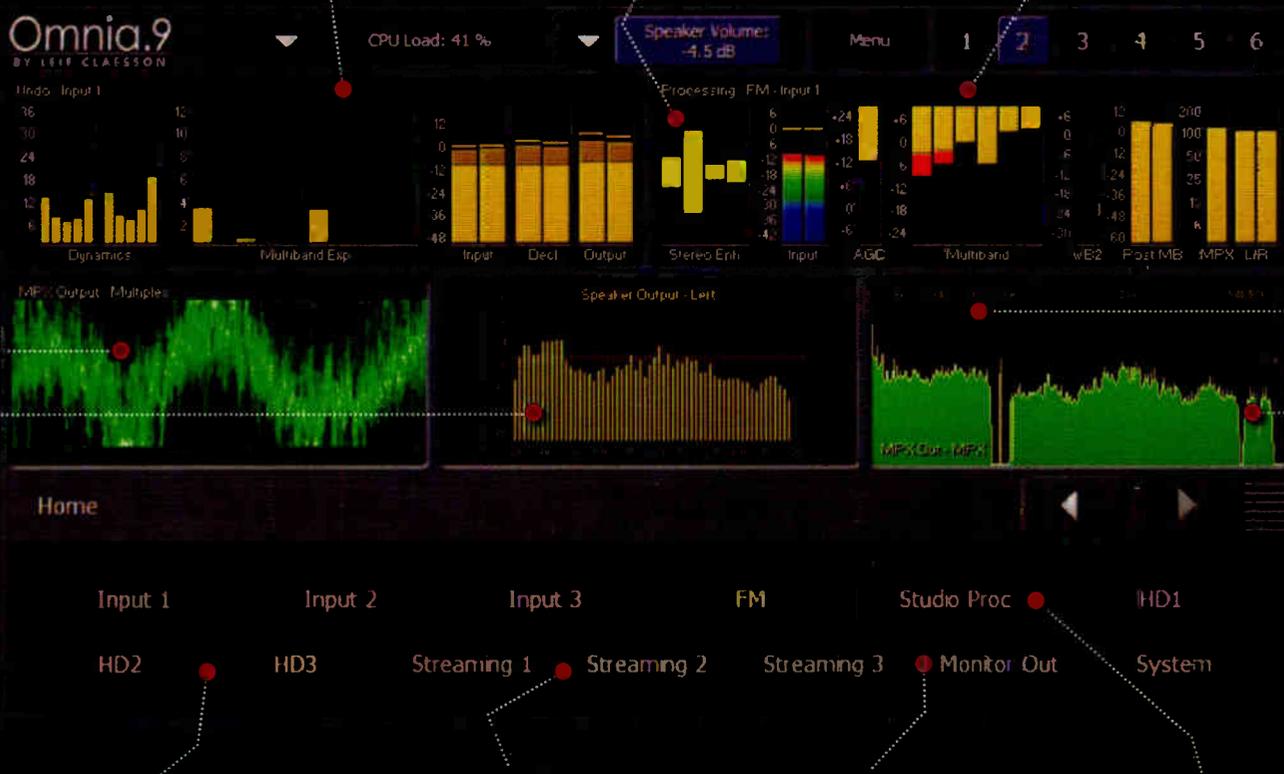
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More stuff. Less space.

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'Wet Paint' Controls the Crowd

Keep People From Trying to Sit on Your Stage or Risers at a Remote

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

Former Editor in Chief of Radio World International T. Carter Ross attended the annual meeting of the National Asphalt Pavement Association. He noticed something *Workbench* readers could use.

yet effective way to discourage people from getting too close. It works best if the surface is clean enough to look like it was freshly painted. The videographer told Carter that if signs aren't enough to discourage people, he has on occasion spilled a little water to add to the effect.

Carter included a link to a downloadable, printable "wet paint" PDF. We've saved it for you at the Radio World links page: radioworld.com/Mar-28-2012.

Project engineer and consultant Tom Osenkowsky recently was called in to troubleshoot a Harris FM3.5K transmitter. It was off the air and multiple front-panel fault LEDs were illuminated. The numerous faults made no sense.

Tracing the path through the transmitter to the controller connections on terminal board E2, Tom found several intermittent contacts.

Fig. 2 shows the E2 terminal block and the terminal board pins that solder to a board below the terminal block. A close-up of the intermittent solder contacts is shown in Fig. 3.

Tom theorizes that because the block is in proximity to the blower motor, constant vibration may have caused the solder connections to become brittle and the pins intermittent. In any event, Tom replaced the block and the problem was solved.

Reach Tom Osenkowsky at tosenkowsky@prodigy.net.

Cumulus Youngstown Market Chief Wes Boyd comes up with great tips

it on to Wes.

You'll find the link at Radio World's new links page for this issue. Go to <http://radioworld.com/Mar-28-2012>.

Tedd is editor of the Ohio/Penn DX Bulletin and can be reached at kb8mw@barf80.nshore.org.

(continued on page 14)



Fig. 1: A 'Wet Paint' sign keeps listeners away from your risers. Use the Radio World link to download and print your own.

The videographers found what seems to be a dead-simple solution to the problem of people climbing on a riser where a camera was positioned: Wet Paint signs.

These could keep people from trying to sit on your stage or risers at a remote, where talent and equipment might be in close proximity to a crowd. It's a subtle

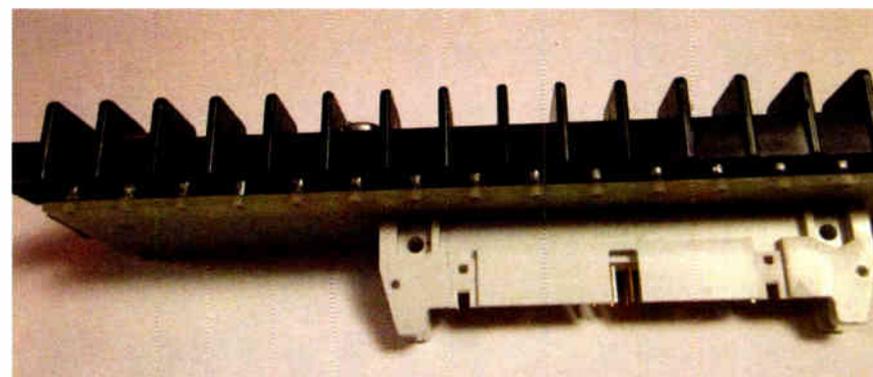


Fig. 2: The E2 terminal block in the FM3.5 transmitter is soldered to a board that interfaces to a ribbon connector jack.



Fig. 3: Closeup of the pins where they pass through the board and are soldered on the bottom.



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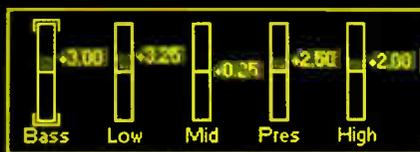
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Jack Wagner at KHUB

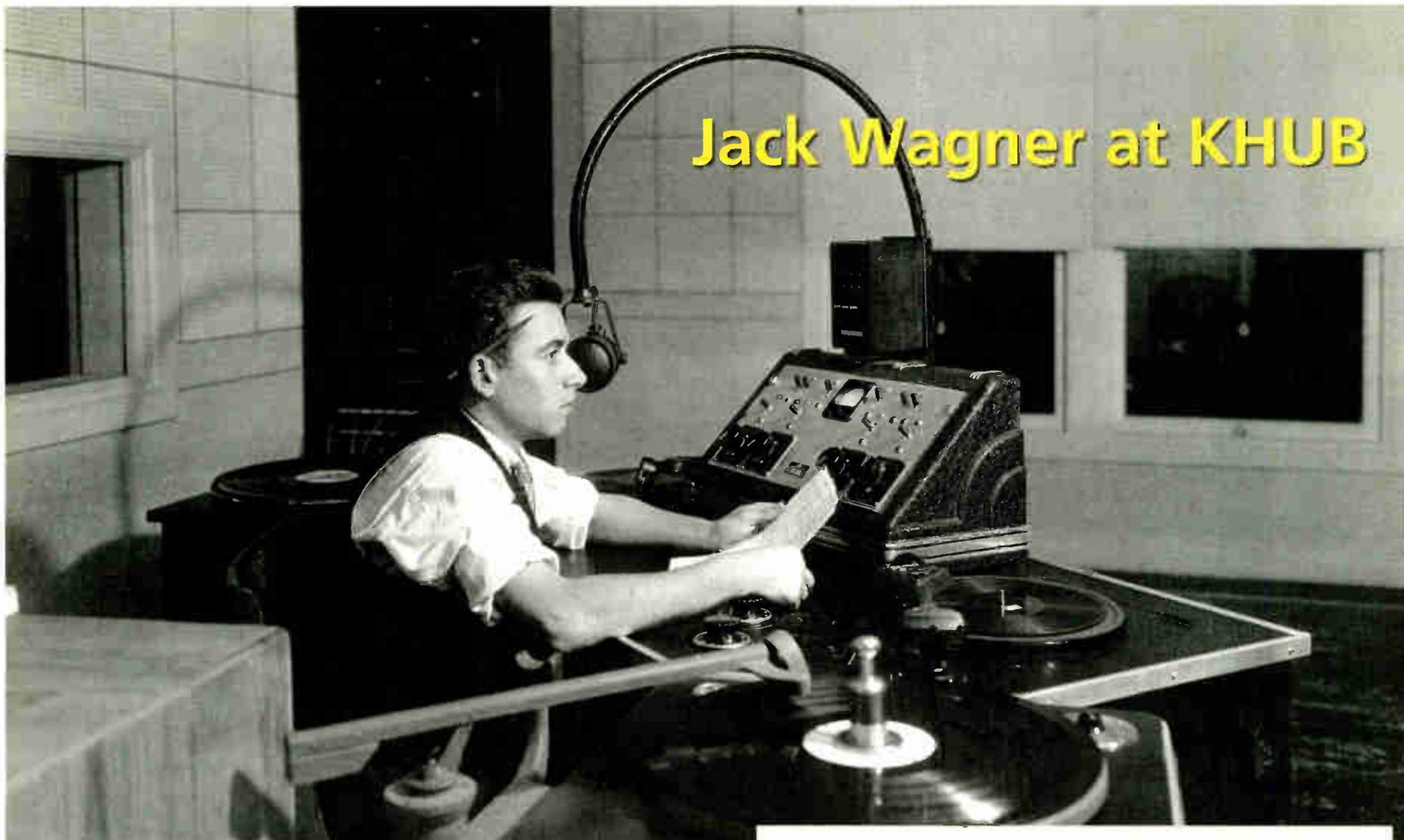


Photo courtesy: Mike Adams/Wagner Collection

BY JOHN SCHNEIDER

Small-town radio has always been the place where aspiring young radio announcers “develop their chops.” Here we see young John “Jack” Wagner developing his at KHUB Watsonville, Calif., in 1937.

ROOTS OF RADIO

Wagner majored in radio engineering, speech, English and dramatics at San Jose State College in the 1930s. He began his broadcast career at KQW in San Jose while still in college, and then moved to full-time work at KHUB after graduation in 1937. During World War II he worked with radio and electronics for the military, then in 1947 he became the manager of KSYC in Yreka, Calif., and in 1950 took over the reins of KDB in Santa Barbara. In 1953 he became program director of KNBC in San Francisco (now KNBR) and stayed with NBC until 1967. He concluded his career as the director of broadcast operations at KCBS from 1968–1981.

Although primarily a broadcaster, Wagner also was a historian and author, writing several books about California railroads and gold mines. He also taught radio courses at Stanford in his later years.

When Jack Wagner died in 1988, he left an endowment to his alma mater, now San Jose State University. The Wagner Memorial Scholarship Fund is used by the department of TV-Radio-Film-Theatre to support student broadcasters at KSJS(FM).

In this image of the 1937 KHUB studio, we see an unidentified audio console and an RCA 50A inductor microphone. There are two 12-inch turntables for 78 rpm records with the famous “cobra head” tone arms, flanked by two 16-inch RCA turntables for the playing of 33-1/3 rpm transcriptions. The large weight on the spindle of the right-hand turntable was used to hold a warped transcription disk flat against the turntable. The mixing pots for each turntable are mounted on the table rather than the console.

John Schneider is a lifelong radio history researcher. Write him at jshneid93@gmail.com. This is one in a series of photo features from his collection. Find more under the Columns/Roots of Radio tabs at radioworld.com.

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MEET AXIA'S NEW, SMALLER IP CONSOLES. THEY'RE BIG WHERE IT COUNTS.

Plastic labels? Not on these consoles. High-res OLED displays on each channel tell talent exactly what source is assigned.

Just a push on the Options knob lets board ops assign new sources, adjust gain trim, source EQ and more.

Razor-sharp OLED Program meter with overload warning, VU or PPM ballistics? The choice is yours.

Inside this 2RU chassis beats the heart of a giant, with power to run two RAQ or DESQ consoles. Or maybe one of each? It's okay, we don't judge.

QOR.16 console engine doesn't just look cool - it stays cool thanks to beefy heat-sinks and fanless design.

Built-in Ethernet switch lets you easily network devices and studios. Plenty of professional, balanced analog, AES and Livewire I/O, too.

Rugged, built-in, auto-ranging power supply. No line lumps or wall-warts on Axia gear.

Four Show Profiles for instant recall of console configurations. Try that on a PA mixer.

Event timer has manual and auto-reset options.

Time-of-day clock can slave to your NTP server.

Onboard headphone control with Preview option. Cheesy outboard amps need not apply.

Four-position monitor selector lets you switch between Program or External monitor feeds on the fly.

OLED channel displays have an audio confidence meter, too.

Smooth 100mm, premium faders are side-loading to foil dirt and debris.

Machined-aluminum work surfaces are made tough, to stand up to what jocks dish out.

Avionics-grade switches with LED lighting.

Can a super-duty, high-performance rotary gain control still be called a fader? Just don't call it a "pot" - that's old tech.

The more you saw, the more convinced you were that IP consoles made sense for your station. Problem was, you had small spaces to work in. Some behemoth board that looks like a '78 Oldsmobile just wouldn't fit. But there was no way you'd settle for some cheap plastic PA mixer that looked like a refugee from the church basement. "Wouldn't it be great," you thought, "if someone made an IP console that didn't take up a whole room?"

Then you saw the new RAQ and DESQ consoles from Axia, and your problems were solved. With the power and features of a big console, but minus the ginormous space requirements. RAQ will drop right into those turrets in your news station's bullpen -

the reporters can send their finished stories right to the studio. And DESQ is perfect for the auxiliary production rooms.

But what sealed the deal was finding out you could run two RAQ or DESQ consoles with just one Axia QOR.16 mixing engine — you know, the one with all of the audio I/O, the power supply and the Ethernet switch built in. That brought the cost down so low that when you told your GM the price, he actually didn't swear at you (for once). Make another decision like this, and you might just be changing the sign on your door from "Chief Engineer" to "Genius."

Available in the U.S. from BGS: (352) 622-7700

AxiaAudio.com/RAQ | AxiaAudio.com/DESQ



WORKBENCH

(continued from page 10)

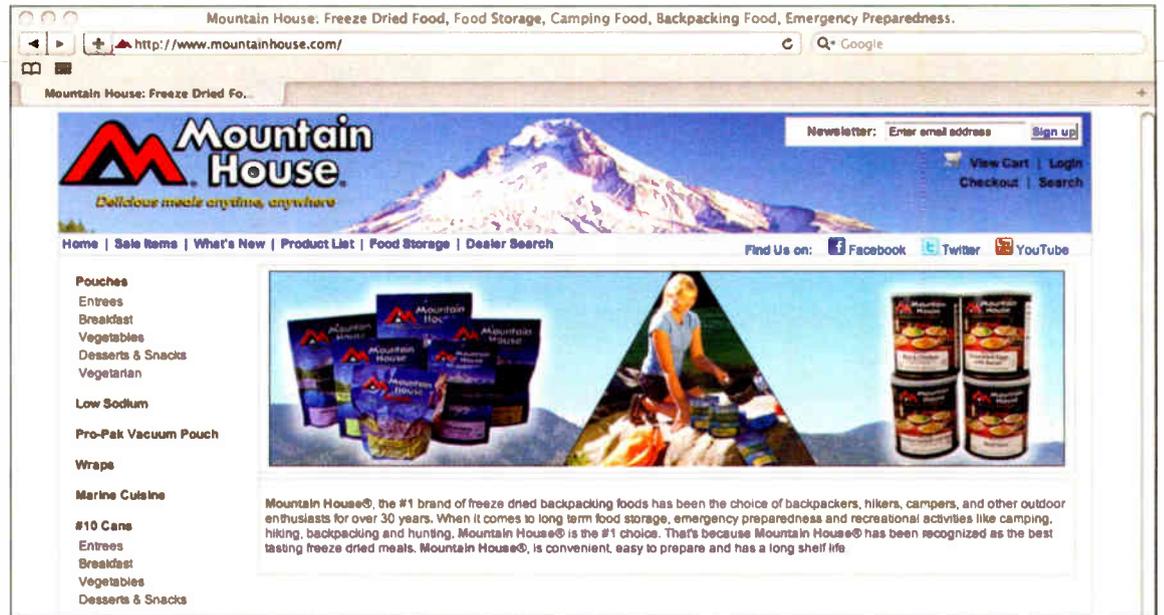
It's been a long time since I talked with John T. M. Lyles, an engineer at Los Alamos. John and I worked together at Delta Electronics; he then went on to design transmitters at Broadcast Electronics, prior to joining the Los Alamos Laboratory. John still stays in touch with broadcasting through the pages of Radio World.

In our *Workbench* article "Does Your Outpost Have the Basics," we mentioned changing out foods you have in storage at remote sites.

Mountain House freeze-dried meals, sold at Wal-Mart and at many outdoors shops, are lightweight and require only a spoon and hot water.

John has found that Mountain House freeze-dried meals, sold at Wal-Mart and at many outdoors shops, are indispensable for camping or preparing for the unknown. They're lightweight and require only a spoon and hot water.

Best of all, they have a long shelf life — over five years — and can be eaten from the pouch. They have a variety of selections, and are not like the old Meals



Ready to Eat (MRE) that the military provides. They also have enough seasoning to be tasty. You can find the selection at www.mountainhouse.com.

Need hot water? A small camping gas stove such as those made by Snow Peak or MSR can heat your stored water. Search Amazon. Remember to provide your future self a pot and lid too. If you're going to be stuck at a site, you might as well have a good meal.

John wrapped up his note telling about his work completing the design and testing of a new pulsed RF amplifier prototype for Los Alamos. This will be used for particle accelerators. It is operating 24/7 at about 2 Megawatts peak power, and 200 kW average power. It's in life testing right now, at 1,600 hours and running. The RF output is at 201 MHz, which is about the middle of the old TV Channel 11.

Production is next, followed by the installation of a pair of these beasts combined at each accelerator cavity over the next four years. They'll install a pair each year. John works with a crew of engineers and techs. He's hosted a number of visitors, too. It's definitely the place to be for high-power RF!

John T.M. Lyles can be reached at jtml@losalamos.com.

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

Author John Bisset has spent 43 years in the broadcasting industry, and is still learning! He is SBE Certified, and is a past recipient of the SBE's Educator of the Year Award.

The advertisement features a central image of a large blue and white radio equipment rack with the "DRM" logo. Surrounding this are four smaller images with text descriptions:

- DC High-Voltage Supplies for Science and Industry:** Accompanied by an image of a high-voltage capacitor.
- VLF/LF High-Power Systems that Ensure National Security:** Accompanied by an image of a submarine.
- VHF FM Analog & FM/HD Radio Transmitters:** Accompanied by an image of a radio transmitter rack.
- UHF/SHF Transmitters for NASA's Deep Space Network:** Accompanied by an image of a satellite dish.

 The central text reads "HF DRM Shortwave". At the bottom, it says "Customer Driven Solutions from DC TO SHF" and "Continental Electronics" in a stylized red font. The website www.contelec.com and phone number (214) 381-7161 are listed, along with a note to visit at the NAB in Booth C-1607. The Continental Electronics logo is in the bottom corners.

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STREAMING AUDIO



Hardware and software products for processing, encoding and streaming your audio content.

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PC Software for archiving and logging all of your stations audio.

WHO'S BUYING WHAT

Skyview Networks provided an inventory management system to the **Kansas City Royals**.

The Flexible Audio Storage Technology Inventory Management System allows the team to produce content from the booth, at home or on the road. Skyview said the system loads, plays and automates the broadcast from the stadium. The application provides control over advertiser scheduling and streamlines the "as-played" reporting and billing process, the company said. ...

Axia Audio said Border Media Partners chose Axia consoles and an AoIP network for a facility project in Austin, Texas. It will serve stations KXBT(FM), KTXX(FM), KWNX(AM), KZNX(AM) and KXXS(FM). The sale was by **Broadcasters General Store**. It includes five 22-position Element 2.0 mixing consoles and associated Axia networking equipment. It also includes a Telos VX Broadcast VoIP Talkshow System, which integrates with Axia networks. Border also has had an 11-console Axia network serving six stations in San Antonio since 2008. ...

Axia sister company Omnia Audio reported the shipment of its 7,000th **Omnia One** processor. The company considers this "the single most popular audio processing product introduction in history." The processor launched five years ago. ...

RMC in France bought two **Studer OnAir 3000** digital broadcast consoles from Harman for studio production facilities in Paris. They were configured and supplied by the broadcast division of distributor **Audiopole**.



Skyview's system is shown at work at a Kansas City Royals spring training game.

Separately, three China-based companies installed Harman Studer OnAir digital mixing consoles. **Sichuan Radio** of Sichuan Radio & Television Station Broadcasting in Chengdu added 14 OnAir 3000 and OnAir 2500 consoles. **Wuxi Radio** in Jiangsu installed five OnAir 3000s and five OnAir 2000s. Fujian Broadcasting Master Control installed six OnAir 3000, four

OnAir 2500, two OnAir 2000 and four OnAir 1000 consoles, as well as 21 pairs of **JBL** studio monitors. Harman distributor **Advanced Communication Equipment** handled these deals. ...

Norsk rikskringkasting (NRK) in Norway expanded its use of the **Teline Report-IT** application for iPhone by purchasing additional Report-IT Enterprise licenses. It said this permits NRK reporters, journalists and content contributors to use a secure, reliable portable IP audio codec and 20 kHz-quality recorder. NRK has about 2,000 iPhone users.

Send news for *Who's Buying What* to radioworld@nbmedia.com.



A Studer OnAir 3000 digital mixing console at Soundcraft Studer facilities in the United Kingdom.

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Freq range: 530 - 1700 kHz
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identify satellites by name, measure signal levels -70 to 10 dBm, plus display carrier-to-noise (C/N), signal quality, and Bit Error Rate. Confidently recognize the satellite a dish is aimed at, and peak the antenna to maximum performance.

SURGE SUPPRESSOR FOR LIGHTNING NEAR SATELLITE ANTENNA

Place the "LNB-Zap-Stop" in the coaxial cable line that runs from the dish, to the satellite receiver. Think of it as an "insurance policy" to protect



expensive indoor equipment from lightning hits. Transient Suppressing Diode technology works to block high voltage surges. The lightning protection units can take multiple strikes, with no need for resetting or replacing.

COVERSAT AND HEATSAT MAKE YOUR DISH RELIABLE IN BAD WEATHER

The COVERSAT will prevent most signal outages caused by snow and ice. It is wrapped over the front face of a dish, creating a steep and slippery surface to prevent the accumulation of ice & snow. The cover is made to exactly fit the customers specified dish type. The HEATSAT satellite antenna



heater will completely stop signal outages caused by snow and ice. This reliable dish back-side electric heater keeps snow & ice from forming on the dish, by heating the reflector when snow and ice conditions are present. Purchase the HEATSAT to upgrade existing satellite antennas, and ask for it to be included with your new dish purchases.

HD-GRADE SATELLITE LNB WILL BOOST EBNO ON RECEIVERS

Invest a FEW-HUNDRED-DOLLARS into upgrading your satellite antenna-mounted LNB, to the new DAWNco "L series" LNBs, and watch for improved EbNo readings on your digital satellite receivers. DAWNco's latest generation of C and Ku band LNBs have best-in-industry specs for "1dB gain compres-

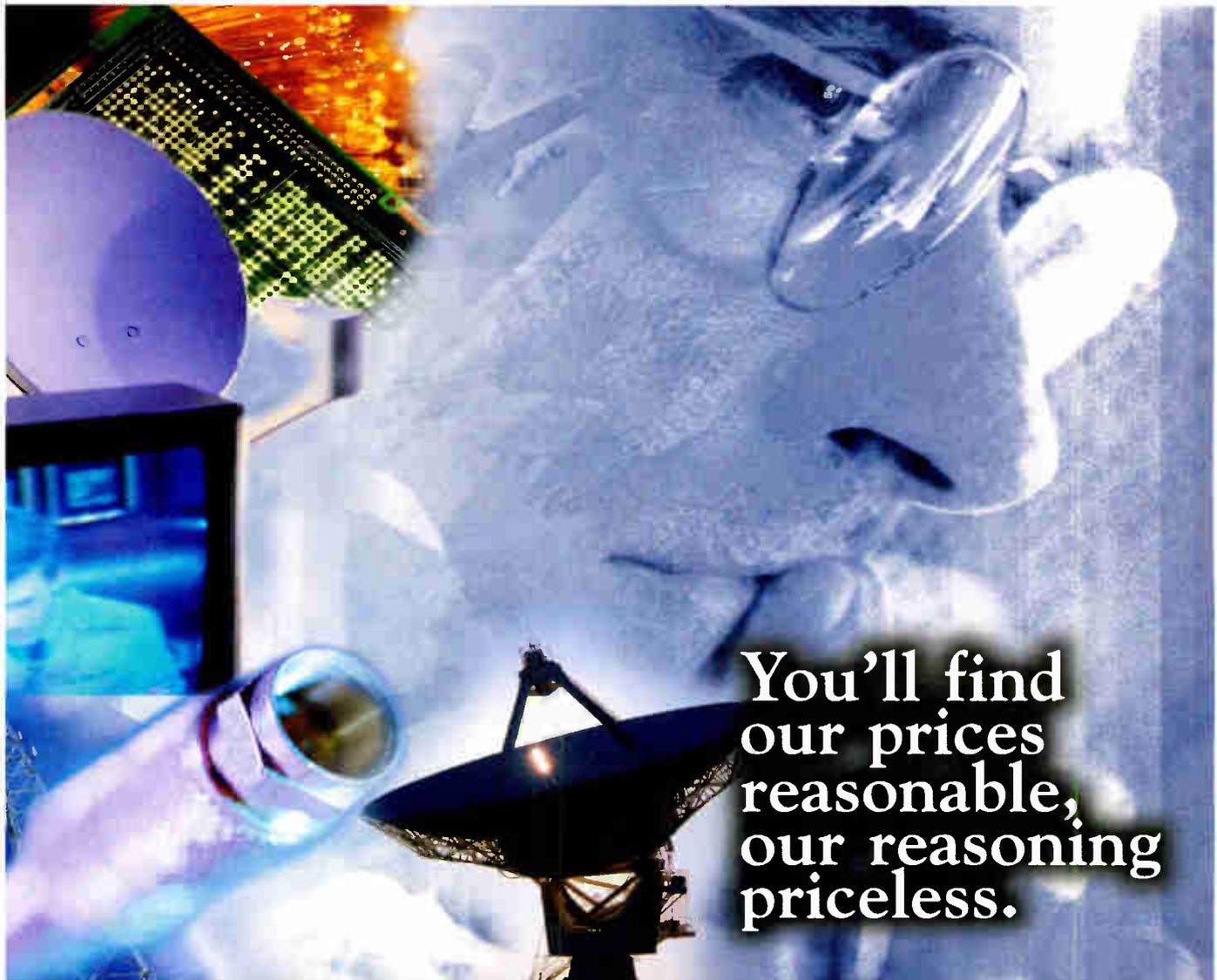


sion." Install these units to make a real difference in the reception of HD and other MPEG4 or DVB-S2 satellite channels. Internal circuitry has been completely redesigned for reduced power draw, so that indoor receivers and power supplies will never be over-taxed. In order to prevent signal outages, when outdoor temperatures fluctuate, DAWNco's best LNBs feature a highly stable +/- 5 KHz rating.

IMPROVE RECEPTION WITH 3.7 METER SATELLITE DISH FOR LESS THAN \$2K

Keep your dish cost under \$2K, and permanently improve your satellite reception capability, with our fiberglass 3.7 meter satellite antenna. This is the perfect dish for rooftop or island locations, where the 8 petal design offers easy transport to site. Ground mount USA sites may prefer our HIGH-GAIN aluminum sat antennas, in sizes up to 5.0

meter. The customer will specify stationary or motorized configuration for the dish, and DAWNco offers all other items needed for a complete system.



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Keeping track of all the satellite and fiber optic communications products out there is a full time job.

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See us at NAB, booth SU3602

SSBSC: A Win-Win for FM Radio?

Foti Discusses Field Experience With Single-Sideband Suppressed Carrier

BY THOMAS R. MCGINLEY

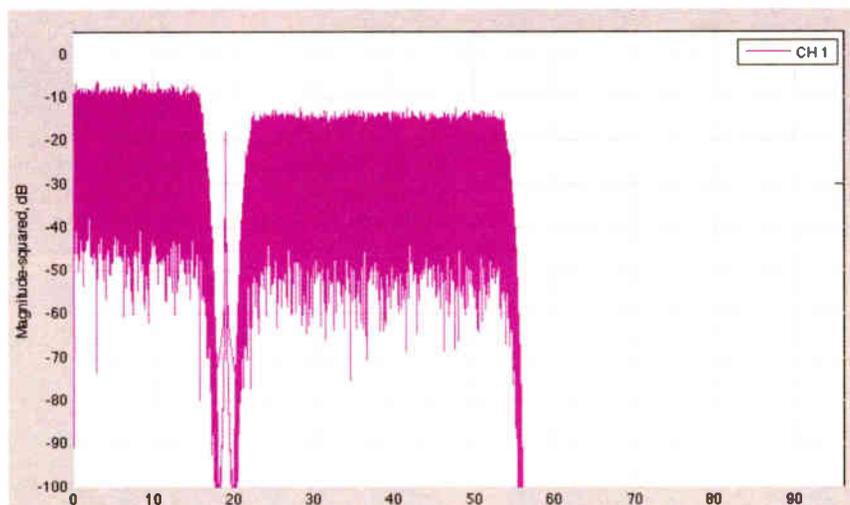
The Sunday sessions of the Broadcast Engineering Conference at the NAB Show will feature papers on a number of important technology advances. One of the most promising is SSBSC.

FM stereo transmission using single-sideband suppressed carrier (SSBSC) modulation is the focus of a presentation by Frank Foti.

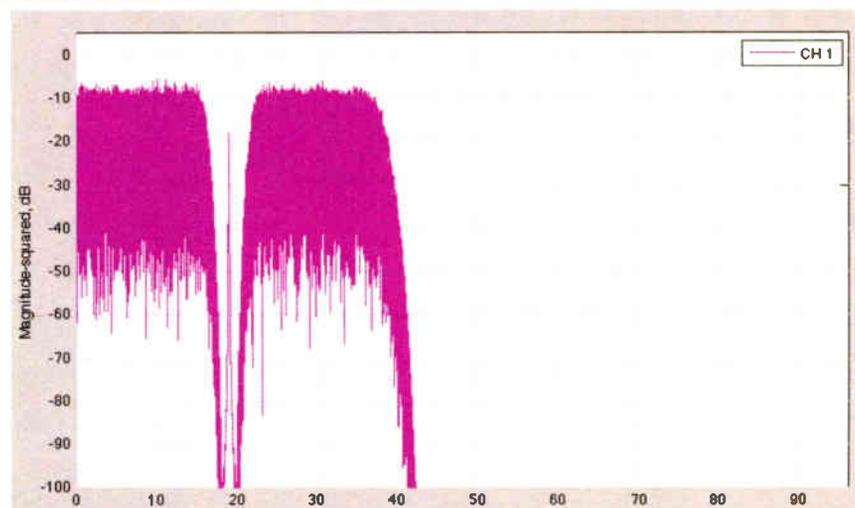
Foti, founder and president of Omnia Audio, resurrected interest in SSBSC in 2010 and presented a paper at last year's show. This year he'll discuss more details, including field testing underway in a number of markets.

SSB for FM was first discussed by Bob Tarsio in a 1987 NAB paper and again at the 1997 NAB by Bill Gillman. SSBSC potentially could replace the standard DSBSC (double sideband) generation used since stereo FM became law 51 years ago. It promises to reduce stereo noise and multipath degradation in existing receivers as well as improve SCA, RDS and HD Radio performance.

"Implementing single-sideband suppressed carrier on an existing FM station is as easy as selecting this mode in an audio processor equipped with SSB." Foti told Radio World. Stations wishing to deploy SSBSC for testing also need to secure Special Temporary Authority from the FCC in order to comply with



Spectrum analyzer views of the FM baseband spectrum. With DSB, left, we see modulated spectrum on each side of the 38 kHz suppressed carrier marker. With SSB, right, we see mod only below 38 kHz in the lower sideband (LSB) region with nothing above in the upper sideband (USB) region.



the rules.

As of this writing, the Omnia.9 and 11 models FM processor/stereo generators include SSBSC, as does the Urban Optimod-FM 8600. Wheatstone has confirmed it is lab-testing SSBSC in its Vorsis FM processor. Older units may not be capable of SSBSC retrofits because of the extra DSP processing horsepower needed to generate this mode properly without excessive delay.

Foti is aware of stations testing SSBSC on the air in Boston, Philadelphia, Atlanta, Cleveland, Columbus, Dayton, Central Pennsylvania and West Virginia; he says there are others.

"The feedback is a noticeable reduction of blending in a mobile receiver. I now have, and will show part of this at the NAB presentation, videos that were taken in a mobile environment, where you can see the route driven, along with

Musical 24kbps Stereo Multicasts



WORLD DaySequerra

ECLIPSE LBR4
LOW BITRATE DIGITAL RADIO LOUDNESS PROCESSOR



ECLIPSE LBR4



NAB #N3830

EAS made EAS-Y!

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the terrain, and hear the audio from the receiver." (See a link to one video at the links page for this issue, <http://radioworld.com/Mar-28-2012>.)

"There's a segment, where the multipath in the DSB mode is so severe, the audio is a tune-out. Yet, in the exact same location, using SSB, the audio is most definitely listenable, with only a few hits of multipath. This was done using the same radio station as a test example."

IMPROVEMENT AROUND TOWN

The theoretical amount of broadband noise reduction in receivers that decode SSBSC has been calculated at 3.7 dB. However, to the casual listener, the improvement is much greater, according to Foti.

"Due to the triangular rise in noise across the FM channel at 6 dB per octave, stereo noise is most severe in the upper sideband. At high frequencies, where all the annoying hiss is easily heard, the noise improvement is close to 10 dB. I will share the test results about

(continued on page 20)

ROC YOUR WORLD

The new ROC console from Logitek



When Logitek introduced its first ROC console back in the 1990s, it marked a revolution in audio console design. One of the industry's first router-based digital consoles, the original ROC boasted simple wiring and access to multiple sources at each fader.

Over the years, the router-plus-console Networked Audio concept has become the standard in console architecture. Although the original ROC was retired years ago, Logitek has continued to develop systems for both TDM and AoIP audio networking. The new ROC takes the best of the original design and pairs it with the latest technology and styling.

Available in multiples of 6 faders (up to 24), the ROC is housed in an attractive tabletop enclosure.

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**The ROC is paired with the JetStream,
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SSBSC

(continued from page 18)

this in the NAB presentation.”

Radio World contacted Brian Kerkan of the Cayuga Broadcast Group, who is running SSBSC on WQNY(FM) in Ithaca, N.Y., a country station.

“WQNY had a translator previously that filled in the gaps downtown, and suffers from multipath and blending in downtown Ithaca,” Kerkan said.

“We have done some field testing with various receivers, and have found an improvement in areas around town.

What I have observed is less blending and better stereo separation. This has also been noticed by the PDs of our stations.”

SSBSC certainly appears to be a win-win for the radio industry based on the testing being done; but interested observers want to know if there is any downside to its widespread deployment.

“Thus far, I do not see any downside,” Foti said. “My recommendation is that we consider this as an optional transmission method. It’s backward compatible; and to date, we have not received a single negative comment

about compatibility, or that transmitting SSB degraded the FM service.”

Bob Orban, founder of Orban Associates and designer of the Optimod 8600, is supportive of the SSBSC initiative. He commented on it in a December 2010 issue of Radio World (also linked at radioworld.com/Mar-28-2012).

power is doubled in SSBSC. He also is concerned about the vast universe of existing radios in use, some of which may have compatibility issues like the Sony XDR-F1HD.

“Any radio that uses noise or spectral contamination in the quadrature component as a criterion for activating blend-to-mono is likely to misbehave,” says Orban.

Perhaps of more importance, Orban maintains that additional peak limiting needs to be employed in SSBSC to maintain equivalent loudness.

“The added composite peak limiting can produce audible side effects, depending on the target loudness of the transmission. This seems to be a ‘laws of physics’ issue — the SSB waveform cannot exploit the interleaving property of the DSB waveform and thus requires more peak limiting,” Orban wrote.

Frank Foti maintains that “using SSB created absolutely no change to peak modulation levels” and that “modulation level and density is the same for DSB and SSB. At least it is in our application of the technology.”

The presentation “FM-Stereo Transmission using Single-Sideband Suppressed Carrier (SSBSC) Modulation” is scheduled for Sunday morning as part of the Broadcasting Engineering Conference session “Advancements in Radio Technology.”

Tom McGinley is technical adviser to Radio World.

At high frequencies, where all the annoying hiss is easily heard, the noise improvement is close to 10 dB.

— Frank Foti

Orban is more cautious about possible side effects produced by the SSBSC waveform, and urges that extensive field and lab testing be done before any FCC regulatory changes or additions to the rules are proposed.

Asked by email regarding his current thoughts about SSBSC, Orban told Radio World he does agree that SSBSC offers a “modest reduction” of apparent multipath and noise, but observed that actual stereo subchannel multiplex



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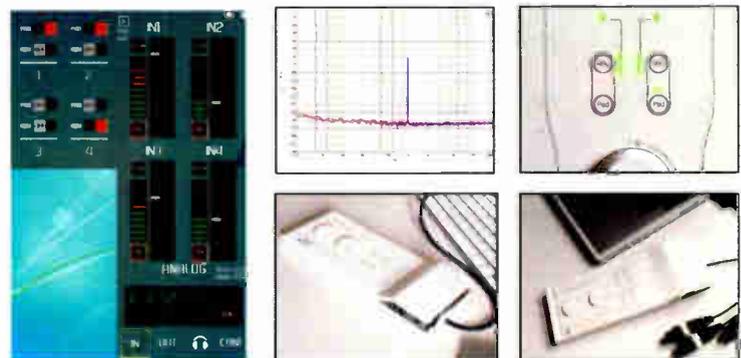
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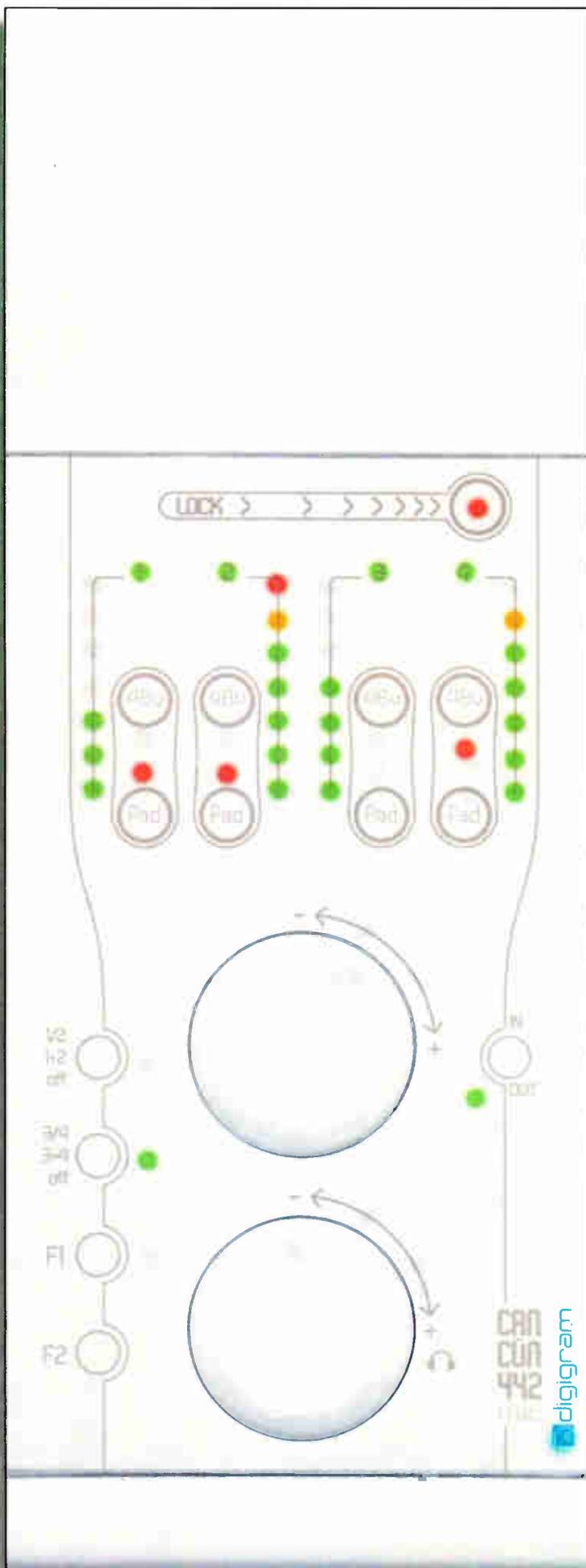
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The Tube Sound: Fact or Fiction?

Whitaker Argues for Bringing Back 'Appointment Listening'



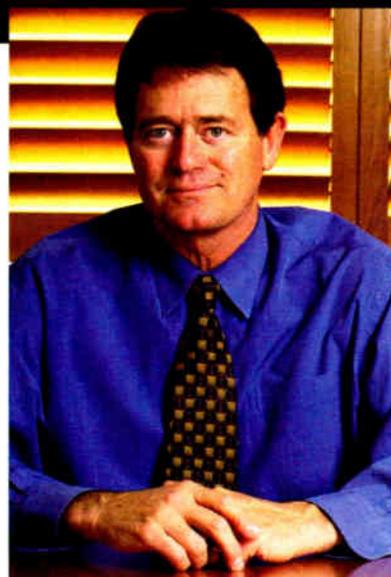
BY TOM VERNON

At a time when digital pervades most stations, Jerry Whitaker, vice president for standards development at the Advanced Television Systems Committee, argues that there may still be a place for vacuum tubes and vinyl in the modern broadcast plant.

He will explore these ideas in an NAB session about "The Tube Sound."

"There is already a growing interest in vinyl recordings and vacuum tube amplifiers," said Whitaker. "This trend is going to continue; so the question is, how can broadcasters capitalize on it?"

He said many recording studios are using vacuum tube mic preamps.



Jerry Whitaker

Meanwhile, at least 1,000 classic albums from the '60s and '70s have been remastered and reissued on premium-quality 180-gram vinyl.

Fully appreciating the difference in sound quality between digital and analog audio involves a radical shift in listening habits, according to Whitaker.

"Most people have music on in the background while they're doing other things. When you just sit down and actively listen to vinyl records through tube gear and a good set of speakers, the difference in sound becomes quite apparent."

Whitaker says there is both a qualitative and quantitative dimension to audio.

"Two pieces of equipment can have identical response, noise and distortion specs, but one subjectively sounds better than the other. I'm not saying that analog necessarily sounds better than digital; but with serious listening tests, there can be a marked difference between the two."

(continued on page 24)

MORE ENNES

Fred Baumgartner, CPBE, CBNT, is with the Ennes Educational Foundation Trust. He says of Jerry Whitaker, left, "He is one of those quiet people who make good things happen."

Here's Baumgartner on the rest of Saturday sessions:

The Ennes program answers the question: "What is most important for working broadcast engineers to know this year?"

Consider the tutorial from Wayne Pecena — not the usual networking 101, but an in-depth look at what skills broadcast engineers need, how to know if you and others have what they need, and how to get what you need and manage the peculiar and unique flavors of IT technology that is broadcast. (See page 26 for more on his presentation.)

Years ago, Terry Baun presented a day-long tutorial at NAB as networking intersected broadcasting; and the SBE launched a certification. The intersection has become more intense and interesting than simple networking or even VoIP. This program moves up a notch in addressing the management of the technology, your career and even how you put teams together to address IT projects and operations.

Even radio-centric broadcast engineers will have an interest in broadcasting's evolving relationship with "the cloud" — what the cloud is, what it can do for us and how to utilize cloud technologies in our business.

Then there is eMBMS. Yes, in LTE/3GPP cellular networks there is a point multi-point specification that even goes to single-frequency networks; so as mobile devices evolve, we have yet another means to broadcast in Evolved Multimedia Broadcast/Multicast Service. Will this multicast capability affect how we distribute our content?

The Ennes Workshop schedule is on the SBE website. The program will take place April 17 at the Las Vegas Convention Center, 8 a.m. to 5 p.m. Attendance requires a full NAB or PBS Techcon registration. Non-NAB members who are members of the SBE can receive a partner discount; access the code at www.sbe.org.

The program is the largest gathering of broadcast engineers in one room each year and a centerpiece of the Ennes and the SBE live educational programs. CTOs, engineers and experts take broadcast engineers deep under the hood, behind the scenes and net out the important points. And occasionally there is a Jerry Whitaker, someone who makes a big difference in our profession, who talks about something downright interesting and just plain fun.

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TUBE SOUND

(continued from page 22)

This renewed interest in vintage sound comes at a time when most stations have tossed their turntables and vacuum tube gear, so the first challenge is how to get started.

The market has changed over the last 20 years. The legendary Stanton 680 cartridge is no longer in production. The Discwasher brand name has been sold to an overseas company. Broadcast-quality turntables are hard to locate.

'With serious listening tests,' Whitaker says, there can be a 'marked difference' between vinyl and digital.

"It can be difficult to find knowledgeable vendors who sell styli, cartridges and turntable accessories, but they're out there," he said.

Another issue is locating vacuum tube turntable preamps that will interface with broadcast gear. However, many plans and kits are available.

"It's time for engineers to go forth and build one," he said. Whitaker said a well-designed tube turntable preamp can have a noise floor at least 70 dB down, reasonably comparable with

today's standards. In the early days of the digital transition, stations used to have a "digital island." Perhaps now it's time for an analog island.

Since the trend in broadcast gear is "maintenance free," one question that may be raised is whether maintenance of tube gear will become time-consuming.

"We certainly don't want to go back to a radio facility with hundreds of tubes," said Whitaker, "but a well-designed preamp built with quality components should give good performance

for many years."

The larger issue: How can vinyl recordings and a retro sound work as a strategy for radio stations to attract listeners?

"Post-consolidation, most stations sound very similar," Whitaker said. "By having all-vinyl programs or vinyl days, they can begin to differentiate themselves. It's also a great way to rediscover some of the forgotten B sides or album tracks that haven't been played on commercial radio for 20 years or more."

This concept has been adopted by BBC Radio 6 Music, which set aside New Year's Day for all-vinyl programming. Stations that want to take the retro sound to the next level may want to include a vacuum tube line amp in the air chain, or at an insert point in the audio processor.

He will explore his ideas in a brief NAB presentation called "The Tube Sound: Fact or Fiction?" during Saturday's SBE Ennes program about "Video and Audio on IP to IPTV."



To appreciate the tube sound, you need a tube amplifier. Whitaker argues that hiding the tubes inside the chassis makes very little sense.

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The Broadcast Engineer in an IT World

What Do I Need To Know ...
And How Do I Learn It?

BY THOMAS G. OSENKOWSKY

Most modern equipment in today's broadcast facilities has some form of IP-based interface. Satellite receivers, transmitter remote controls, RDS encoders, Internet streaming, automation systems, audio editors, transmitters, studio-transmitter links and content delivery systems are prominent examples.

The Associated Press recently transitioned to Internet-based delivery of its data to affiliates. Some state news networks offer actualities, interview shows and other content on their websites, as do program syndicators.

Most music is delivered to stations over websites instead of mail-delivered CD. Commercial and music logs are scheduled on computer. Remote broadcasts can be sent to the studio digitally with command closures, making a board op unnecessary.

KEEPER OF THE CLOUD

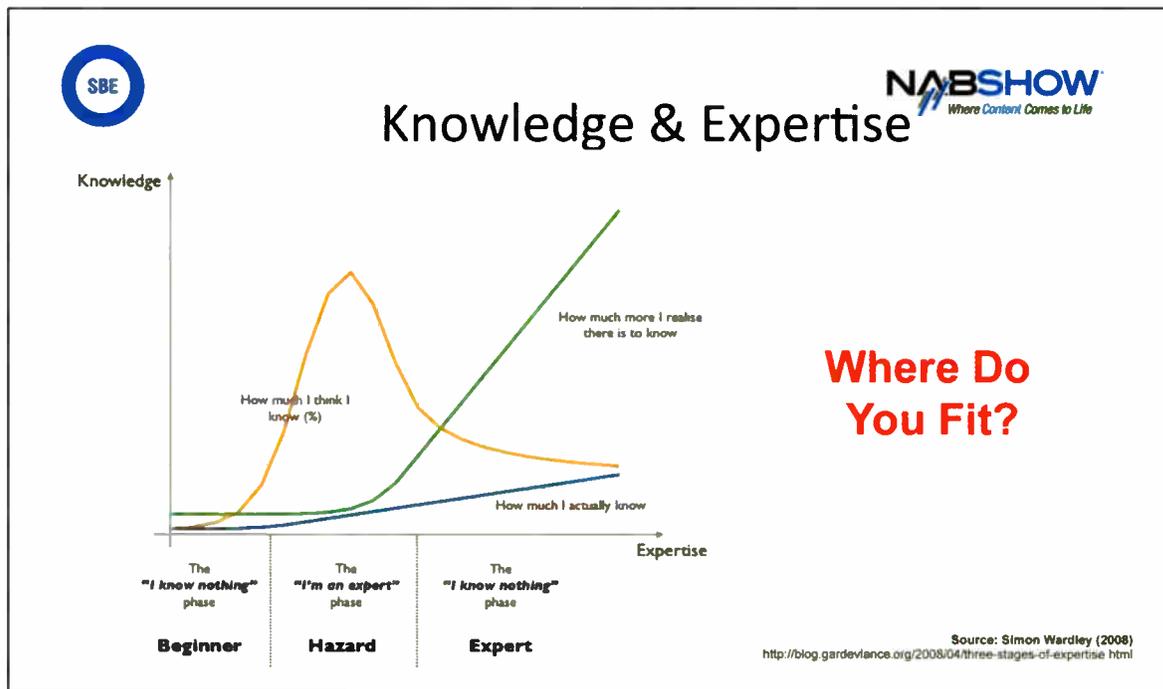
These technologies require hardware, software and reliable integration of both, often involving multiple servers. Announcers, account executives, traffic and office managers may require technical support on an immediate basis, albeit most times with questions of a relatively elementary nature.

Today's broadcast engineer must be fluent and

capable in the maintenance of these technologies.

"The broadcast industry has rapidly embraced an IT infrastructure," says Wayne Pecena, director of engineering at Educational Broadcast Services in the

Office of Information Technology at Texas A&M University. "As a result, the broadcast engineer must be knowledgeable in IP networking and IT technology to be successful."



Pecena uses a concept from Simon Wardley to illustrate that the most hazardous phase in learning is when you think you're an expert.

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In the past an engineer had to be knowledgeable in audio, transmitters, possibly STL and remote broadcast gear.

“The industry has seen many technology migration or changes over time – tubes to transistors to microprocessors and so forth. The migration to an IT-based infrastructure is the current technology evolution. Job survival requires an immersion to the IT world.”

A discussion of terms such as AoIP, VoIP, system administration, network security, file-based workflow and data center architecture can assist the engineer in comprehending what he or she needs to know to manage this new technology.

“Many devices have had an Ethernet jack and an IP address for some time now. I see the movement to transform how the content is handled within the infrastructure in that IP transport is used rather than baseband audio/video. The broadcast plant becomes a ‘cloud,’ and the broadcast IT engineer is the keeper of the cloud. In general, as all content is packaged in an IP format, the plant infrastructure (or cloud) looks more like a data center than the traditional broadcast plant. ... IP networking is the foundation of this environment, where knowledge of workflow, system management and security make this happen.”

The presentation “The Broadcast Engineer in an IT World: What Do I Need to Know and How Do I Learn IT?” is part of Saturday’s SBE Ennes program “Video and Audio on IP to IPTV.” The presentation discusses the technology and educational resources to make an engineer capable and competent in an IT environment.

WHY SUBNET?

Understanding IP addressing and subnetting is essential to implementing IP networking. One question Pecena encounters is “Why subnet?” He replies:

Subnetting is most often used to optimize network performance by creating separate broadcast domains. These separate domains prevent unnecessary broadcast traffic and faults from propagating throughout the entire network by isolated to an individual segment. Network security can be enhanced along with applying levels of administrative control to network segments by organizing hosts into functional or logical groups. Subnetting is often used to more efficiently use IP address space. This is especially important in the IPv4 environment where address space may be at a premium. Efficient utilization allows increasing organizational demands to be met in a cost-effective manner.



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Secure SNMP for Transmitter Control

Brian Lindemann Says Many Stations Don't Take Advantage of the Latest Version

BY THOMAS G. OSENKOWSKY

With modern transmitters opting for Internet-based control and monitoring in a graphical user interface (GUI) environment, the protocol employed to enable and secure this operation is critical. A popular non-proprietary, easy, effective protocol is SNMP, or Simple Network Management Protocol.

However, a known weakness of SNMP Versions 1 and 2 is security. Version 3 addresses this, according to Brian Lindemann, vice president for RF engineering at Broadcast Electronics.

"If the SNMP connection is not properly secured, the ease of access can allow accidental and/or malicious modification of the operating parameters at the transmitter site. For instance, modifiable parameters include power level, operational frequency, audio source, etc."

SNMP prior to Version 3 uses a "community string" for security, sent in plain text. Anyone can read its value.

In Version 2 of SNMP, if the browser has the "write" community string specified, write access is granted. It is possible for a person who is hoping to just monitor the status may inadvertently modify an operating parameter. In Version 3 of SNMP, it is possible to connect as a user with "read-only" permissions. With read-only permissions, the user cannot modify parameters inadvertently.

"Version 3 of SNMP has been around

for a while," Lindemann said. "In 2004 the Internet Engineering Task Force recognized SNMPv3 (STD0062) as the standard for SNMP, having made the two prior versions obsolete. However, in the broadcast world, the prior versions of SNMP appear to be quite prevalent.

A common misconception about SNMP, Lindemann said, is that community strings provide security.

"Some attempts to secure earlier versions include port blocking, community strings and (if possible) the setup on a switch or the device to limit which device IP is allowed to talk to it. SNMP communications does not usually contain secure data, so it is not looked at as needing encryption. That is, the frequency of a particular transmitter is not necessarily something that is to be kept confidential. So there is a tendency not to worry about securing the data."

OTHER OPTIONS

SNMP is a popular protocol. It is easy to use; there are browsers readily available. Because it is a standard, writing custom user interfaces over it

is relatively simple. Inexpensive MIB browsers are available.

Other non-proprietary protocols include Common Management Information Protocol, or CMIP. This is also defined in the Request for Comments documents used in computer network engineering, and has been standardized by the International Telecommunication Union. However, it is not commonly used in TCP/IP environments because of the

complexity and resource requirements of its agents and management systems.

Other protocols require some amount of proprietary information. For example, a straight HTTP Web-based interface, as can be found on many transmitters, displays a lot of information and has the ability to change various parameters through the interface. However, it doesn't support breaking out one or two individual items in which a particular engineer is interested. With a custom-developed SNMP browser, the engineer can have a single screen showing alarm status for every piece of equipment at the transmitter site. If the transmitter supports only HTTP, the engineer would need a separate Web browser window

opened for that piece of equipment.

A common misconception about SNMP, Lindemann said, is that community strings provide security. "Just because I can't think of a way to break it doesn't mean someone else can't, even without really trying." In looking toward the future Lindemann expects more equipment to adopt SNMPv3.

The presentation "Securing SNMP for Transmitter Control" is part of the Tuesday session "Network Security for Broadcast." Lindemann will discuss uses of SNMP as a control protocol and offers techniques and methods for protecting SNMP-enabled equipment from hackers and virus attacks.

A BROADCAST ENGINEERING CONFERENCE SAMPLER

Here's a sampling of other radio-related BEC presentations. Full list is at nabshow.com.

Advancements in Radio Technology (Sunday)

"Interactive HD Radio Opportunities"
Paul Donahue, MelRok Co.

Engineering Case Studies for Broadcast (Monday)

"VoIP in the Real World: How I Quit Worrying and Learned to Live Without POTS"
Joe Talbot, Telos Systems

HD Radio 101: Making It Happen at Your Station (Monday)

Various panelists address issues for managers and engineers

Green Engineering for Broadcast (Tuesday)

"Greening of Engineering Revisited"
Andrew Janitschek, Radio Free Asia

Saving Energy With MDCL (Thursday)

Presentations by Daniel Maxwell of the International Broadcasting Bureau, Brian Walker of Nautel and Terry Cockerill of Harris.

Graphics for Radio (Thursday)

"Understanding and Deploying RadioText Plus (RT+)"
Alan Jurison, Clear Channel Radio

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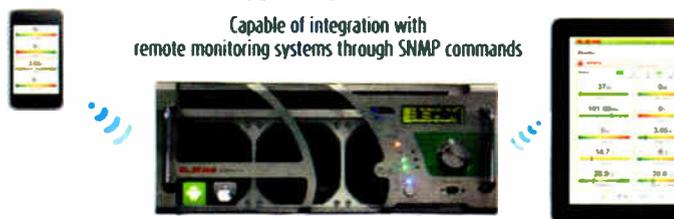
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Davies Preaches Corrosion

He Explains System Used to Evaluate Anchor Failure Risk

BY LAURA MIR

David Davies says one of the five leading causes of tower failure is anchor failure.

He is a veteran of the tower industry and author of several industry-related papers and the Electrical Grounding and Corrosion chapter of the TIA/EIA code. Davies is working with Ernie Jones, founder of Consolidated Engineering Inc., a structural consulting firm specializing in broadcast towers.

It is easy to forget about what is buried underground. But anchor failure is responsible for 10 percent of broadcast tower failures. The percentage is even higher in the cellular industry. Recent years have seen an increase in failures due to anchor steel corrosion.

Davies has developed a method for evaluating corrosion risk that the industry has not employed previously.



David Davies

cost-effective approach of evaluating and categorizing individual tower sites more efficiently, enabling a customer to prioritize and allot their maintenance budget in a more focused manner.

After implementing such a method, some 50 sites were excavated and

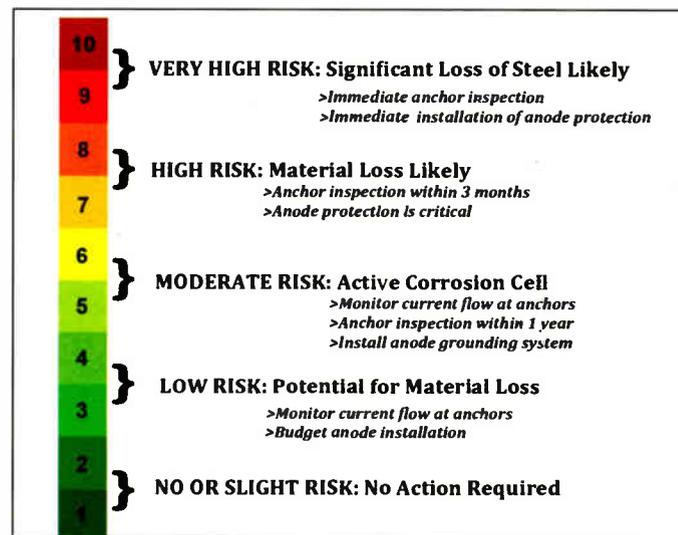
CORROSION RISK ASSESSMENT

Broadcasters are relatively unfamiliar with steel anchor corrosion and subsequent failure. Hoping to increase awareness, Davies says broadcasters should become more educated about the corrosion process.

"Half of tower owners have maybe only seen their tower but a couple of times, and don't consider the parts the tower they can't see, the ones that are underground," he told Radio World. "So for them to be aware of the problem (corrosion of anchors) is the first step to prevention."

For Davies, the process of making anchor inspections more accessible and cost-effective started four years ago, working with Scott Kisting of Midwest Underground Technology Inc., or MUTI.

Davies integrated non-invasive ultrasound testing, when applicable, to evaluate buried anchor shafts. This method avoids or limits the number of anchor shafts that required excavation to determine steel loss. About two years into the collaboration, he said, CEI and MUTI sensed a need for an accurate,



contrasted against the findings of the Corrosion Risk Assessments, confirming the accuracy of this process.

The CRA provides a Risk Index based on several factors, ranking each site on a scale from 1–10. For each increment and circumstance, one or more actions are recommended.

"The key to accuracy is proper weighing and grading," Davies said. "I call it vertical and horizontal integration. It tells you if you have a problem and how urgently you need to act."

The process involves a mathematical algorithm based on a number of risk factors available for each site: soil type and characteristics, including moisture content and chemical properties, pH and Electrical Conductivity (EC). The

Assessment

age and geometric shape of the anchor are also variables, as is the presence of concrete encasement. The presence of stray electrical current is also included in the equation.

"We determine the presence of stray current emanating from pipelines and certain types of industry, all of which may be in close proximity to the site." Agricultural influences may alter site soil characteristics. The information contained in the Corrosion Risk Assessment provides insight as to the health of a tower's anchors, resulting in peace of mind, or the ability to take a proactive approach to protect their investment.

"There is no reason to lose sleep over something that is not a problem, though sleeping through a problem is foolish. The CRA lets them know how well they should sleep."

ABATEMENT

"We recently concluded a study in the Midwest in which 89 sites were investigated," Davies said. "Approximately 60 percent of these sites were either highly or moderately corrosive. I would guess approximate 20 percent were highly corrosive, with a recommendation for immediate action."

He noted that these percentages may be a function of geography and should not be applied on a national basis.

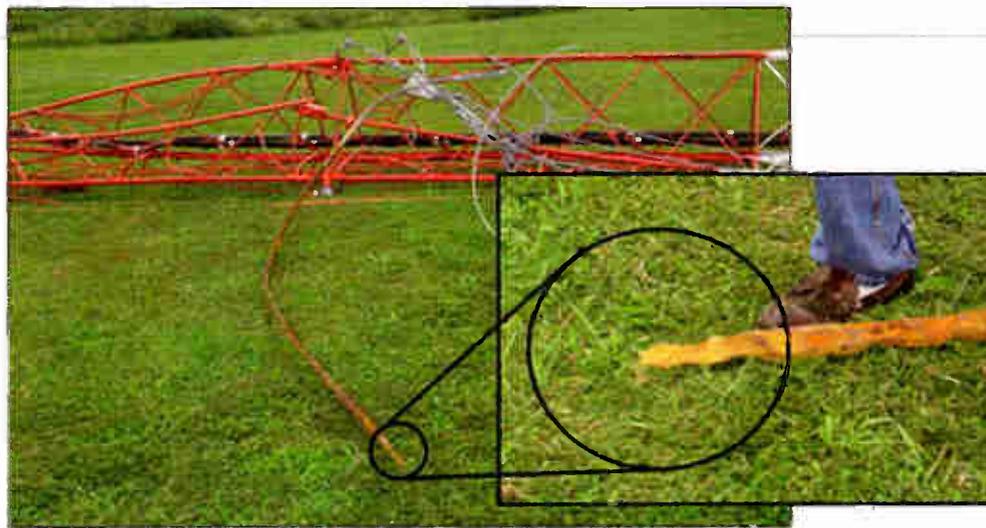
Corrosion is typically found in areas where the soil tends to be clay-like. Dry, sandy soils usually present a lower risk. But again, these are very generalized statements.

Davies also will present various prevention/abatement and inspection methods that can be used in conjunction with a CRA. Even a low ranking on the CRA Risk Index scale will generate steps recommended to abate corrosion.

Installing a passive sacrificial anode seems to be the universal fix. "Anodes don't repair what's already corroded, but help prevent future damage. For around \$500 an anchor, anodes are more cost-effective than the other choices, which are coatings and concrete encasement."

For tower owners and stakeholders, Davies encourages site education and taking time to research site conditions. In using the CRA model, he feels, catastrophic failure of tower anchors will be largely avoided. He believes it is a simple and cost-effective tool that gives a clearer view of what may be occurring underground and out of sight.

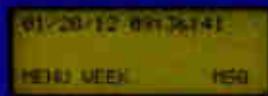
The presentation "Preventing the Next Tower Disaster" is part of the Broadcast Engineering Conference session on "Disaster Preparedness and Recovery," scheduled for Wednesday of the NAB Show.



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What Does That Tx Really Cost?

Mendenhall Encourages Stations to Look at 'Total Cost of Ownership'

BY TOM VERNON

Determining total cost of ownership for a broadcast transmitter involves far more than the purchase price, energy costs and maintenance.

Geoff Mendenhall, vice president of transmission research and technology for Harris Corp., will introduce a new analysis tool that he feels gives a more accurate picture. It factors in considerations such as the acquisition, maintenance, operating and training costs of all systems in the transmission facility. He will describe the tool and techniques in his NAB engineering session entitled "Transmission System Total Cost of Ownership."

Liquid-cooled FM transmitters are virtually unheard of in American facilities, although they are more common in Europe.

— Geoff Mendenhall

TCO is about more than reducing direct transmitter operating costs, he said. A comprehensive analysis includes the tradeoffs of air and liquid cooling systems, impact on the overall facility, floor space requirements, size and the thermal efficiency of the transmitter building. In addition to the reduction in direct operating costs, another benefit of improved TCO is a reduction of carbon footprint in support of green technology.

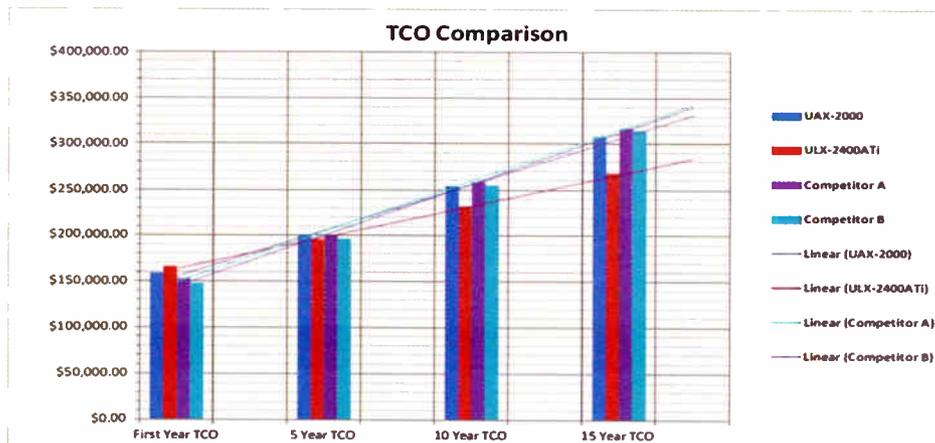
Most of the attention is directed to DTV transmitters, where efficiencies of 20 to 40 percent are the norm. FM transmitters — where higher efficiencies of 65 to 70 percent for analog FM operation and 50 to 60 percent for IBOC common amplification are typical — can also benefit. State-of-the-art AM transmitters at the 50 kW level are already operating around 90 percent efficiency, so there is considerably less room and incentive for improvements.

There are two dimensions to improving transmitter efficiency. The first is improving the transmitter AC-to-RF efficiency. A major milestone recently was achieved as manufacturers began to adopt LDMOS technology, which gave marked improvements over conventional RF transistors and FETs. Other factors that can improve efficiency include enhanced switching power supplies, reduction of crest factor and variable

Since liquid-cooled transmitters come with their own cooling systems, the costs associated with large air conditioning systems go away. This includes purchase price, maintenance and energy costs. Mendenhall adds that most air handling systems have a lifespan of about five years, so regular replacement costs also need to be budgeted.

He cautions that the decision to purchase a liquid-cooled transmitter should not be automatic.

"These devices usually have a higher initial cost, and if you are replacing an air-cooled transmitter in an existing facility that already has an air handling system, the investment in an air-conditioning infrastructure has



Mendenhall offers this comparison of cumulative TCO of three air-cooled systems vs. a liquid-cooled system.

| Transmitter | Model | Total Transmitter Acquisition Cost | HVAC Acquisition Cost | HVAC Installation Cost | Annual HVAC Maintenance (Per Year) | Heat Is Outted? | HVAC SEER Level | Annual Rental Fee | Annual Preventative Maintenance (No. of Visits) | Per Visit Rate for Preventative Maintenance | First Year Training Cost |
|-----------------|-------------|------------------------------------|----------------------------|------------------------|------------------------------------|-----------------|-----------------|----------------------------|---|---|--------------------------|
| Madsve ULX ATSC | ULX-2400ATI | \$153,600.00 | \$500.00 | \$2,500.00 | \$150.00 | No | 12 | Price: \$0.00, Fee: \$0.00 | 4 | \$400.00 | \$2,000.00 |
| Television | | Installation: \$22,400.00 | Commissioning: \$11,200.00 | | Unit Cost: \$139,000.00 | | | | | | |

| Region | Country/State | Product Description |
|-----------------|---------------|---|
| USA | Texas | Liquid-Cooled UHF Multimedia TV Transmitter |
| Price Per kWh/m | \$0.065 | Source - IEA "Electricity Information 2007" |

| First Year TCO (Includes acquisition, install & training) | Annual OPEX | Five Year TCO | Ten Year TCO | Fifteen Year TCO | Twenty Year TCO | Lifetime Total Cost of Ownership |
|---|-------------|---------------|--------------|------------------|-----------------|----------------------------------|
| \$165,890.32 | \$7,290.32 | \$195,051.60 | \$231,503.21 | \$267,954.81 | \$304,406.41 | \$304,406.41 |

| Transmitter | Model | Tx Power Output Before Filter | Tx Typical Power Consumption | Typical Efficiency | Model Specifications | | | | | | |
|-------------------|---------------------|--|-------------------------------|-----------------------------|-------------------------------|--------------------------------|--------------------------------|--|--|--|--|
| Madsve ULX ATSC | ULX-2400ATI | 2,500 W | 9,617 W | 26.00% | Air Cooling | | | | | | |
| Total Heat Output | Heat Output Indoors | Annual Air Cooling Requirement (kW/hr) | Total Cooling Needed (BTU/hr) | Total Cooling Needed (Tons) | Annual HVAC Maintenance Costs | Annual Cooling Costs (100% AC) | Annual Cooling Costs (var. AC) | | | | |
| 0 W | 0 W | 0 kW/hr | 0.00 | 0.00 | \$0.00 | \$0.00 | \$0.00 | | | | |
| Liquid Cooling | | | | | | | | | | | |
| 4 | 7,117 W | 550 W | 3,210 kW/hr | \$207.98 | 1,876.68 | 0.16 | \$23.46 | | | | |

| Annual Total Electrical Usage | Annual Carbon Emissions (tons) | How Many Cars on the Road | Annual Transmitter Consumption Cost | Annual Electricity Costs (100% AC) | Annual Electricity Costs (var. AC) | Consumption | |
|-------------------------------|--------------------------------|---------------------------|-------------------------------------|------------------------------------|------------------------------------|-------------|--|
| 87,452 kW-hr | 52.47 | 9.9 | \$5,458.88 | \$5,666.86 | \$5,458.88 | | |

| Height (RU) | Height | Width | Depth | Volume (m ³ /ft ³) | Efficient Volume (m ³ /ft ³) | Power Density (kW per m ² /ft ²) | Footprint (m ² /ft ²) | Dimensions | |
|-------------|------------------------|------------------------------------|---------|---|---|---|--|------------|--|
| 450.3 | cm: 2004.0, in: 1146.1 | 646.0 | 1194.0 | 1598.32 | 403.08 | 0.00 | 77.37 | | |
| ATSP | Rental Costs | Annual Service & Maintenance Costs | Service | | | | | | |
| 125548 | \$0.00 | \$1,600.00 | | | | | | | |

2500W LIQUID COOLED TRANSMITTER TCO EXAMPLE

An example of how the TCO system quantifies cost of ownership, as applied to a liquid-cooled UHF multimedia TV transmitter. Here, the 20-year cost is about \$304,000.

speed cooling systems.

The second dimension is how the transmitter is cooled.

Mendenhall notes that for many operators, especially those starting a new transmission facility from scratch, liquid-cooled transmitters can significantly reduce the TCO. "Liquid-cooled FM transmitters are virtually unheard of in American radio transmission facilities," he said, "although they are more common in Europe." On the other hand, liquid cooling is very familiar to DTV transmission facilities in the U.S. and abroad.

He notes they have many advantages over air-cooled transmitters. For a given power level, liquid-cooled transmitters have a footprint about half the size of their air-cooled brethren. In high-rise buildings where square footage can be costly, this can reduce the amount of space needed, and thus rental costs.

already been made. However, if you are building a new transmission facility from scratch, the advantages of liquid-cooled transmitters may be more profound."

Mendenhall adds that while liquid-cooled transmitters may be new to American radio broadcasters, television transmission facilities have been done this way for years, so the expertise and field experience are available. However, there would be significant costs in developing and designing liquid-cooled FM transmitters for the U.S. market. He expects rising energy costs and increased awareness of TCO to drive interest and demand for liquid-cooled devices. One of the purposes of his session is to test that theory.

Mendenhall's presentation "Transmission System Total Cost of Ownership" is on Tuesday, part of the Broadcast Engineering Conference session "Green Engineering for Broadcast."

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TV Production on a Radio Dime

RFA Delivers Quality Online Video Without a Dedicated Budget

BY LAURA MIR

Radio Free Asia found that a relatively small amount of money can be applied creatively to develop a quality video product. Now it has an impressive studio space and a multi-disciplined staff that can create Web content for www.rfa.org.

Gordon Burnett, production engineer III, and AJ Janitschek, director of program and operations support, have been working on bringing video services to RFA in Washington since their purchase of a Canon GL1 DV mini camcorder in 2000.

"It has been a 12-year growth," says Janitschek of a process that led to the studio and production equipment now in place.

They will discuss affordable creation of Web video in an NAB Show session. Burnett plans to detail the process of content creation, to help broadcasters who want to launch or expand an online video presence.

"Radio engineers who are curious about the convergence of radio and video can get in on the game with some basic retraining and repurposing of resources common to both," Burnett said.

"If a radio engineer thinks the future is still only radio, they are mistaken. They need to embrace video and bring it to their station or network.

"I looked the subtotal of everything that we have done over the years, and it occurred to me that we could have spent a lot more money; but then we didn't do too badly considering we were nickel-and-diming it."

TELLING STORIES

The technology team at RFA knew that the amount of video being posted online was on the increase. Burnett was attracted by the medium's capacity "to retain visitors to well-designed websites and its ability to tell stories in ways that audio alone could not." The individual language services of RFA were also beginning to pick up on the importance of adding value to their online content.

"The more enterprising services picked up on it by themselves. The Vietnamese had started taping in the radio studios and they put out a pretty decent product, but the setup wasn't sustainable since the space needed to be used for audio. So we started talking about the new space," said Burnett.

To support the Vietnamese service and others, RFA converted a conference room into the new video studio. Funding was the biggest roadblock. Radio Free Asia is a U.S.-government funded, non-profit organization operated by the Broadcasting Board of Governors.

"None of these [video expenditures]

(continued on page 38)



The video operation is set up in what had been a conference room.

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TV PRODUCTION

(continued from page 34)

were a line item in our budget. When the opportunity presented itself, end-of-year funds, etc., and funds were available, we got in line and stated our case," said Burnett. Little by little the money to purchase equipment did come. Cameras, teleprompters, lighting ensued. Slowly the video studio acquired the necessary gear to produce the Vietnamese and other language shows.

Personnel was another issue, though it helped that RFA already employs 18 radio production engineers to support their 24/7 operation.

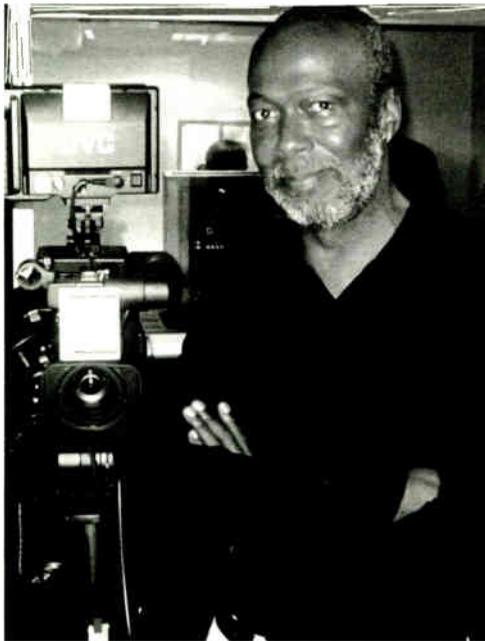
"We took a bunch of audio engineers, and in some cases people had no knowledge of video, and in other cases people did have knowledge. It made them more familiar with it (video) and now those same audio-only engineers are running a camera and a Tricaster [video production system] for multiple language services in the period of a day.

"All of these audio engineers are in essence multimedia people, because they picked up video skills, or as needed sharpened those skills. So they can be doing Master Control, then as needed jump into the video studio, and then go downstairs to the studio to run a live on-air radio program, and go wherever they are needed throughout the day."

AFFORDABLE SOLUTIONS

Also helping RFA save budget is the availability of inexpensive IT-based Web video solutions.

"There's a plethora of new, relatively low-cost streaming solutions available like LiveCast, which is a suite of complimentary software applications," Burnett said. RFA uses LiveCast for live streaming projects, and Digital Rapids



Gordon Burnett

Studio:

Newtek Tricaster XD300 Production System
Newtek LC-11 Controller
JVC GY-HD250 Cameras and studio package
JVC Camera Control Units
Sony LMD-1750W and LMD-2450W LCD Monitors
Vinten Vision Ped Plus Studio Pedestals
Autoscript ELP Teleprompters
Eartec TD904Pro Wireless intercom system
Yamaha 01V Audio Mixer
Blackmagic Design Sync Generator
Sony ECM 44B Lavalier mics
Brightline Systems T-Series Videoconference Fixtures
Strand Lighting 200 DMX Lighting Console

ENG:

Canon HF200 Camcorders
Canon XF105 Camcorders
Panasonic AG-HMC150 Camcorder
Adobe Production Suite

TouchStream for users to stream video from the field.

A visit by the Dalai Lama in July 2011 was streamed live for the Tibetan service from RFA's studio. The video is available at Radio World's links page for this issue, <http://radioworld.com/Mar-28-2012>.

"We have done quite a few live streaming projects, but that is not our bread-and-butter. We have much better control over the product when we record," says Burnett.

In all, the RFA language services "couldn't be happier" with its video capabilities, says Burnett. A quick look at RFA Vietnamese Service's YouTube channel shows why. The daily shows bring 10,000 to 20,000 views, and the channel has close to 4,000 subscrib-

Video control



ers. Along with Khmer, Tibetan, Lao and others, RFA's single studio is booked from 10 a.m. to 5 p.m. daily.

Burnett and Janitschek are hopeful RFA can continue to expand its video capacity. They hope to add another studio, at least, and more people to support it.

"We are running into a lack of resources," said Janitschek. The language services "are talking about expanding video production into the weekend."

Burnett says that RFA will just have to continue "to be fair and judicious in the kinds of things we choose to acquire" — wisdom to which all engineers can relate.

The presentation "Creating Real Web Video With Virtual (Few) Resources" is part of the session "Graphics for Radio" in the Broadcast Engineering Conference on Thursday morning.

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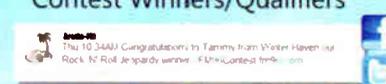
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Spotlight on New EAS at NAB Show

Server Access, Text to Speech Are Among Broadcaster Concerns

BY THOMAS R. MCGINLEY

EAS moves further into a new era on June 30, when the FCC Fifth Report and Order adopting new EAS rules is scheduled to take effect. A series of NAB panels Wednesday morning will discuss the state of EAS and CAP. A return engagement from last year's show features most of the manufacturers' representatives of EAS equipment.

Enormous changes and improvements in EAS have occurred over the past year as the Federal Communications Commission, Federal Emergency Management Agency, state associations, equipment makers and broadcasters have collaborated to make EAS more responsive.

Radio World asked panelists what broadcasters are most concerned about regarding CAP deployment, IPAWS server operations and overall compliance with the proposed new EAS rules.

ACCESS PROTOCOLS

Harold Price, president of Sage Alerting Systems Inc., says, "The general broadcast community is mainly worried about getting the access information for the FEMA (IPAWS) server to receive CAP messages. Secondary questions are about access to various state servers. The issue is that there is no standard for getting a CAP message from a state server.

"Even though a state might have a CAP alert server, some of them are CAP

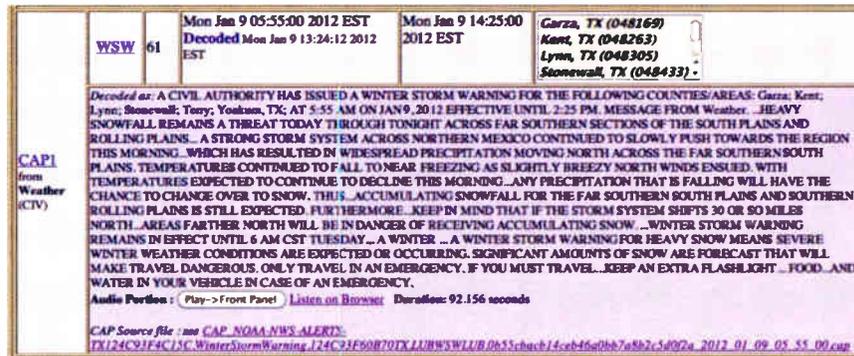
1.1 only and use custom data exchange protocols. We're working with vendors to get the access protocols and try to move them to CAP 1.2 and the IPAWS profile."

William Robertson, vice president of business development at Digital Alert Systems, says primary questions from his DASDEC customers are, "How do I connect to IPAWS servers, and when will they start sending CAP messages, including weather alerts? Depending on

from FEMA and state EAS origination servers in many areas. Sage's Harold Price said, "In 10 days in February, my test ENDEC (with filters wide open) received 2,253 alerts. Users won't need to see all of these, of course."

TTS

The other major question and concern voiced by broadcasters and equipment manufacturers involves Text to Speech.

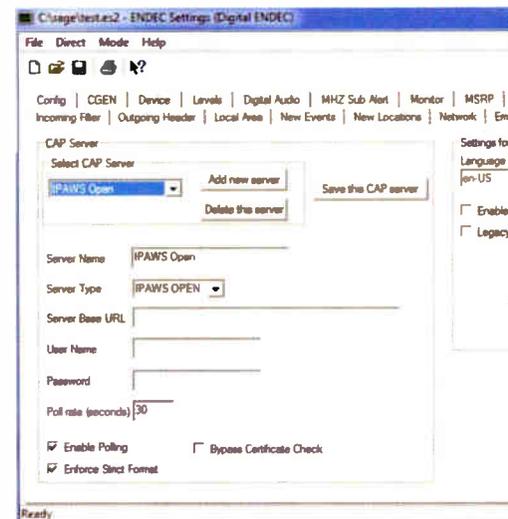


This Digital Alert Systems image shows a CAP message decoded from a NOAA CAP feed. A company spokeswoman noted the 'wealth of information available in the CAP message.' The display includes an associated audio file of 92.156 seconds. 'We also store and can show (via the hyperlink at the bottom) the raw XML file.'

who you talk to and where they're geographically located, you're bound to get different answers," he said.

Some states are active getting their state EAS systems equipped and configured for CAP. A veritable blizzard of tests is coming through the systems

Automatic TTS conversion of EAS messages has been touted as one of the most important and significant improvements offered in the new EAS. Yet the FCC chose to pull back from allowing use of TTS in the Fifth R&O. They apparently prefer to wait and let



Sage Endec .ES2 file configuration page allows the user to configure the unit and save settings to a file on their LAN for safe-keeping, modifications and restoration as necessary.

The FCC apparently prefers to wait and let Text to Speech technology evolve further to resolve minor bugs observed in some areas where it has been deployed.

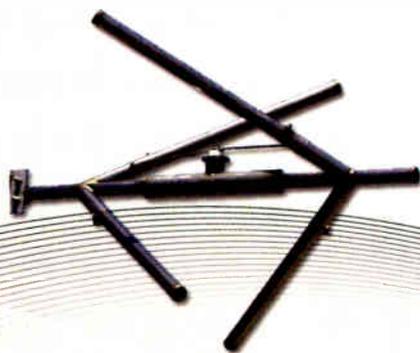
the technology evolve further to resolve minor bugs observed in some areas where TTS has been deployed.

Most EAS stakeholders seem disappointed in this decision. One is Matthew Straeb, executive vice president of Global Security Systems I.L.C.

"There is a concern regarding the elimination of Text to Speech, which has forced broadcasters and emergency officials to take off the table a tool for usage. With the current situation, broadcasters will be building creation and delivery networks to support audio messages, which introduces new challenges and costs. They are evaluating the use of Internet delivery, which can be cumbersome and unreliable."

In March, FEMA and a group of equipment manufacturers separately asked the FCC to reconsider the planned deferral of text-to-speech. The manufacturers warned of "very significant and potentially adverse implications" that would result from the decision to disallow use of text-to-speech technology in CAP receivers.

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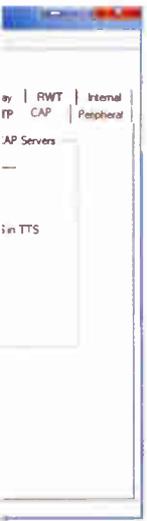


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The FEMA IPAWS servers now rely exclusively on the Internet to deliver their EAS messages and tests. Many see this as the weakest link in the new scheme. Most broadcasters have provided a LAN Internet connection to their new EAS decoders but will also need to configure their IPAWS source connection carefully.

Robertson said, "The IPAWS messages currently cover large regions, (i.e. entire states, not single FIPS codes) so you'll need to configure the equipment to better filter the specific events requiring response or forwarding."

NATIONAL TEST

Panel participants will discuss last fall's national EAN test and the follow-up evaluation of what went wrong and needs to be improved.

"Even though the test was not perfect," Price said, "it did allow broadcasters to make sure that their equipment would handle the special attributes of the EAN, and make sure they did have a way to receive EAN messages and get the audio, such as it was, on the air."

The participants we contacted felt that another EAN test is likely later this year. However, Robertson cautioned, "Many people think the next test will be CAP-based, and that's just not the plan at the moment, as far as we know. We're still sorting out legacy EAS here, and CAP testing will be later."

Many broadcasters feel the EAS Required Weekly Test should be eliminated or modified in the new EAS rules. But most equipment people don't think that's going to happen and still see value in the RWT, even for stations that are not monitored by others.

Sage's Price maintains, "It is the only way stations can make sure their receivers are working without waiting for the monthly test ... and is the best way to make sure that the EAS equipment is getting on the air, since an RWT can be sent at any time without fear of confusing any monitoring stations."

The FCC at this writing was still in the process of reviewing comments about the Fifth R&O. GSS's Straeb says the comment review "will be focused on the elimination of Text to Speech and streamlining equipment certification." EAS equipment manufacturers are working on providing a software patch that will allow turning off the TTS feature for now.

Several EAS discussions are part of the Wednesday session "Technical Regulatory Issues for Engineers," part of the Broadcast Engineering Conference at the NAB Show.



Bruce Bartone, left, explains features of the iZotope RX 2 audio repair and restoration software suite to Tac Yamamoto from TAC Systems in Tokyo.

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Exhibit Hours

Monday April 16: 9 a.m. – 6 p.m.
 Tuesday April 17: 9 a.m. – 6 p.m.
 Wednesday April 18: 9 a.m. – 6 p.m.
 Thursday April 19: 9 a.m. – 2 p.m.

This is a selection of exhibitors of interest at the 2012 NAB Show. Highlights are paid for by exhibitors; information is from the companies. Check on-site program for changes and full list. Booths preceded by C are in the Central Hall, N is North Hall, SL is South Lower, SU is South Upper, OE is Outdoor-Equipment, MR is Meeting Room, L is Lobby.

25-Seven Systems**C1835**

Intro: The 25-Seven Systems Precision Delay offers accuracy and audio quality that's adjustable from a fraction of a second to over an hour. Proprietary, artifact-free time compression/expansion smoothly builds and collapses delays leaving PPM data intact. Control remotely via IP to address drift between analog and HD Radio transmission signals, as well as complex translator/repeater synchronization. Use for fixed time-shift applications such as delaying programs across time zones.

305 Broadcast**C2156****AEQ S.A.****C1928**

Intro: AEQ Capitol compact digital audio mixer offers excellent performance in a footprint fit for a tight recording bay: eight faders and an internal mixing capacity equivalent to 128 x 128 channels. Like the Forum, its bigger brother, we didn't compromise features that our customers deem necessary. *Also:* If the standard Forum console — 12 faders, 128 x 128 channels of I/O — should fall short on physical faders, the Gran Forum is the solution. The Gran Forum offers the possibility of a configuration of up to 20 physical channel faders in a self-contained, compact format. *Also:* Phoenix Studio rack-mounted IP audio codec has been equipped with software remote control. *Also:* Phoenix PC is a software application that turns a

Windows PC into a high-quality audio codec. The application connects with the Phoenix audio codec with coding algorithms for bandwidths from 44.1 kHz to 384 kbps and with RTP traffic over UDP, direct SIP or proxy-based SIP signaling protocols. *Also:* The Atlas is a new digital commentary system and successor to the AEQ DCS-10, based upon the solutions of BC-2000D routing systems that also serve as the platform for AEQ's Arena family of mixing consoles.

Aeta Audio Systems**C2850**

Intro: The 4MinX is an integrated digital multichannel mixer and multitrack recorder in a compact unit. It offers mixing and recording of 5.1 or 7.1 surround sound, indoor and outdoor. Users can record up to eight tracks and adjust all levels for each track. The 4MinX is portable, robust, with a user-friendly interface, programmable function keys and a TFT display. For TV/film sync-sound location recording and music recording.

ALC NetworX**C2046**

Intro: The Ravenna Virtual Sound Card Driver for PC/Windows environment allows any audio application to participate in a Ravenna network environment. Through the new WDM audio driver real-time audio content can directly be sent to or received from the network without the requirement of a "real" audio sound hardware.

Aldena Telecomunicazioni Srl**C448**

Intro: ALP0502920 is a five-element circular polarization log-periodic directional antenna for the FM band. It has excellent electrical performance thanks to high gain, front-to-back ratio and the absence of side lobes. It can be used by radio and TV broadcasters requiring maximum control of the radiation pattern to achieve better coverage. *Also:* The ALP18 antenna aids detection and measurement of TV signals. With only one antenna cover a wide frequency range from Band III up to Band IV and Band V. The ALP18 is designed to discover SFN network coverage problems (echoes, EM levels) and in conjunction with a test or monitoring receiver, it can be used for versatile applications, e.g. field-strength measurements or determination of direction of incidence and signal polarization. *Also:* Aldena EmLab software for DVB-T2 network planning enables the design and optimization of radiating systems, with management of antennas arrays. It can be used to plan SFN/MFN networks (analog or digital signals) with area coverage calculations, interference analysis and discovery of SFN problems, as well as EM health and safety controls. *Also:* Antenna and RF engineering services.

Arctic Palm Technology Inc.**C3320**

Intro: CSSocial is a plug-in for Arctic Palm's Center Stage Live and CS Contest Management software that automatically will post messages to Twitter and Facebook accounts. Arctic Palm's RDS/RBDS datacasting process will post selected music, informational, promotional or commercial messages while our CS Contest Management package will post winning entries. Using the advanced scheduling tools we can select what to post and add hash tags and URL links such as the sponsor's website.

Arrakis Systems Inc.**C2310**

Intro: New-Wave-Lite is a low-cost live on-air software product for Internet or broadcast radio.

There are dual audio outputs for on air and cueing. New-Wave-Lite supports RDS data and meta-data for popular streaming services. Designed for Window 7 PCs. *Also:* New-Wave-Pro is new live on-air and automation software and hardware for Internet or broadcast radio applications. It supports hard disk-based live air and automation plus satellite automation for up to 16 satellite sources. Includes a built-in music scheduler. Voice-track, timed record, plus manual recording-editing are all available. A games feature supports unattended games.

Associated Press ENPS**SL8305****AudioScience****C1124****Audio-Technica U.S. Inc.****C3010**

Intro: ATM25/LE is a limited edition hypercardioid dynamic instrument microphone. To celebrate Audio-Technica's 50th anniversary, A-T has brought back its classic ATM25, offering it as a limited edition ATM25/LE in a silver-colored metallic finish with blue accents. Unique serial number is etched on the surface. A natural with high SPLs, the ATM25/LE is tailored for kick drum, percussion, brass and other dynamic instruments. *Also:* AT4050/LE is a limited edition multi-pattern condenser. With three switchable polar patterns, the limited 50th anniversary edition model exhibits a combination of high-SPL capability with transparent and airy uppers/mids complemented by rich low-end qualities. Featuring a silver-colored metallic finish and blue accents, and unique serial number etched on the surface, it works for studio and live sound productions. *Also:* ATM510 cardioid dynamic handheld microphone is equipped with new internal shock-mounting for reduced handling and stage noise. Designed for smooth, natural vocals and low noise. *Also:* Limited 50th anniversary edition ATH-M50s/LE professional studio monitor headphones in silver-colored metallic finish with blue accents. For pro monitoring and mixing, with a collapsible design. *Also:* AT2005USB handheld cardioid dynamic USB/XLR microphone for live performance, podcasting, home studio recording, field recording and voiceover use.

AVP Mfg. & Supply Inc.**C7448****AVT Audio Video Technologies GmbH****C9140**

Intro: Magic TH2plus and Magic TH2plus RM talk show systems are digital two-line telephone hybrids for POTS, ISDN or voice over IP. Features include screening function and database; echo canceller; AGC and expander for each line; up to three PC workstations; DTMF function and conferencing all packed into a half-rack and full rack unit design. *Also:* Magic TH6 is a digital six-line talk show system for POTS and voice over IP or ISDN and voice-over-IP. It includes screening functions with database; four digital and two analog audio interfaces allow one-fader, two-fader or six-fader operation; handset/headset interfaces for pretalk; dual-studio mode available; up to four PC workstations; DTMF function and conferencing

Axel Technology Srl**C3036**

Intro: XMAM is a multipurpose solution to archive and manage any media. XMAM gives an added value to archives by extending access from anywhere, therefore expanding the ability to share,

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access, distribute and sell multimedia contents. It has been designed to be suitable for other purposes such as newsroom or NLE and XMAM can be integrated into any existing workflow. *Also:* Digiware is a software package to create and manage playlists, for any size of radio and TV stations. Digiware has a user-friendly and customizable interface. It creates playlist multichannel plans for single or multiple users. *Also:* RAM-COMM is the software package for the management of the sales and scheduling of advertisements for radio and TV stations and press agencies. It is suitable for publishing groups with several media outlets (e.g. radio, TV, Web, papers) with multiple channels and advertising areas. *Also:* Falcon FM/TV processors and RDS encoders can be used for FM, TV, satellite and Web broadcasting. They are available in 3-, 5- and 6-band with RDS/RBDS encoding, UECP compliance, MPX stereo generation and audio changeover features for radio.

Axia Audio **C3113**

Intro: xNodes are compact self-configuring second-gen IP audio interfaces that mount in racks, under countertops, on walls. Two xNodes fit in 1 RU. Five models accommodate analog, AES/EBU, microphone signals and GPIO machine logic. Mixed Signal xNode combines mic, analog, AES and GPIO. Dual redundant Ethernet ports help ensure network integrity. There is redundant power: fanless, auto-ranging internal supply runs off AC mains or power-over-Ethernet from a PoE-equipped network switch, with auto switchover. *Also:* DESQ is a small-footprint, desktop IP audio mixer with six side-loading 100 mm conductive-plastic faders, two stereo program busses and cue bus, OLED meter and fader displays, clock and timer. Automatic mix-minus; Show Profile console "snapshots," anodized aluminum work surface. A fanless Axia QOR.16 console engine with network switch and analog, AES, mic, GPIO and Livewire ports can power two DESQs. *Also:* RAQ is a six-fader, 3RU rack-mount IP audio mixer with two stereo program busses and cue bus, OLED meter and fader displays, aircraft-quality switches, automatic mix-minus and Show Profile console "snapshots." A single engine with network switch and analog, AES, mic, GPIO and Livewire ports can power two RAQs. For use in remote kits, shipboard broadcasting, mobile units and networks with larger Axia networks. *Also:* Pathfinder Core is a Linux-based network-attached router control appliance for Axia IP audio networks. It gives routing control of 25 devices without the need for a PC. Programming via browser; automatic router table generation, automatic configuration backup, and new Core Events Boolean logic tools. For small-to-medium stations desiring routing control without the need for a PC. Fanless, auto-ranging power supply in one rack unit. *Also:* Pathfinder Core PRO is a Linux-based network-attached router control appliance for Axia IP audio networks. It gives routing control of every device without the need for a PC. Automatic router table generation, automatic configuration backup, and Core Events Boolean logic tools. Dual Gigabit Ethernet ports, dual-redundant auto-ranging internal power supplies with automatic switching, and multi-site clustering support for two or more redundant Pathfinder servers; all in a fanless, 2 RU box.

Azden Corp. **C1120**
Intro: FMX-32a portable mixer is designed to meet the needs of professional videographers. *Also:* SGM-3416 series are broadcast-spec, high-quality shotgun microphones. *Also:* Azden 2000 Series are broadcast-spec UHF wireless microphones.

Barix AG **C1139**
Intro: Annunicom PS1 is a multifunction, stand-alone IP intercom and IP PA master station, suitable for IP Intercom and paging applications without the need for PCs or server software. *Also:* Extreamer 500 is an audio over IP encoder/decoder with balanced inputs and outputs, contact closures and USB interface. Reliable architec-

ture, low power requirements and MP3/PCM/Ethersound support. A USB flash interface allows use of external memory to store audio files. The low-power, solid architecture make the device an excellent choice for STL applications, professional audio endpoints and generic audio routing applications. *Also:* Extreamer 1000 is a professional IP audio codec that provides balanced analog audio interfaces (stereo input and stereo output), AES/EBU digital audio interfaces and contact closures. A USB flash interface allows use of external memory to store audio files. Suitable for STL applications, professional audio endpoints (with IP or Ethersound protocol) and generic audio routing applications. *Also:* Programming

distribution is made simple with Barix's Reflector Service. By selecting simple options, users can establish low-cost, IP-based audio connections without needing to understand IT. Features include high-quality stereo down to low-quality mono audio supported; contact closure commands sent with audio; automatic failover to local content on stream loss/resumption of stream on reconnection; a flag for stream loss on local relay and alerting error/recovery. *Also:* Barix Rack Mount is an accessory to mount Barix audio devices in a standard 19-inch rack. Supports up to four Barix quarter-width audio devices. Can support mixing of different devices with different widths (e.g. one half-width plus two quarter-width devices).

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BOOTH# C2228

Sound Software
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Belar Electronics Laboratory Inc. C2023

Intro: The FMCS-1 precision digital all-in-one FM modulation monitor is a solution for the analog portions of the FM signal. The unit combines the features and functions of a frequency agile RF amplifier, down-converter, FM demod, stereo demod, RDS decoder, SCA decoder, and FFT spectrum analyzer in one product. Using DSP techniques, all processing takes place in the digital domain, for FM analog performance previously not possible. *Also:* FMHD-1 precision digital FM HD stereo monitor/analyzer is an HD Radio monitor developed using iBiquity's technology. The monitor decodes the HD Radio and analog FM signals simultaneously displaying HD Radio status, data, time-alignment, along with total, pilot, L, R, L+R and L-R metering and RF spectrum analysis with mask and sideband power measurements. The two-rack unit high FMHD-1 with 640 x 240 active matrix LCD display and rotary encoder provide a cleanly-detailed user interface.

Belden C8925

Intro: Belden's Ethernet AVB Switch is a response to the rewriting of the original Ethernet standard (IEEE 802.1BA AVB) for Audio-Video Bridging and it fixes problems that prevented Ethernet from being used effectively by broadcasters and other AV professionals. *Also:* Ever had a mic cable fail in the field? Belden has developed a new mic cable, Belden 1776, that is conservatively rated at a pull strength of 250 pounds, breaking strength 500 pounds. For every road crew, rock band or ENG van when cable failure is not an option. *Also:* Audio power amps of 1,000 watts or more can kill, so many of them are labeled with "Class 1 Speaker Cable Shall Be Used." Belden has brought out an entire line of Class 1 speaker cables, from 14 AWG all the way up to humongous 6 AWG. For stadiums, auditoriums, touring rock bands, or other high power applications, these are the only Class 1 speaker cables available. *Also:* Belden 2221 is a miniature 10-pair mic/patch cable which is digital (110 ohms) and

analog (13 pF/ft.) It fits not only bantam or TT plugs but also miniature balanced audio connectors from Switchcraft, Neutrik, Lemo and others.

Bext Inc. C1336**Bittree Inc. SU6519****Broadcast Bionics C3132**

Intro: Optimize and control your Facebook, Twitter, Google+ contributions and combine them with talk show control, email, SMS and prizes in a powerful single communications portal for your studio/gallery — meet PhoneBOX4. PhoneBOX4 by Broadcast Bionics helps you manage your all your show's contribution sources through its ingenious yet user-friendly interface. Built and designed by experienced broadcast experts in consultation with radio stations. Visit stand C3132 or www.phonebox.com to find out what PhoneBOX4 can do for you.

Established Products: PhoneBOX4 communications system

Mrs. Kirsten Smith,
Business Development Manager
Brooklands Barn Rocky Lane
Haywards Heath, West Sussex RH16 4RR
England
+011-44-1-1444-473999
Email: sales@bionics.co.uk
Website: www.phonebox.com

Broadcast Electronics C2217

Intro: Commotion, a new BE company, will debut. Studio applications include Commotion Wall for interacting with listeners across social media and mobile platforms through a single Activity Stream; Crowd Control for engaging listeners in song voting; SMS Campaign Manager for pushing messages to mobile listeners. Commotion specializes in apps for managing and monetizing social media for radio. *Also:* AudioVault Flex digital automation

will feature advances in resource allocation for sharing libraries, talent and studios in addition to its voice tracker with gain control for complex program transitions and flexible on-air interface for managing a number of studio activities at once. Several unique features move stations closer to the efficiencies of an automation-on-the-cloud operation. *Also:* STX LP transmitter line will feature new digital exciter, secure SNMP communications, improved HD performance and greater redundancy with more exciter/controller options. *Also:* AM, FM and HD Radio transmission products including the latest in HD Radio technology. BE will demonstrate its streamlined exporter for affordable HD implementation and elevated HD power levels as part of its VPe technology, capable of improving transmitter operating efficiency by 6 percent.

Broadcast Software International C2856

Established Products: Op-X radio automation software, Simian Pro and Lite radio automation software, SkimmerPlus, WaveCart 5.0, Stinger playout applications

Broadcast Tools Inc. C3020

Intro: Mixer Buddy; ACS 16.2 matrix audio switcher.

Broadcasters General Store C3020

Intro: CircuitWerkes will show additions to its remote control & monitoring line including the SiteSentry4 and a redesigned, enhanced SiteSentry2. The award-winning Silence Sentinel is being replaced by the SonicSentry2. Each new product is a Web-based control and monitoring system with enhanced features and onboard temp sensors. An optional, half-duplex, bi-directional streaming option can be added. *Also:* Yellowtec iXm is the all-in-one portable recording solution that will allow you to concentrate on the interview instead of the equipment. The LEA engine gives perfect leveling. Thread on/ thread off heads allow you to select pickup pattern. Li batteries + AA give power to run as long as you need to. *Also:* Broadcast Devices DPS-100D Digital RF Power Measurement System includes precision directional coupler and DPS-100D Digital RF power meter electronics package with backlit LCD display. Suitable for measuring analog or digital RF signals with accuracy within +/- 5% of reading. Use as a standalone power monitor/antenna protection system; combine to create monitor systems for master antenna applications or complete RF facility site monitoring. *Also:* Broadcast Tools' Switcher Sentinel 3; Axia IQ.

BroadView Software N3131

Intro: BroadView Cloud (BVC) provides all the power and simplicity of BroadView's unified suite of broadcast management tools (traffic, programming, sales, billing), with the added level of ease and flexibility in deployment and operation. With BVC, staff are freed from the confines of the office or office hours to enjoy a more flexible workstyle. *Also:* the broadcaster gets what they need when they need it without having to manage or maintain any of the IT infrastructure.

BSW (Broadcast Supply Worldwide) C446

Established Products: As one of the world's premiere radio broadcast equipment suppliers, BSW (Broadcast Supply Worldwide) is qualified to offer

thousands of products at very competitive prices. For over 35 years, broadcast professionals around the globe have come to depend on BSW.

Burk Technology C1920

Intro: The Plus-X Dual IP-8 Adapter allows a fast, affordable upgrade from the ARC-16 to the ARC Plus. The adapter connects to up to two ARC-16 IP-8s using the same DB37 cables as the ARC-16, saving hours of rewiring. The Plus-X Dual IP-8 Adapter includes I/O needed for up to 16 channels, eliminating the need for additional input and output units. *Also:* The Plus-X GSC Adapter allows a fast, affordable upgrade to the ARC Plus from the GSC3000, VRC2500 or VRC2000. The Plus-X GSC Adapter connects to existing GSC/VRC Command Relay and Wiring Interface panels, eliminating the need to rewire or add new I/O. *Also:* ARC Plus firmware version 3 adds an array of features for the award-winning ARC Plus transmitter remote control. Version 3 includes an all-new Web interface and a new smartphone interface for use with iPhone, Android, BlackBerry, etc. More powerful macro commands allow better automatic site control, and macros can now be triggered directly from an input value change. *Also:* The Plus-X 600 is the latest Plus-X Ethernet I/O offering for the ARC Plus transmitter remote control. The 1 RU Plus-X 600 includes 16 status inputs, eight meter inputs and six relay pairs (or 12 individual relays). This I/O package makes remote control projects more affordable and rack-space friendly. *Also:* Climate Guard LT adds an affordable option to the line of Climate Guard server room environmental monitors. It monitors temperature, humidity, smoke, water and other conditions that pose a threat to server rooms, unattended sites and other equipment installations. Climate Guard LT notifies personnel via email, SMS and SNMP to assure a prompt response to a problem condition. With its built-in Web interface and onboard logging, Requires no software.

Burli Software Inc. C2036

Established Products: Burli Newsroom System

BW Broadcast C1110

Intro: A new studio to transmitter link that, like the Aptus range transmitters, will build on the platform of the BW Broadcast FM receiver range. *Also:* DSPXmini ST is the latest low-latency audio processor. Apt for on-air monitoring thanks to pre/de-emphasis and FM style clipping, a station's talent gets the loud, processed signal that they are used to but with delay of only 4 ms. That means complaints of an echo in their headphones are a thing of the past. *Also:* Aptus range of FM transmitters is perfect for LPFM. The transmitters manage to pack in built-in multiband audio processing, RDS encoder, Ethernet remote control, stereo generator, SCA inputs and sophisticated alarms/notifications into only 2 RU. The functionality taken from the RBRX1 receiver gives the user more control than ever. *Also:* Upgrades for the TX range of transmitters. All now come with AES/EBU digital inputs as standard as well as multiband audio processing built-in at no extra cost. All 2 RU units now also come with the option of adding HTML5 Ethernet remote control to give the user more control. These upgrades are available for units in the field. *Also:* Software Version 1.1 for RBRX1 and RX1 receivers.



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Above: Concierge Switch Core shown with our innkeeper 1rx Digital Hybrid

NAB BOOTH C151

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JK Audio 20th ANNIVERSARY

Delta Meccanica Srl**C449**

Intro: 2.5 kW and 5 kW dummy loads. *Also:* 500W DAB Filter is a six-cavity unit with an elliptical response and one cross coupling. The mechanical construction technique permits us to build even a big structure without sacrificing RF performance and quality.

DIGiCo**C2252****Digigram****C2950**

Intro: Iqoya *Mobile for iPhone is the perfect iPhone App for remote AoIP field contribution. It transforms an iPhone into a high-quality MPEG-2 L2 and AAC recorder/editor, IP codec. Record audio, edit, add content and send to the studio either live audio over IP or through FTP file transfer. It works with an Internet connection, 3G or WiFi. Iqoya *Mobile constitutes an instant professional-grade "contribution" solution to set up a full-duplex connection between a reporter on the field and a newsroom/studio. *Also:* Cancun USB audio interface for professionals is built on a long tradition of no-compromise sound cards, offering no less than 2x500 MIPS dual-core processing power finely crafted and embedded into an ultra-robust yet stylish casing, Digigram Cancun 442-mic and Cancun 222-Mic are the tools that serious reporters and on-the-go audio professionals have been waiting for. *Also:* Iqoya *CALL/LE audio codec constitutes the entry-level offering of Iqoya hardware solution for IP contributions. A perfect match with such codecs as the Iqoya *Mobile for iPhone or V*MOTE for laptops. *Also:* PCX-LW and VX-LW Livewire audio bridges are for broadcasters equipped with Axia consoles. These customers can benefit from Digigram's audio quality and 24/7 reliability, combined with the inherent low latency, instant fader start and performance stability of this dedicated hardware solution for program delivery over an Axia Livewire network.

Digital Alert Systems**C3346**

Intro: R198 Local/Network-Controlled Multichannel AES Switch/Converter makes it easy to convert an unbalanced stereo audio signal and present it as the common "B side" of four independent A/B (2x1) balanced AES audio channels. Using synchronous electronic switching for glitch-free performance with no pops or clicks, each AES channel ensures program switching of any AES audio stream. Each AES channel features a fail-safe

bypass relay, thus maintaining primary program signal integrity in the event of a power failure. *Also:* DASDEC-II Emergency Messaging Platform is a flexible platform for emergency alert and CAP management in an integrated package. Includes support for automatic FCC-compliance logging within nonvolatile memory. A browser-based interface facilitates simultaneous access by multiple users while making it easier for broadcasters to deploy content to multiple channels and manage EAS/CAP remotely. *Also:* Starting at \$1,995, the DASLC is a full-featured, next-generation EAS/CAP system available for little more than any short-term CAP converter or solution. Includes two high-performance AM/FM/WX radio receivers in a space- and cost-saving package. *Also:* The Multi-Player four-channel EAS audio player and program switcher eliminates one-channel-at-a-time limitations by providing multiple and independent EAS switching, playout and control that meet the EAS requirements of multiple program streams. Multi-Player is configurable for analog or AES switching of up to four program streams and networks to any DASDEC for management and logging.

DK-Technologies A/S**C9942**

Intro: The DK-3 is a compact audio meter with SDI HD/SD input complete with audio de-embedding. The DK-3 Compact audio meter provides full loudness measurement facilities, including ATSC A/85, ITU BS1770/1771, EBU R128 & User adjustments to meet local requirements. The DK-3 meter will also provide Graphical Loudness and a choice of scales. Updates will be available on an "as-required" basis to allow for any new recommendations or changes to the existing ones.

Electro-Voice**C6008****Electrosys Srl****SU4319**

Established Products: 5 kW FM Compact Transmitter; FEX Exciter

Elenos**C2156**

Intro: The ETG Indium 5 kW FM Transmitter features new "Long Life" design, clean layout, reduced weight, lower temperatures and no corrosion. The unit includes Cloud Remote Control. It features less power consumption and more performance. It's scalable, which means lower maintenance costs. *Also:* The Physical link E.box connects devices with an Ethernet port and devices with an RS485

serial port. E.box allows communication between devices talking with different protocols. It also monitors parameters of the slave device and, if enabled, sends alarms (SNMP traps) towards the stored destination addresses. *Also:* The Indium line meets every range of power, from 150 W to 2,000 W. It's a solution for stand-alone transmitters, 1+1 or N+1 system or like exciters for high-power transmitters. Dimensions: 2 rack unit. *Also:* The ECHOS6 controls and monitors each transmitter by its parallel interface. Once it detects low RF output, it automatically sets the frequency, power and audio levels of the standby unit to the one of the failed transmitter, including routing of the input source (MPX, left/right, RDS or AES-EBU). Echos6 changes the configuration of the RF coaxial switch to substitute the "+1" unit for the failed unit and turn it "On Air."

Emotion Systems**N3719****ENCO Systems Inc.****C1314**

Intro: Instant Audio meets the power of ENCO with HotShot. Not just a single play device, HotShot delivers four balanced stereo outputs with eight banks of 84 on-screen buttons available at an instant and can play directly from a thumb drive or DVD-ROM. Plus, HotShot plays MP3 files, so it is the "button box" for today's broadcasters. *Also:* ENCO1 is the future of automation — a virtualized system where two, four or even ten "studios" can run from a single server as independent virtual sessions utilizing the latest in IP Audio and GPIO technology. In fact, most of ENCO's booth this year will be a live demonstration of ENCO1. *Also:* REMOTEVT represents a new concept in content sharing between sites that are not connected in any way. It is a remote voice tracking solution that allows anyone with access to a shared FTP site and a PC to track into a station's playlist no differently than if they were at the site itself. *Also:* Interchange+ is an update to ENCO's existing iPhone/iPad remote control and production system that adds enhanced browser-based audio library browsing, metadata manipulation and content creation.

ERI - Electronics Research Inc.**C2222**

Established Products: Rototiller, Lynx, 1180 Series, MACXLine

ESE**C6437**

Intro: ES-210, Quad 1x6 1/5/10 MHz Distribution

Amplifier provides four independent 1x6 Frequency DAs in a single rack-mount enclosure. Each distribution amplifier has loop-thru inputs and six isolated outputs, accessible via BNC connectors. The ES-210 utilizes screwdriver-adjustable gain controls that are located on the front panel. The gain controls provide an overall signal level adjustment of -1.5 to +3.4 dB. *Also:* ES-250 and ES-251, RS-232C isolation and distribution amplifiers. The main purpose of the ES-250 and ES-251 are to improve the distribution capabilities of RS-232C or provide isolation. They receive RS-232C and buffer the signal. Inputs and outputs for the ES-250 are via rear-mounted terminal block connectors, the ES-251 inputs and outputs are via rear 9-pin D-sub connectors.

Eventide**C1720**

Intro: Omnipressor Native plug-in is a dynamics processor with an attitude. Based on the classic Omnipressor double knee compressor/expander released in 1971. Omnipressor is available in both mono and true stereo, with side-chain capability (VST, AU, and AAX). *Also:* 2016 Stereo Room Native plug-in, for classic stereo reverb as heard on hit records spanning the decades. The plug-in is based on the Stereo Room algorithm from the Eventide SP2016 processor released in 1981 (VST, AU, and AAX). *Also:* With Blackhole Native plug-in, Eventide turns for the first time to its stomptboxes for inspiration. Blackhole is the secret weapon of many a producer. *Also:* H3000 Factory Native plug-in includes Modfactory 1 and 2 and Patchfactory algorithms from the legendary H3000D/SE.

GlenSound Electronics Ltd.**C1248**

Intro: Express Box is a two-position commentary box, simple in application and catering to users with minimal experience or for those who do not require extended features. *Also:* COIN range was established to produce hybrid units featuring the best of both worlds, from the world's best developers in each specialist area. GlenSound Electronics provides the commentary interface and RTS/Telex provides the intercom interface. *Also:* GlenSound Talent Box is next generation of single-unit commentary systems. *Also:* HD Voice Broadcasters' Mobile Phones is the GlenSound HD Voice version of GlenSound's Broadcasters' Mobile Phone which adds the new AMR-WB codec. AMR-WB is commonly known as HD Voice. The 3.4 kHz audio of a 2G mobile call is replaced by 7 kHz bandwidth audio giving improved lower frequen-



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Laurie Kahn, president of Media Staffing Network, gives a personal branding presentation at the 2011 BEA Career Day.

Photo by Kovacs/Dawley

cies and a refined audio connection. Available in portable and 1U subrack. *Also:* GS-MPITBU features a digital Telephone Balancing Unit and a Glensound Broadcasters' Mobile Phone (HD Voice optional). Both lines can be connected simultaneously so when there is a need for a quick change between lines, a simple flick of the routing switch changes from TBU to mobile or vice versa.

Global Reach Group **N4920**

Global Security Systems **N3238**

Intro: GSSNet Alert Studio is an easy-to-use Common Alert Protocol message origination tool. This Web-based application works with GSSNet to send CAP data via satellite or terrestrial Internet to broadcast EAS messages state-wide or to a local geographic area. It can also send CAP messages to EAS devices on your local network.

Established Products: Alert FM

GlobeCast **SU812**

Gorman-Redlich Mfg. Co. **C1125**

Intro: The CAP-DEC1 CAP-to-EAS Decoder System retrieves CAP alerts over the Internet, including from the FEMA/IPAWS feed, and translates them into EAS header codes which can be handled by current EAS equipment. This unit, which has passed IPAWS-CA testing and is listed in the FEMA RKB, is capable of sending alerts in as both FSK data tones for any EAS equipment or proprietary RS-232 serial data for Gorman-Redlich EAS equipment.

Harris Broadcast Communications **N2502**

Established Products: Intraplex HD Link STL system, Intraplex NetXpress IP audio systems, Flexiva HD+FM transmitters, 3DX-50 MDCL AM transmitters, FlexStar HDI200 HD Radio importer, FlexStar HDE200 HD Radio exporter, FlexStar HDx exciter, PR&E VistaMax studio audio networking, PR&E Oasis audio console, PR&E distributed audio sys-

tems (VMQuadra, VMConnect), PR&E NetWave audio console, PR&E RMXdigital audio console, Smoothline and Quickline studio furniture.

Henry Engineering **C1723**

Intro: Talent Pod is an announcer's microphone and headphone controller. It's ideal for studio use and especially for remote broadcasts. Talent Pod lets the announcer control his or her mic and features On/Off and Cough functions. It also lets the individual create a headphone audio mix of "Local" on-site audio and "Return" (IFB or back-haul) audio. For broadcasts with multiple announcers (a sports remote), several Talent Pods can be linked with cat5 cable, eliminating the need for DAs and complicated wiring.

Established Products: Matchbox, TwinMatch, Superelay, USDA, USB Matchbox, SixMix, MultiPort, StereoMixer, MultiPhones, AutoSwitch, PowerClamp

Hxi/Renaissance Electronics **C9648**

IBC **C3205**

Inovonics Inc. **C1411**

Intro: 632: The FM-FM/HD Confidence Monitor Receiver is a hot little off-air receiver for FM and FM/HD channels 1-8, now with iBiquity Certification and in full production. Displays RDS, PAD and "Tagging" data. Balanced analog and AES audio outputs; alarms for carrier, audio and HD loss. Always reboots as configured, does NOT blend or default to FM in HD mode! 1/3-rack INOmni package - three units in a 1U space. *Also:* The 719 "David IV" Digital FM/HD Airchain Audio Processor is now shipping, a sensible solution to the FM and FM/HD processing dilemma. Fast, easy setup and operation; no confusing displays, no resident Ph.D. required. All parameters under local and or network control. Low latency, boots in less than one second, sounds phenomenal!

Established Products: Analog and Digital Audio Processors (airchain and production); AM and FM Mod-Monitors; RDS/RBDS Encoders for song info; FM Translator Receivers

Mr. Lukas Hurwitz, Director of Marketing
5805 Highway 9

Felton, CA 95018 / USA

(831) 458-0552 ext.

(800) 733-0552

Fax: (831) 458-0552

Email: info@inovon.com

Website: www.inovonicsbroadcast.com

International Datacasting Corp. **SU2608**

Intro: Star Pro Audio Receiver Series is designed for cost-effective audio distribution over satellite, cable, DAB, DMB and DRM networks. Available in three models: Star One, Star Two and Star Three Pro Audio. Each has the equivalent number (one, two or three) audio decoders with balanced analog and digital outputs as well as an ASI option.

iZotope Inc. **SL8708**

Intro: Ozone 5 Advanced adds professional polish and sheen to your audio recordings.

Jampro Antennas Inc. **C2307**

Intro: RCCC-102-FM Constant Impedance FM Bandpass Combiner — Jampro's RCCC-FM Constant Impedance Combiner family is now available from Alan Dick Broadcasting as a result of the newly expanded company. The compact modular design can be configured to fit into the smallest transmitter rooms and allows an additional frequency to be easily added. These combiners use temperature compensated Bandpass Filters with integrated heat sink tops to keep filters cool and locked on their frequencies. Various models are available for different channel spacing.

Established Products: Economical and flexible antennas, combiners & filters, towers and RF components that address every application in the broadcast industry including HD Radio solutions. The company will additionally showcase its Service Group and the vast scope of services, from concept to completion, that are available.

Ms. Sonia Del Castillo,
Sales & Marketing Administrator

6340 Sky Creek Drive

Sacramento, CA 95828 / USA

(916) 383-1177

Fax: (916) 383-1182

Email: sonia@jampro.com

Website: www.jampro.com

JK Audio **C151**

Intro: RemoteMix One Field Interview Tool connects to cell phones and notebooks through the wired headset jack. This professional microphone preamp and powerful headphone amplifier provide vast improvement in sound quality. 3.5 mm line input and output jacks for recording. Use as a headset replacement for normal voice calls, or with third-party codec software for improved transmission quality. Provides two-way IFB connections through a cell phone or notebook for truly flexible remote monitoring. *Also:* RemoteMix 3.5 Broadcast Field Mixer features three microphone inputs, three powerful headphone outputs, phone line hybrid and keypad, PBX handset interface, and both wired

and wireless cell phone interfaces. These parts were designed to work together, saving setup. Use it as a front-end mixer with a POTS, ISDN, IP or smart phone codec. Route audio through cell phones or notebooks using the wired headset interface or using Bluetooth Wireless Technology.

Established Products: RemoteMix Series Field Mixers, innkeeper series Digital Hybrids, Concierge Talk Show System, Broadcast Host, innkeeper LTD, innkeeper PBX, PBXport, BlueKeeper, BluePack, BlueDriver, ComPack, AutoHybrid, THAT-1, THAT-2, Daptor 1, 2, 3, RemoteAmp series Beltpacks.

Jünger Audio **SU3604**

Intro: V*AP is Jünger Audio's two-channel voice processor. Coming with either Microphone (optional dual high-end mic preamps) or AES I/Os (for mixing desk insertion), the 19-inch, 1RU device provides a combination of classical dynamics processing and "Spectral Signature" Jünger Audio's new adaptive Equalization algorithm. Easy and powerful user interfaces include front-panel operation, GUI selection and API for third-party application (UDP, TCP [HTTP, Telnet, Ember]). *Also:* D*AP LM2 is a digital dynamics processor that performs automated leveling of audio content. The LM2 handles two channels with a choice of an AES I/O or one Analog Pair; as well as an optional 3G/HD/SD-SDI board for SDI compatibility. D*AP LM2 is designed for Radio, and PA applications and manages loudness integrating Level Magic II, Jünger Audio's adaptive loudness control algorithm complying with all major broadcast standards (EBU/R128, ITU/BS-1770/2, ATSC A/85).

Kathrein Inc., Scala Division **C1714**

Established Products: CL-FM

Kintronic Labs Inc. **C2010**

Intro: The All-Purpose Iso-Coil ISO-170-FM is a high-inductance iso-coil that is primarily directed toward FM translator installations on hot base insulated AM towers. The unit can also be used for any application that can tolerate the calculated insertion loss in the 1-1000 MHz frequency range. The high inductance associated with this iso-coil design results in minimal impact on the base drive impedance AM tower. Online brochure available at kintronic.com.

K-Tek **C8325**

Intro: K-Tek KiM2 Windscreen for Tascam iM2 Stereo Microphone plugs into the iPhone, iPad or iPod to turn it into a high-quality stereo recorder. The furry design minimizes wind noise and provides the flexibility to allow the iM2's condenser microphones to be oriented over 180 degrees for best sound placement. *Also:* K-Tek KTMWSC "The Mouse" windscreen for Sanken CUB-01 Microphone is made of faux fur with an acoustically transparent fabric lining, it provides a small pull tab that serves double duty to ease installation as well as to help with designating the orientation of the pickup pattern of the mic. "The Mouse" maintains a small space of air between the actual microphone and the windscreen inside lining.

Lawo North America Corp. **C2046**

Logitek Electronic Systems Inc. **C1317**

Intro: The JetSet Web Interface for JetStream is a browser-based remote setup and configura-

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Eventide Broadcast Delays are designed to keep profanity off your air, and angry listeners, embarrassed advertisers, and the FCC off your back. We invented the obscenity delay and have a solution for stations large and small that provides up to 80 seconds of the highest quality revenue and license-protecting delay.

Our new HD compatible BD600, 24-bit delay, comes standard with AES/EBU, and provides up to 80 seconds of memory — twice as much as other delays. There are fully adjustable Delay and Dump functions, and a Sneeze function which “edits” audio entering the delay, allowing the host to sneeze, cough, or make a short comment without being heard on air.

The BD600 offers two different methods of delay buildup and

reduction: Eventide’s catch-up and catch-down system, and an exclusive fast-entry-and-exit feature which allows starting a broadcast with the delay already built up to a safe amount and ending it with a rapid reduction of delay.

For HD, the BD600 offers MicroPrecision Delay™ mode which allows up to 10 seconds of delay, to be adjusted in real time in 100 nanosecond increments. This is useful for synchronizing analog and digital signals while on-air, without audible artifacts, to maintain a seamless user experience.

Whatever your size, whatever your format, you can’t expect to protect the integrity of your air and the foundation of your business without an Eventide Broadcast Delay in your rack.

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tion software for Logitek JetStream Networked Audio Console systems. JetSet operates on popular browsers for remote access via computers, smart tablets or smartphones. Users have access to configuration files along with simple selection menus for assigning sources to faders and network destinations, router changes, building triggers and determining mix buses. *Also:* Available in configurations of 6, 12, 18 or 24 faders, the ROC Digital Console includes high-quality Penny & Giles faders, OLED source indication, and optional meter bridges including a large meter bridge which features a 7-inch LCD screen for fast access to EQ and dynamics control, in an attractive desktop enclosure. User-assignable softkeys are available for a variety of functions such as scene selects. On/Off and softkey buttons have RGB-addressable lighting for at-a-glance operational status.

Established Products: JetStream AoIP Networking platform; Artisan, Mosaic and Pilot digital consoles; vScreen GUI

Markertek.com **C5343**

Matthews Studio Equipment Inc. **C5437**
Intro: The Smart Phone Adapter allows secure mounting of the most popular smart phones to take full advantage of the apps. Use on set, location studio or in a vehicle. *Also:* Whether on set/studio or location the Matthews Universal Tabl Mount (MUT) provides a simple yet reliable mounting solution for your tablet or iPad.

Mayah Communications GmbH **C1956**
Intro: Centauri III 4000 multichannel IP audio codec is a dedicated IP encoder/decoder for up to eight independent mono channels or four stereo programs. Each with a separate stream or put together combined in any desired combination. It can be used as a central communication entity for mul-

tipale outside broadcast units using SIP (EBU ACIP TECH 3326). For encode and stream contents by using MPEG Transport Stream or as TCP, or UDP/RTP streams for distribution servers like Shoutcast, Wowza or Darwin Streaming Server. *Also:* C11FMP FM radio rack module/codecs is a half-rack VHF-FM Radio Module with USB, two XLR outputs, antenna input, frequency range 64 to 108 MHz, in steps of 10 kHz. *Also:* C1191 Dual Codex with packet loss integration. *Also:* Flashman II with WLAN hotspot support, i.e. 4G/LTE New USB WLAN optional hotspot supports connectivity to any telephone hotspot. Flashman II supports real-time encoders and transmission and recoding to SD memory up to eight hours. Mayah also is now an Axia Livewire partner. **Established Products:** C11, Centauri, Sporty and Flashman II (Mobile codecs)

Merging Technologies **C3239**
Intro: Horus — Modular high-quality A/D and D/A featuring Ravenna networking capability. *Also:* Ovation V3.0 multi-format media sequencer and playout system. Applications range from theatre playout, live events, fixed installations, hotels, cruise ships, theatres, museums and exhibitions, corporate AV, television and radio production.

Minnetonka Audio Software Inc. **SL7706**

Moseley **C2610**
Established Products: The Rincon Digital Audio Transporter conveys four stereo audio programs using multiple codecs over combinations of IP and T1/E1 networks. STL solutions include Starlink Digital STL for 950 MHz and all worldwide bands, Starlink T1, LanLink LAN Extender/Data Link and Event High Capacity Radio Link for 5.8 GHz unlicensed and 18 and 23 GHz licensed multi-station links.

Myat Inc. **C2607**

Myers Information Systems **N4616**
Intro: ProTrack Radio — ProTrack Radio is a comprehensive, scalable and affordable broadcast management solution that interconnects traffic, scheduling, sales, engineering and IT departments. Serving as the centralized unifying element within a broadcast operation, ProTrack Radio integrates seamlessly with existing infrastructure to optimize workflow and preserve existing investments. Whether you are a single-channel or multi-channel broadcaster, ProTrack Radio can help close the loop between systems and departments so workflow can really roll!

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19R Hawley Street
Northampton, MA 01060 / USA
(413) 585-9820
Fax: (413) 585-9821
Email: sales@myersinfosys.com
Website: www.myersinfosys.com

Nautel **C2623**

Intro: -10 dB/-14 dB HD Radio Solutions and new LVDS adapter — Nautel offers the broadest portfolio of HD Radio solutions in the industry. With over 1,000 units installed, only Nautel's NV Series offers single-cabinet, solid-state power outputs as high as 33kW at -14 dBc and 26 kW for -10 dBc using Nautel's HD PowerBoost. New this year is the LVDS Exciter Adapter which allows Nautel and other vendors' customers to replace aging first-generation IBOC exciters with Nautel's latest fast-booting, reliable solid-state HD Radio components. *Also:* AM Power Saving using MDLC algorithms — Tim Hardy, Nautel's head of engineering, has long advocated for "Energy Conservation in AM Broadcast Transmitters Using Carrier Control Algorithms," the topic of his April 2009 NAB paper. Now, given the 2011 FCC public notice, many broadcasters are adopting MDCL power-saving techniques. Nautel offers MDLC free on its NX Series transmitters and will provide a live demonstration at NAB. This year a paper by Brian Walker will address MDLC with IBOC. *Also:* Even more control functionality for Nautel transmitters. Nautel customers access unmatched transmitter control by way of Nautel's award-winning Advanced User Interface (AUI). Built-in Web-accessible instrumentation, metering and diagnostics help broadcast engineers save trips, save time and save money. See what is new this year as Nautel rolls out even more functionality such as playlists, automatic audio backup, scheduler and Push Radio to even more of its transmitter families. And now more than 2500 transmitters worldwide are AUI-capable.

Established Products: VS Series 300 W to 2500 W advanced FM transmitters. NX Series 25 kW-2000 kW AM transmitters, NV Series 3.5 kW-88 kW FM transmitters, HD PowerBoost digital PAPP solution. Asymmetrical Sidebands, Push Radio, Data Logging, Proactive Support

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(902) 823-5131
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NeoGroupe **C2949**
Intro: NeoScreener latest version — Reception, moderation & publication of SMS, emails, Facebook & Twitter messages supported on a single screen through a unique application. **Established Products:** NeoScreener offers call Screening with full caller ID. The industry reference in call management solutions. *Also:* NeoWinners CRM, the contests & winners chain management solution; NeoAgent, the perfect link between radio stations and listeners; NeoStock for budgets, purchases & inventory management.

Netia **SU812**
Intro: Radio Assist 8.1 is an upgraded radio automation solution from Netia, which will showcase enhancements to its digital audio automation software. Radio-Assist 8.1 offers a robust array of tools for streamlined end-to-end multimedia production, broadcast, and publication workflows, as well as additions including a new integrated music scheduling application and new video editing capability from within a single user interface.

NPR Satellite Services **SU4709**

NVerzion **N4912**
Intro: NVerzion will present an enhanced version of its scheduling and traffic system, offering television and radio broadcasters a simplified and organized solution for scheduling, billing and accounting. The newest version of Keep It Simple Scheduler features additional tools for programming and sales, as well as improved editing and schedule generation. KISS can be integrated with a QuickBooks interface, simplifying the process of generating invoices and reports and virtually eliminating billing errors.

OMB America **C2549**

Omnia Audio **C3113**
Intro: New Omnia.11 FM is based on the Omnia.11 FMHD but without the HD capability for those who do not require that. Can be upgraded later to include HD. New Omnia.9 FM+HD is based on the Omnia.9 FM+3HD, but with only one HD processing/streaming source. OCan be upgraded later to include three HD sources. *Also:* Omnia F/XE is a file-based audio processor and encoder application, combining Omnia Audio processing with the Fraunhofer MP3 and AAC codecs for high-quality file prep for podcasting or file-based streaming. Software only, no special cards required. MPEG LAYER-2 MPEG LAYER-3 PCM WAV. Able to read PCM WAV files, MPEG Layer-2 and MPEG Layer-3 source files. *Also:* Omnia.SG now available with optional, built-in GPS clock sync option, designed to assist with synchronization of stations on the same frequency or closely-spaced adjacent frequencies. Achieved through the use of a GPS receiver with a 10 MHz clock input, and deployed at each station's transmitter site. Used when a station puts a booster on the same frequency to fill behind a mountain or tall buildings that block the main transmitter. **Established Products:** Omnia.11, Omnia.9, Omnia ONE, Omnia A/XE, Omnia.8x

Omnirax Broadcast Furniture **C3028**
Intro: Phoenix Line is a "best of" distillation of proven custom designs built with the rugged materials and exacting techniques as the Innova



Vinnie Lopez, CEV, CBNT, then-president of the Society of Broadcast Engineers, chats with Dan Carpenter of Sinclair TV in Columbus, Ohio, as SBE Executive Director John Poray stands in background.



1664: Just what it looks like. Two tin cups and a string. But it transmitted sound!



1876: Alexander Graham Bell's commercially viable telephone.



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



1920: Every home is working toward having a telephore!



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



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



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



VoIP

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



HD VOICE

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

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line, at a significantly lower price point. Available in three basic configurations — Air, Production and Talk — each available with a variety of add-ons providing additional space or functionality. The line is flexible and fluid, allowing for modifications at affordable prices. Also: Versa SS1 Series are ergonomic, elegant and expansive electric height-adjustable workstations for video/audio editing, monitoring traffic or other communication center production needs. The heavy duty steel frame includes a transverse support/modesty panel and Bosch motor has 330 lbs. synchronized lift capacity. The desk is always level no matter where the weight is placed. The height is adjustable to any height between 26 and 48-1/2 inches.
Established Products: Innova Custom Furniture, Phoenix Line of Production Furniture

OMT Technologies**C3320**

Intro: iMediaTouch Version 4.2 — New features are support for Windows 7, “quick links” to a variety of social networking sites, auto duck feature for Liner EOM adjust, new audio library blade in On-Air, retooled library screen in Log tools, new Info and Backsell tabs added to voice tracking and a new “wildcard feature” added to iMediaImport to allow for hundreds of downloadable audio elements from external FTP sites using simple id3 tagging. Also: iMediaTouch Remote Voice Tracking Portal V4.2 replaces our previous RVT server. It dramatically simplifies and streamlines our current Remote Voice Tracking process. The VTP software removes the requirement for the Remote Voice Tracking user to add their IP address to the WAN Remote sec-

tion of the ON-AIR workstation settings. This also removes the requirement for the ON-AIR application to be restarted after making a configuration change.
Established Products: iMediaTouch, iMediaLogger, iMediaArchive, Websecure+.

Onair Medya**C1736**

Intro: FT2K5, FT5K and FT10K FM transmitters provide more reliable high-power FM transmitters using the LDMOS transistors for the FM broadcast market. Remote graphical user interface system allows control, monitoring, fault analysis and event logging using an IP-based tool. FT5K is designed to operate in the whole FM frequency range. They use the latest generation transistors from NXP. Also: DVL Series digital microwave links are designed to operate in the 10380–11580 MHz range to transfer multiple high-quality digital video and audio programs in the same user-defined RF channel bandwidth. New Onair Digital Links allow a top-quality video and audio connection with possibility of multichannel configuration for a spectrum-efficient and cost-effective solution. The system is user-configurable for each application. Also: FMAPM800 800W FM pallet amplifier has been designed to operate in the FM frequency range (87.5 to 108 MHz), able to deliver max.800 W output power when fed with 0–2.5 W input power. Solid-State amplifiers use high-efficiency LDMOS BLF578. DC supply voltage is 46 V, gain is 25 dB.

Orad**SL4524**

Intro: RadioTV enables the automatic broadcast of radio shows, including live videos, real-time 3D



Componentry shown in a cabinet at Beijing Bed-Tech Manufacture Co.

Photo by Kovacs/Dawley

BELAR'S CUTTING EDGE HD MONITOR

NOW WILL SIMULTANEOUSLY DECODE & DISPLAY 4 HD AUDIO STREAMS!

- Direct Sampling of the FM RF Carrier
- Digital FM Carrier Demodulation
- Frequency Agile on both Antenna & High Level RF Inputs
- RF Spectrum Analysis with FFT Power Band Calculations
- Adjustable RF Mask for High Power/Asymmetrical HD Sidebands
- Time Alignment Cross Correlations Analysis ± 16384 Samples, ± 375 ms

- Metering of HD L/R/L+R/L-R Audio Streams
- Metering of Analog Total, Pilot, L, R, L+R, & L-R
- HD Control and Status Information
- HD SIS and PAD Data
- BER (bit error rate) Measurements
- User Assignable Email, Relay & Display Alarms



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graphics and promos, over digital media without human intervention. RadioTV relies on unique audio detection software to identify the talent's voice and automates which camera should be on air. RadioTV offers a complete set of 3D graphic templates including supers, titles, logos, promos and other elements, and supports the playback of full-frame videos, opening new revenue streams for advertising and sponsorships.

Orban C1717
Established Products: Optimod 8600, 8500 and 5500 for Radio, Optimod-PC 1101 and 1101e

PESA SL9615
Intro: DRS E-DXE 1536 distributed audio routing system with up to 7680 x 7680 supporting AES/EBU, mono, stereo, and timecode signals. Each 1RU input or output frame supports up to 128 signals each and can be combined with the E-DXE processor for up to 1536 x 1536 in only 13RU. Up to five E-DXE units can be combined for larger systems.

Petrol Bags, a Vitec Group Brand C6034
Intro: Petrol Bags Portable Digital Recorder Pouch (#PS615), crafted to hold the Zoom H4N, Tascam DR-100 and DR-40, and similar portable digital recorders. *Also:* Petrol Bags Deca lightweight audio bag (PS614) is a lightweight professional audio bag to transport sound equipment comfortably and securely and keep it safe, organized and accessible while working.

Plura Broadcast N4125

Pro Sound Effects SL7619
Intro: Pro Sound Effects Master Library is delivered on a 1.5 TB RAID sound effects hard drive. It features 118,913 sound effects (1.07 TB) delivered on hard drive, native broadcast WAV formats: 24/96, 24/48, 16/44.1, embedded metadata, intuitive categories and file names, Sound Effects Search Software (NetMix Lite): search, audition, drag & drop, Sound Effects updates included (digitally delivered four times per year), three-year data replacement policy, price: \$11,900 for a single user license. *Also:* Pro Sound Effects Online Library is where you can satisfy your sound effects cravings for those on-the-fly, fast-paced productions. You have multiple plans to choose from and 116,000 sound effects to work with.

Propagation Systems Inc. - PSI C1751
Intro: PSIFMT is a directional, circularly polarized antenna, intended for FM translators. Rugged copper and brass construction make it suitable for any environment. Two standard directional patterns with either a 3 dB or 6 dB reduction in the horizontal plane pattern are offered. The reduction is based on mounting to a vertical support mast. Standard directional pattern makes it a perfect low cost choice for translators.

RadioTraffic.com C1505
Intro: RadioTraffic.com award-winning affordable radio traffic and billing. Rated #1 in user satisfaction in 2012 survey by Traffic Director's Guild of America.
Established Products: UnattendedWeather.com

Radio World/NewBay Media C3044
Intro: Mobile apps. Multicasting. Audio and video streaming. Translators. Podcasts. RDS and metadata. Radio broadcasters are evolving into cross-platform providers. This new "information economy" can be scary or it can be exciting; Radio World helps our readers — the engineers, operations managers and top executives of the U.S. radio industry — understand this world and thrive in it, so they can employ not only FM and AM transmitters but also the many new digital and consumer electronics-based tools available to them. Are you reaching radio's new breed of cross-platform decision-makers?

RCS C2228
Intro: Zetta's sleek design has been streamlined and set up so that new users get more out of it without having to go to school for it. The interface feels comfortable to those who have worked in radio for decades or for one day. Integrates with our music scheduler GSelector, RCSnews and our traffic system Aqira. *Also:* Aqira provides real-time access to sales and inventory data, and a range of scheduling, billing and reporting options. Helps manage clients, prospects and sales team call activity. The secure database lets you manage the scheduling and billing of advertising orders across multiple stations via one central location. Account and Contract management, invoicing, spot analysis,

avauls and sales reports provide immediate information for informed decisions. *Also:* GSelector multi-station scheduling system features a single point of entry, flexible configuration and the most up-to-date technology, virtually eliminates unscheduled song positions. Adjust overall rotations, sound and flow with simple to use attribute sliders. With new Selector2Go, radio programmers can schedule music from their smart phone, iPad or remote browser in the database of their station. *Also:* RCSnews radio newsroom system provides solutions for your news operation from newscast gathering, writing and editing to actual on-air broadcast and story archiving. *Also:* New control room user interface in NexGen Digital, the most widely used

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radio automation software in the United States. Wancasting feature handles transfers between sites including audio, logs, music/traffic files and verification files for reconciliation. Add RCSremote for your phone or hand-held device and you can control your NexGen's station log from anywhere.

Riedel Communications Inc. **C4337**

Roland Systems Group **C4345**

Intro: Roland R-26 Field Recorder provides six simultaneous channels of pro-quality audio recording to SD/SDHC media. With two types of built-in stereo mics, XLR/TRS combo inputs and USB audio interface functionality, the compact R-26 is suitable for videographers who want to elevate their sound quality to the level of their HD video, and for radio professionals recording interviews and performances.

Established Products: Roland M-480 and M-300 digital mixing consoles, Roland R-1000 Multi-Channel Recorder/Player, M-48 Personal Mixer

RTW **C1844**

Intro: TM3 TouchMonitor is the latest introduction in the TouchMonitor family of audio metering products. With its 4.3-inch touch screen, the TM3 is a more compact version of the TM7 and TM9 and comes with a budget-friendly base price. The design of its sleek and modern exterior allows for horizontal and vertical placement, making the TM3 an appealing compact alternative, ideal for editorial offices, edit suites and small control rooms.

Established Products: TM7, TM9

Rushworks

C9915

Intro: REMO II remote production system is the next generation of our rugged portable, multi-camera SD/HD production system. *Also:* VDESK II Production System utilizes the same software and interface as the REMO II, without the portable configuration. Perfect for government meetings, houses of worship, video conferences and news/talk radio streaming. *Also:* VDESK RADIO/TV transforms radio stations into an Internet TV stations. This hardware/software solution lets you generate additional revenue streams by placing your brand "where the Action is," on mobile media and Internet TV screens. Using our DoubleTake PTZ control we assign presets to placeholders on a FloorPlan of your control room. Using the touch screen the operator taps the picture of who is speaking, and they're On-the-Air in about one second. *Also:* StreamSource AnyScreen is a hardware/software/service platform that allows you to send a single video stream to our Multistream Delivery Network (MDN) – single events or 24/7. It automatically creates formats compatible with virtually every downstream receiving device, including PC, MAC, iPhone, iPad, Android phones and tabs, and even Roku and GoogleTV.

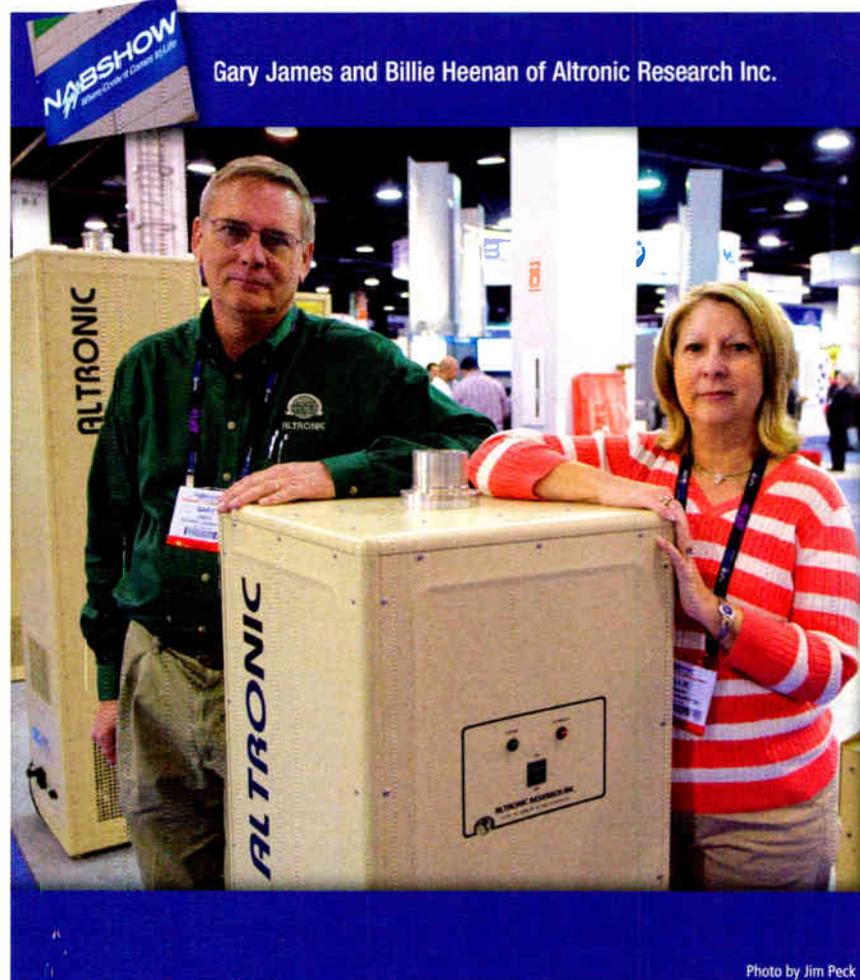
RVR Elettronica **C751**

Established Products: FM transmission equipment and accessories

Sabre Towers and Poles **C2728**

Sage Alerting Systems **C1339**

Established Products: Sage Digital ENDEC



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booth: C2549

SCISYS Deutschland GmbH **C451**
(formerly VCS Aktiengesellschaft)
Intro: New release of the leading radio production & playout solution dira! - Focused on workflow improvements and faster and more flexible onair operation. *Also:* Powergold Integration — New and extensive integration with Powergold rotation system: easy to use for last minute changes and unmatched flexibility.

Seratel Technology **C1151**
Intro: Compact Series Seratel FM transmitters. These LDMOS devices combine efficiency, low power consumption and reliability with a reduced smart design. Exciter is built in. Options stereo and RDS coders, remote control system over computer/mobile phone.

Sescom **C3951**

Shively Labs **C3207**

Shure Inc. **C1610**
Intro: Axient wireless system for extreme RF challenges. *Also:* VP89 Shotgun condenser microphone is designed to ease any field shoot, offering superior RF immunity, internal low-frequency roll-off and a rugged, roadworthy construction. *Also:* ULX-D digital wireless system.

Sierra Automated Systems & Eng. Inc. **C1451**
Intro: SAS KDL Audio over IP Module, now offering additional drivers and use across IP subnets. This 32KD module provides 32 bidirectional channels of uncompressed AoIP, conforming to the AVB IEEE 802.1 standard. Drivers are available to allow users to connect automation systems and other PC applications directly via IP, bypassing the need for dedicated sound cards. Serves as an AoIP bridge, enabling the 32KD to communicate with other SAS AoIP products. *Also:* SAS KEL Audio over IP Module — Now offering SIP connectivity to many third-party audio codecs. This 32KD module provides 32 bidirectional channels of bit-reduced AoIP. The KEL module provides AAC and G.711 compressed audio streams over IP without requiring proprietary hardware switches. With the support of SIP connectivity this can replace your TOC codecs, allowing the 32KD to connect directly to your field units. Supports SAS IP-enabled intercom systems. *Also:* SAS AXC-16A Digital Network and Router Controller is a system X-Y controller with two alphanumeric displays and 18 programmable buttons. High levels of control in a simple, intuitive package. With 18 preset buttons, making routing changes is easy. Suitable for a TOC, where one could control the feeds to air-chains, remote lines, satellite paths or check any route in the system. *Also:* SAS CP-8A/8A-Dual/16A/32A digital network and router controllers.

Solid State Logic **C2013**
Established Products: C100 HDS and C10 HD broadcast consoles, complete with production assistant software including C-Play, dialogue automix and 5.1 upmix. *Also:* X-Rack, nucleus and integration I/O solutions.

Sonifex Ltd. **C2739**
Intro: Three professional audio IP streamers in the new Pro Audio Streamer range provide encoding and decoding in different formats. The PS-SEND converts an audio input to an IP stream, the

PS-PLAY reads an IP stream and outputs to balanced and unbalanced audio line levels and the PS-AMP reads an IP stream and outputs audio to stereo speakers. Each has an Ethernet Web server to allow configuration. *Also:* Perfect for small scale radio stations, the Phone In 6 is a call control center for phone-in radio shows. A base unit contains twin digital telephone hybrids and can connect to six analog PSTN or digital ISDN telephone lines. Call control is managed by a simple desktop remote, or PC-based software, which connects to the base unit via Ethernet. *Also:* Redbox RB-DA6R is a 1U rack-mount six-way stereo distribution amplifier for splitting a source into a number of outputs. The amplifier provides multiple balanced

audio outputs using RJ-45 connectors wired to the StudioHub+ standard. The RB-DA6RG is identical with the addition of individual output gain adjustment, instead of global stereo gain adjustment.

Sound4 **C2849**
Intro: Sound4 x8 is the first processor dedicated to the treatment of Internet radio stations bouquets. It can handle — simultaneously and independently — eight radios on a PCI Express card with eight inputs and outputs on Windows audio driver and/or Livewire. With a real processing chain (AGC + Tone FX + Stereo FX + three-band compressor + four-band limiter), it also encodes each output up to four separate flows like MP3, AAC.

Staco Energy Products **C1311**
Intro: FirstLine P 65kVA UPS, addressing broadcast industry requests for a lower kVA version of a native 480VAC UPS.

Stagetec USA **C3332**
Intro: Nexus XDIP Dante Interface card in collaboration with Audinate for the Nexus digital audio router. *Also:* Vivace Room Acoustic System electronic room-acoustics emulation system creates convincing spatial acoustic environments in any indoor and even outdoor environment. *Also:* New software version v3.8 for Crescendo digital mixing console. *Also:* Nexus Digital digital audio router software update to allow reconfiguration of the

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system without the need of cold boot. *Also:* Nexus XCPU09 board with Loudness Metering, Spectral Analysis and True-Peak Meter.

Studer/Harman Pro N.A. **C2619**

Studio Technologies Inc. **C3747**

Superior Electric **C1108**

Established Products: Stabiline power quality products include automatic voltage regulators, surge protective devices, uninterruptible power supplies and power conditioners.

Systembase Ltd. **C1123**

Intro: C600ip is a cost-effective IP and X.21 audio codec designed to be managed remotely via the Web server or SNMP management systems. The C600ip is designed for live audio streaming over IP networks including ADSL lines. IP audio performance is enhanced by Systembase's numerically-based forward error correction (FEC) algorithm. Ideal for STL applications on an IP network or via a DSL with automatic IP backup. *Also:* C500 series of IP, ISDN & X.21 audio codecs have an impressive list of features: Internet Web server for full remote management and diagnostics, SNMP, FEC, AES3 digital audio interfaces, G711 (Digital Hybrid), G722, Linear PCM and aptX audio compression. Systembase C500 Codecs have low coding delay for real-time transmissions and live outside broadcasts.

TASCAM **SL2108**

Intro: X-48mkII 48-track hybrid hard disk workstation is improved version of the X-48, world's first standalone 48-track hybrid hard disk workstation co-developed with SaneWave. It continues to offer the stability and ease-of-use of a purpose-built hard disk recorder with the GUI, editing and mixing features of a computer-based DAW. Features 1 TB internal hard drive, eSATA and USB interfaces, 48-hour continuous recording @44.1kHz, dual-core Intel ATOM processor. *Also:* DR-100mkII 96 kHz/24-bit linear PCM handheld

recorder features four built-in microphones (two cardioid and two omni). MarkII updates include balanced line inputs, S/PDIF digital input, locking connectors. XLR microphone inputs with +48 V phantom power, XLR jacks feature locking latches for professional use, +4 dBu (maximum +24 dBu) line inputs available via XLR jacks, -10 dBV (maximum +6 dBV) stereo line input via 3.5 mm jack, accepts digital input via remote/digital-in jack (S/PDIF cable included). *Also:* HS-2 solid-state audio recorder with optional SY2 timecode card.

TBC Consoles **C6516**

TecNec Distributing **C1941**

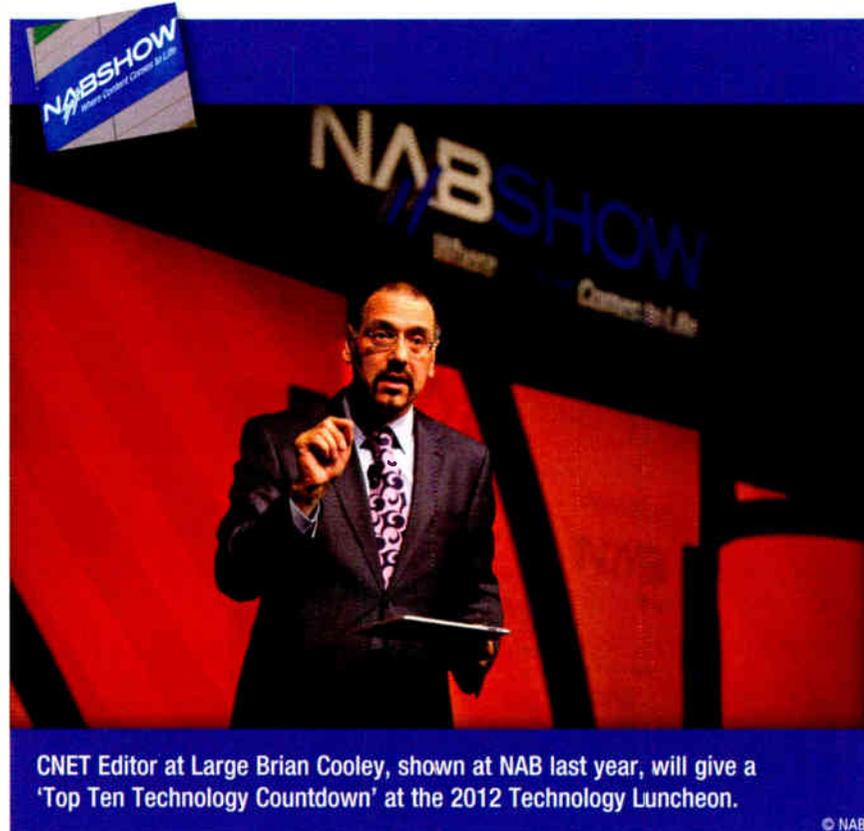
Telex **C6008**

Telmelec Broadcasting **C1448**

Intro: Directional coupler, FM filters and combiners

Telos Systems **C3113**

Intro: ProStream hardware streaming processor+encoder, a professional, hardware-based Internet streaming solution, puts audio processing, encoding and delivery to your stream replicator, in 1RU. Studio-grade analog I/O and Livewire IP-Audio connections feed MP3 and MPEG-AAC encoding algorithms from FhG and 3-band audio processing from Omnia to encode a single Web stream with artifact-free sound quality at whatever bit rate you choose. Works with Shoutcast-compatible media servers, Icecast, Wowza, Adobe Flash Media Server, or feed to a Live365 account. *Also:* VSet6 talkshow producer's phone for Telos VX is beautiful six-line phoneset for use with Telos VX Broadcast VoIP talkshow systems. Bright, attractive LCD color display with Status Symbols that feed talent information about line and caller status. Controls let talent step through queued calls, busy incoming lines, lock calls on-air, start an external recording device, even map groups of lines to a single fader, making it simple to take a queue of calls to air sequentially. *Also:* VSet1 single-line phone gives single-line access to Telos



CNET Editor at Large Brian Cooley, shown at NAB last year, will give a 'Top Ten Technology Countdown' at the 2012 Technology Luncheon.

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VX Broadcast VoIP talkshow systems. Suitable for news or production facilities where multiple lines are not required. LCD color display lets users navigate options, and provides information such as caller ID time ringing and time on-hold, and screener comments from the VX Producer software application. Powered by PoE from a Telos-approved switch, PoE port on an Axia console engine, or included power injector. *Also:* VX Broadcast VoIP Telephone System is the first VoIP phone system for broadcasters. VX scales to support clusters of 20 studios, can handle 48 calls simultaneously on 16 hybrids. Proven IP-Audio technology lets you move and share lines between studios. Connects to VoIP-based PBX or SIP-trunking telco services, T1/E1, ISDN, even POTS lines using standard gateways. Works with existing consoles or broadcast equipment as well as Axia Livewire networks.

TFT Inc. **C1625**

Intro: New CAP-EAS Device decodes CAP and provides EAS Extended text for character generators and graphics platforms as well as display for radio. Functions as EAS encoder/decoder for present EAS.

Thomson Broadcast **SU3012**

Intro: FM Rebroadcasting With DRM — This attractive alternative to satellite or telecom links is now available using DRM technology that produces a strong high-quality DRM shortwave signal that can be used for FM rebroadcasting. With this technology, the broadcaster has all his technical means in his own hands and is no longer dependent on third parties for distributing his program to low-power FM/AM transmitters. Compared to satellite transponder bandwidth the DRM transmission on shortwave is significantly lower in costs.

Tieline Technology **C1325**

Intro: Bridge-IT IP Audio Codec — Compact and

powerful IP audio codec including a front-panel user interface, with LCD display, PPM metering and dialing key pad; bidirectional stereo audio capability; EBU N/ACIP Tech 3326 compatibility over IP; broadcast-quality XLR connectors for analog and digital AES3 inputs/output; onboard SDHC card slot for automatic audio backup; dual IPv4/IPv6 compatibility; Web GUI for remote programming of connections; GPIO in/out and RS-232 data. *Also:* Genie IP Audio Codec is the world's most powerful STL grade multipoint IP audio codec for STLs and audio distribution over a range of IP networks. *Also:* Report-IT Enterprise — Turn your iPhone into the world's smallest, ultra-portable 15 kHz IP audio codec and 20 kHz recorder with the Report-IT Enterprise App. *Also:* Tieline Mic Adapter is a 20 Hz–20 kHz digital audio input device that delivers three octaves of richer, warmer, low-frequency response from 20 Hz to 200 Hz compared to competing mic interface solutions connected to an iPhone. Features: two stereo headphone outputs for live interviews; professional XLR input; adjustable mic gain with Automatic Gain Control On/Off; stereo line level input; mini-USB power input for long broadcasts; internal AAA battery slot for Mic Adapter powering. *Also:* Tieline Codec Management System lets you remotely view, configure and control the codecs in your entire IP network from any computer, anywhere. Control and configure your Tieline Bridge-IT, Commander G3 rackmount and Genie codecs. Create and manage primary and backup connections, view audio PPMs and IP statistics to maintain mission critical connections. You can adjust individual codec settings like algorithms, jitter buffers, forward error correction and more.

Tiffen **C8818**

Intro: Listec PromptWare PW-04 is an affordable, portable teleprompter ideal for podcasters and bloggers.

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VX is so scalable, it can manage multiple simultaneous talkshows in the largest facilities. Yet it's cost-effective even for a few studios. Audio is clean and consistent, because dedicated, third generation Telos hybrids manage each individual call. Even conferences are crystal-clear. You can deploy VX

"virtual phones" in production rooms, news workstations, or anywhere there's a PC with a USB mic and headset. Got a hot talkshow that suddenly demands more lines in a certain studio? Just a few keystrokes at a computer and you're set.

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Ted Gladis talks about Superior Electronics Stabiline power products with Anthony Seegobin of Guardian Media Ltd. at the 2011 NAB Show.

Photo by Jim Peck

TransLanTech Sound LLC C1722

Established Products: Ariane Sequel, a powerful AGC designed to control levels prior to final broadcast processing or for Web streaming and mix finalizing.

TRANSRADIO C1607 (CEC Booth)

Intro: DRM DMOD3 — DRM exciter with advanced precorrection facilities for ITU-compliant reliable 24/7 DRM broadcasts in the bands below 30 MHz. Automatic initial equalizer adjustment, equalizer optimization during DRM operation, the only way to implement DRM. *Also:* TRAM premium LCD — Solid-state DRM LF and MF transmitter family from 5,000 to 2,000,000 W output power. LCD control panel using the iPad2, Wi-Fi connection and removable iPad for comfortable supervision.

Trilithic C1148

Intro: EASyCAP Encoder/Decoder next-generation solution includes what system operators need to deliver CAP-based audio and video alerts. The one-box economical solution offers EAS, CAP, local access messages, audio/video peripherals, control over serial and network-based devices, interfaces to management systems, and network protocols and interfaces. *Also:* EASyCAP Premium solution delivers CAP-based audio and video alerts with extended capabilities for cable, broadcast, IPTV, radio and video systems. This next-generation system features enhanced hardware and expandability to meet your growing needs including six input channels to monitor for EAS messages.

TWIT LLC SL1415

Intro: TWIT at the 2012 NAB Show, April 16–19 — TWIT is the official Streaming Partner at the 2012 NAB Show in Las Vegas! Leo and friends will broadcast live at the TWIT stage inside the South Lower Hall starting Monday, 4/16 to Thursday, 4/19. If you can't make it to Las Vegas, watch our live coverage at live.twit.tv.

Established Products: TWIT Live @ 2012 NAB Show, Home Theater Geeks, MacBreak Weekly, Ham Nation, TWIRT

Ms. Lisa Kentzell, CEO
140 Keller Street
Petaluma, CA 94952 / USA
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V-Soft Communications C2026

Intro: Probe 4 makes you an expert at predicting radio propagation from 20 to 20,000 MHz. Probe 4.37 offers new features of flexibility and speed, including the capability to use multiple program threads and core processors. Duopoly & service counting routines have been expanded and streamlined. We updated the outgoing TV interference masking filter window to reflect rule changes and new service codes for digital translators and Class A stations. *Also:* FMCommander, Version 6.3.86 — We have made it easier to edit antenna patterns. An interactive graphic pattern screen allows the user to drag pattern field points to simultaneously see the contour results on the interference map. The pattern graph turns red where contour overlap occurs. We have added a new "Jump to I.F." feature for translator channel searches and created new hypertext help files and an updated user manual. *Also:* AM-Pro Version 2.48 performs coverage, skywave and groundwave interference analysis. This program is in use by broadcast and FCC engineers to build and review Form 302 AM proposals. It includes new code to clip protection at the international boundaries for daytime analysis and an "Export Data to KML File" feature to generate a Google Earth file that contains contours and site locations. The 2010 population reports now include housing units and area information.

Ward-Beck Systems Ltd. N3425

Wheatstone Corp. C2615

Intro: Wheatstone new radio console design; Audioarts new radio console design.

Established Products: Wheatstone will exhibit its Wheatnet-IP and TDM networked audio consoles as well as the Audioarts Engineering line of analog and digital networked and standalone radio consoles. The latest generation of Vorsis technology signal processing gear will also be on display.

WhisperRoom Inc. SL5717

Intro: WhisperRoom Inc. manufactures portable/modular sound isolation enclosures for the broadcast/recording industry. WhisperRoom offers 20 sizes and two levels of sound isolation, a Standard (single-wall) and an Enhanced (double-wall). Sizes range from a modest 3.5' x 2.5' one-person unit to a room-size

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WideOrbit N5129 & N5829

Intro: WO Mobile is a robust mobile platform that allows you to launch targeted mobile programs and campaigns that directly engage consumers, increase the commercial value of your advertising inventory and drive revenue. From SMS alerts to MMS videos, sweepstakes to mobile coupons, WO Mobile allows you to effectively reach and interact with your audience via the fastest-growing, most effective medium. And it's tightly integrated with WO Traffic for streamlined and accurate billing, invoicing and reporting. Also: WO Analytics is a complete turnkey Business Intelligence solution for broadcasters. WO Analytics provides full visibility into your business and delivers the mission-critical information you need to optimize revenue and minimize operational costs. Working seamlessly with WO Traffic and utilizing the most modern, easy-to-use dashboards, WO Analytics exposes trends and outliers hidden in the mass of data

within your systems, allowing you to make the strategic decisions that can immediately impact your bottom line.

Established Products: WideOrbit is the fastest-growing provider of business management solutions for radio. We deliver the most complete, state-of-the-art solutions for managing your radio business across sales, traffic, automation and billing. Our leading solutions for radio include WO Traffic, WO CRM and WO Automation for Radio, the industry's most modern and powerful radio automation system.

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Wohler Technologies N5211

WorldCast Systems C1632

Intro: APT's SureStream Technology enables broadcasters to achieve the quality and reliability of a synchronous link, on inexpensive public IP connections. SureStream is available on WorldNet Oslo and Horizon NextGen codecs and achieving exceptional results. In one field test, SureStream has been running on an international ADSL link for over four weeks. With 850,000 dropped packets and 1500 loss of connection events, the reconstituted

audio stream remained 100-percent perfect — not one packet was lost. Also: Ereso has extended its hugely efficient new Helios FM transmitter range to include new 350 W, 1 kW and redundant 1+1 systems. The Helios range delivers the highest available efficiency on the market (74 percent) together with the lowest heat dissipation. Available from 20 W up to 2 kW, Helios transmitters also offer a "Direct to Channel" digital modulator and many additional integrated features such as RDS and stereo coding, audio backup and an FM limiter. Also: Audemat's ScriptEasy software suite, which enables "intelligent" remote control, can now be accessed from anywhere with the launch of MasterView Web. Masterview is the end-user application that enables easy graphical visualization of all relevant parameters and statuses at the remote site. Now with MasterView Web you can access this information from any Internet-enabled device to carry out periodic checks, respond to alarm notifications, remotely diagnose faults and trigger any necessary changes. Also: Audemat launches new RF generation functionality on their industry standard FM test platform, the Modulation Analyzer. It enables an engineer to simulate any audio, RF or MPX signal and perform comprehensive analysis using tools such as an RF spectrum analyzer, oscilloscope, distortion meter and MPX and RDS analyzers. This 3 RU unit offers everything you need to commission, test and maintain an FM transmitter, making it

essential for broadcasters and FM transmitter manufacturers and installers.

Established Products: Digiplexer sound processor, WorldNet Oslo audio multiplexer, Horizon NextGen IP audio codec, Equinox IP/ISDN audio codec, Stream-In/Stream-Out Silver cost-effective IP audio encoding/decoding, FM modulation analyzer, Helios FM exciter, Helios FM compact transmitter, FMB50 RDS encoder, FM Receiver Silver, Nephtys 1+1 unit, GoldenEagle HD monitoring, Relio and Mini Control Silver remote control, FM Monitoring Silver

Mr. Chris Poulain,
VP Sales Manager
19595 NE 10th Ave. Suite A
Miami, Florida 33179 / USA
(305) 249-3110
Email: poulain@worldcastsystems.com
Website: poulain@worldcastsystems.com

Wowza Media Systems SU9702

Intro: Wowza Media Server 3 provides a single extensible foundation and value-added components for "Any Screen Done Right" media delivery. The software offers the broadest coverage for streaming live and on-demand audio/video to PCs, smartphones, tablets and IPTV set-top boxes. AddOn components help organizations of any size to deliver live and on-demand content efficiently. Also: Wowza Transcoder AddOn; Wowza Network DVR AddOn; Wowza DRM AddOn.

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Tom Niven and WGHT: Oldies Yet Goodies

'From the Listeners' Standpoint,
Sometimes the Old Ways Are Best'



The home of 'North Jersey 1500-WGHT.'

BY KEN DEUTSCH

He does some on-air work, station imaging and production, community contact and lots of engineering, yet he describes his main job as "keeping everyone happy." The station where he works is a profitable stand-alone AM with a large staff.

After some 48 years at the same place of employment, Tom Niven has one

rule that trumps everything else: "Don't annoy the audience!"

Niven, 75, is operations manager at the slightly contrary WGHT(AM), Pompton Lakes, N.J.

Within the walls of this 1,000-watt daytimer are 21 working cart machines, several of which are used on the air, and some classic turntables, all housed in an attractive wooden building with a flag out front. If it weren't for the

signs ("North Jersey 1500-WGHT"), one would think he had stumbled onto the set of "Leave It to Beaver."

JUST LIKE MARTIN

"From the listeners' standpoint, sometimes the old ways are best," said Niven.

"We're 20 miles from Manhattan and you have everything on the dial around here. Going back to the early days, our motto has always been to give the listeners something they can't get somewhere else."

Niven, who owned WGHT between 1982 and 1993, desired to be in radio almost all of his life.

"When I was four, I wanted to be Martin Block, the guy who hosted 'Make Believe Ballroom' on WNEW(AM) in New York," he said.



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After working as a teenager at a few stations, Niven was recruited by Bob Kerr, who was just putting WKER(AM) on the air in 1964. Niven was at the station on its first broadcast day, he was there when the station was rechristened WGHT ("Greatest Hits") in 1993 and he is still there today.

He started as an announcer but he also promoted live concerts, bringing in such artists as the Shangri-Las and local favorites the Happenings.

"The kids would come to the shows from all over, and it was a great thing for the station," he said. "Here's this stinky little station going up against NYC's WABC(AM) and we were killing them in this area. We just connected with the audience. We weren't cutesy on the air and we never put anyone down. Those are the worst things you can do besides having dead air. If we couldn't think of anything to say, we would just shut up and play the music. I learned how to hold an audience from Bob Kerr, the guy who brought me here, and who also

(continued on page 64)



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World Radio History

NIVEN

(continued from page 62)

published a programming newsletter back then called 'For Stations Only.'"

A typical oldies station may play about 400 records in normal rotation, but WGHT is far from typical.

"We have a much wider selection of hits including about 2,000 catted oldies in the studio," he said. "And I personally replaced the pads in every single one of those carts. While most of our music is played from CDs, we also use turntables. I have three RCA turntables and they still run, even though they spent a little time underwater in the last flood we had."

IT'S ABOUT OUR TOWN

WGHT, owned by John Silliman since 1993, still plays the hits. It also has a strong connection to its north Jersey community.

"We have a lot of local sports, and on Saturdays I can have up to 20 people working," said Niven. "We do one high school football game live, and that takes four people. In the studio we have a guy working the board and two hosts, and another guy who records all the people we have calling in to update the scores every quarter. Not many stations do this."

In addition to covering the local sports scene, WGHT participates in such charitable events as the Arthritis Walk, Flood Aid and the March of Dimes' March for Babies.

"Radio's biggest challenge is getting back to the basics," he said. "You can't get away in the long term with a one-man operation. You need people, and you have to touch people, and that's



Tools of the trade: Cart tapes, cassette decks and CD players vie for space at WGHT. The program pie chart reminds jocks to 'give time and temp as much as possible.'

why we don't voice-track."

Niven said the station employs five salespeople. He declined to discuss the station's revenue. As far as the question of ratings: "We've tried Arbitron, and it doesn't work," he said. "We're 20 air miles from Manhattan. Arbitron goes by counties, but we are spread over three counties. Each of the county seats, we don't specifically cover. That's why we don't get into [ratings services]. In almost 50 years, no rating has ever proved worthwhile.

"I think we're like a lot of stations would like to be, but they don't have news departments anymore. It's a sad reflection on radio."

RECOVERY

The station is not on Twitter or Facebook, but it live-streams on the Internet 24 hours a day.

"We record all day long and play it back overnight using a Marantz PMD570 rack-mount audio recorder. Our studio is equipped for stereo and the device records stereo, although our AM broadcast is mono during the day," said Niven.

"We have regular listeners in Australia, in some little godforsaken town! They listen to us [via streaming] while they're driving snakes out of their building or whatever they're doing down there." The station can be heard online at www.ghtradio.com.

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Niven grew up in Long Island and has been married to his wife Anne for more than 45 years. He lists his favorite musical artists as James Brown and Pavarotti. Talk about a "wide variety of the hits."

On-air and production people rely on their voices to earn a living, so imagine how Niven felt when his raspy throat refused to get better.

"I was distraught," he said. "But I kept working, even though I had to voice my promos by recording short pieces and editing them together. I finally had myself checked out in March 2011 and discovered I had throat cancer." He went through nine weeks of

(continued on page 66)

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Are You Getting Your Beer Money?

(Stockphoto/Vladan Milisavljevic)

Beer Companies Want Promotions; Your Station Stands to Profit

I studied beer for most of a semester in college.

In one of the most interesting marketing classes I attended at Ohio University, the professor discussed beer, a product with many distinct brands yet similar attributes.

During the first lesson, the professor poured 10 different beers into glasses; we students had to identify them. Out of 30 kids, only three were able to identify more than three of the brand names correctly. The professor then introduced us to the concept of positioning a product to market it to a specific group.

This class taught me a lot about the power of positioning and, perhaps just as important, that beers will forever need advertising to brand and sell their product. Which brings me to the point of this article: Are you getting your fair share of beer money?

PAR-TAY

Beers primarily are after young men 21–34, so these suggestions are directed at radio stations targeted to reach that demo. (However, before you toss out the can with the suds, I've witnessed non-demo stations win over the local beer boys too; we'll get to that at the end.)

If you've got great ratings in the

target, you likely are getting called in for pitches already; but just because you have a seat at the table doesn't mean you'll get your unfair share. Beers want promotions, and they're going to get them one way or the other ... if not from the ratings winner, from someone else who knows how to play ball.

Assuming it's legal in your area for a radio station to "present" parties at bars, then by necessity you must deliver on this need. Beers love to "give" parties promoted by stations to their clients (bars) for free, because the clients assume you'll drive a crowd to their premises. In turn, this allows the beer to pressure the bar to serve (more of) their product.

As voice-tracking has taken out so many live bodies at radio stations, the number of parties presented by stations has dropped. As a manpower solution, I have seen stations hire part-time professional "hosts" for bar parties — mobile DJ companies are great source of talent — and provide the "host" with attractive prizes and an on-air promo schedule to drive attendance. Sometime beers and bars ask for live broadcasts to drive attendance. Nothing wrong with airing a few 30-second on-air call-ins from the bar done by your "host." To really impress, you could consider doing an

entire live broadcast either on one of your HD channels or streamed live on your website.

The truth is that for the beers and bars, it is often as much about the theater of doing the "live show" as the number of actual listeners.

Action Item No. 2 in your pitch is branding. In how many ways can you include the beer's brand name in your major events (where they may also get pouring rights)? Or in your on-air programming? "The Molson 90's Six-Pack at Six ... when you get six in a row from last century."

Perhaps most important, you've got to have decent merchandising.

This is where I've witnessed stations out of the demo grab the biggest order. Merchandising includes anything the local distributor can use to their advantage for the clients or their own sales

NIVEN

(continued from page 64)

radiation treatment. A followup scan in November showed no cancer and the lesion in his throat gone.

"I'm a lucky one."

CUTTING TEETH CUTTING LAWN

Niven has also served as a mentor to many over the years.

"We've had a lot of people pass through my little 'school of broadcasting,'" he said. "Kevin Burkhardt went from here to work for WCBS(AM), then WFAN(AM) both in New York, doing sports. Several of our people went from here to Metro Traffic, which provides on-air reporting services to a lot of stations. Most stations don't hire full-time people much anymore. They have empty newsrooms and they actually contract out their news."

Another well-known alumnus of WGHT is Gregg Whiteside.

"The guy walked in the door here in the 1970s looking for a job," said Niven. He had been all around the world but was for some reason interested in having me teach him radio. I could tell right away the guy 'had it.' He was a DJ here for a few years and then got a job at WQXR(AM) in New York City, where he lasted for about 20 years. He was a fixture on the classical music scene."

Jim Stagnitto, director of engineering for both the New York and New Jersey Public Radio groups, is a

PROMO POWER



Mark Lapidus

force. Hot tickets to concerts and events are a winner. Electronics always bring a smile — imagine being able to offer a 12-pack of iPads for a certain spending level! My personal favorites are prizes that can't typically be purchased. The tried-and-true include: The "best seats in the house," a couch on the side of the concert stage; a voicemail message recorded on your mobile phone by a favorite recording artist; lunch with a celebrity; and being guest photographer at a professional sports event, with your pics being placed on the station's website.

Succeeding with beer companies and distributors also is very much a relationship business. Your reps must invest the time to really get to know the decision-makers. This takes patience. It helps if the rep likes ... what else? The specific beer!

The author is president of Lapidus Media. Contact: marklapidus@verizon.net.

graduate of the unofficial Tom Niven school of broadcasting.

"I was doing morning announcements in high school when Tom called the school office and asked if they could send over a student who could sound natural while reading," said Stagnitto. "The school sent me to WKER to read, and I was thrilled. I had listened to the station since it signed on."

Niven was impressed by the youngster and asked him to work weekends filing records, collating news copy, learning the board, attempting production and reading two-minute news briefs on the air.

"Oh, yeah, I also cut the station owner's lawn for a few extra bucks a week," Stagnitto added.

This led to an air stint and eventually a full-time job that lasted four years.

"Tom is easygoing, and I can say that to this day I'm still using some of the stuff he taught me," he said. "For example, he taught me to think 20 minutes ahead, and he reminded me that there is only one person listening at a time. Basically, Tom took me in as a young high school kid and by the time I was out of college I had five years of real professional experience. He never treated his station as 'small town.' He was the perfect teacher."

Ken Deutsch is a former DJ who says he wanted to use the air name "Beethoven Smith" until his program director told him what a stupid idea that was.

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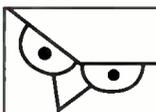
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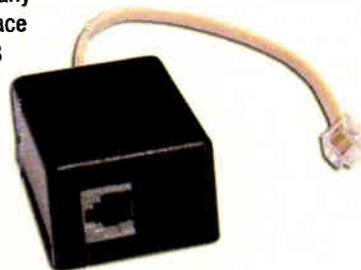
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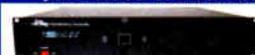
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OPINION

RADIOWORLD March 28, 2012


READER'S FORUM
WHERE TO FIND THE BEST 'RADIO'

In response to "He Hears a Bounty of Listening Options" (Jan. 18):

Deutsche Welle and Radio Netherlands Worldwide have ended their broadcasts to North America. Both broadcasters now concentrate their remaining shortwave efforts on Asia and Africa. BBC World Service is rapidly leaving the shortwave scene along with many other favorites from our childhood. You'll now hear China Radio International, KBS World Radio from Korea and many enthusiastic evangelical religious broadcasts.

Ham radio is still alive and well!

True radio lovers would enjoy the remarkable digital Sony ICF-SW7600GR, a radio that has been developed and refined for over 20 years. These days, this beautiful radio is all you might ever need and will deliver AM, FM and shortwave reception in a competent and reliable manner.

With domestic AM and FM content being so commercial, combined with the onslaught of computer and electronic device interference, the Internet is your only reliable choice for what we remember as "radio." Along with America's NPR, check out the wonderful content provided by CBC Canada, BBC and RTE Ire and online. Your favorite local radio station can arrive over the Web interference-free, if they stream. If not, encourage them to! Learn how to squeeze the lemon and you'll make lemonade.

*Karl Zuk, N2KZ
Katonah, N.Y.*

A SINGLE-SIDEBAND SOLUTION

Re James V. Heck's letter, "Why Not Put DRM to Use?" in the *Reader's Forum* of the Feb. 1 issue:

It seems to me that converting to DRM might very well be the death knell for the AM band. Remember the confusion that happened when the change was made from analog to digital television? Consider that the same thing would likely happen if DRM were implemented on the AM band, but this time there could be a massive lack of interest by the general public.

The change from ATV to DTV was possible because most people want to watch TV, but radio listening — especially AM radio — is just not a top priority to them. Making obsolete virtually every AM radio ever made is not necessarily a good idea. Many, if not most, people simply will not take the time or spend the money to replace their radio receivers just to hear what is being broadcast on the AM band in most markets today.

I suggest that perhaps converting the AM transmission system to single-sideband with carrier would be a much better choice. Doing so would allow instantly doubling the audio bandwidth of AM stations, and would still be receivable on all existing AM radios.

*Ralph M Hartwell
Retired AM/FM/TV Operating Engineer
Natchitoches, La.*

'SOCIAL JUSTICE'

David Honig's opinion piece ("Where's the Social Justice in That," Feb. 15) left me stunned and insulted in a rapid double whammy.

His statement not to advertise because you will have too many customers you don't want? Huh? When's the last time we had to worry about too many customers ... unless you were giving away free TVs; and then that's not a customer. Retail will take money. It's green.

Then his whole implied notion that the banjo people should advertise on urban radio is about as sensible as chrome rims on bluegrass radio. Advertisers are trying to find an audience most likely to buy their product. Best results for least spent.

Mr. Honig's PC piece will only accomplish one thing: bitterness and distrust. Most people are decent. This accusatorial take on the world is not good in the FCC or government or in life in general.

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

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

Since I am at least partially responsible for the events leading to the interest in modulation dependent carrier level control (I helped nourish the Alaska Public Broadcasting experimental authorizations, the first U.S. implementations), I have some observations about it, leading on from the comments of my good friends Fred Riley and Geoff Mendenhall ("MDCL Techniques Draw Debate," March 1).

Fred and Geoff both correctly describe the characteristics of the types of MDCL, but neither of them discusses some of the implications and considerations of the uses of these techniques.

Full-carrier double-sideband AM transmission is a very inefficient system of information transmission. The carrier, which provides no actual information, serves only one purpose: It makes demodulation simple, allowing simple, inexpensive practical receivers.

Single-sideband transmission, which dominates HF communications (as contrasted with broadcasting) is a practical solution to this problem, but requires receivers that are not simple or widely available. FM (narrowband for communication, wideband for program transmission) serves the same purpose at higher frequencies, and provides other advantages as well where bandwidth is available. (And, of course, digital transmission, practical only since inexpensive solid-state devices have become ubiquitous, has even further advantages.)

But much broadcasting at MF still relies on the inexpensive receiver, and MDCL methods allow this while not requiring better receivers. In my view, each situation calls for the broadcaster to evaluate the respective systems for applicability to that situation.

However, neither Fred nor Geoff discusses an advantage

MY LITTLE STUDIO OPERATION

For 38 years I've produced a weekly broadcast, "Collectible Classics: the Music of America 1920s-1950s." I love my little studio operation, and RW editor Paul McLane suggested I share a few thoughts about it.

The broadcasts are heard in the Monadnock region of New Hampshire over WZBK(AM). For seven years I produced a similar afternoon drive-time broadcast here on Cape Cod on WFCC(FM) in Chatham.

The 55-minute "little show" is assembled, researched and produced in a small studio in our home. The equipment is vintage. A Shure M67 mixer feeds a Sony MiniDisc recorder for production. The "air product" is dubbed to CD and mailed to the station. A turntable capable of playing 78s, LPs and electrical transcriptions helps to bring back the great sounds of the performers and musicians of the 1930s and 1940s.

When I reach back to older tapes, I'm aided by reel-to-reel machines including those manufactured by Webster-Chicago (Webcor). A Webcor wire recorder might be pressed into service once in a while. The computer allows me to play CDs through the Shure mixer.

Research books include discographies by British author Brian Rust and American musicologist Roger D. Kinkle. The Internet has been helpful in research, as have members of the Association for Recorded Sound Collections.

I walked into my first radio job in the summer of 1943. Winslow Bettinson was the program director for radio station WHEB(AM) in the New Hampshire seacoast town of Portsmouth. He taught me how to use the vintage RCA turntables. Your timing had to be just right, allowing three turns of the table while you were finishing your intro.

On Aug. 23, 1943, I debuted with a 10-minute spot featuring Decca recordings made by the Four Ink Spots. I would cue up the discs with insufficient time for the turntable motor to get "up to speed." As a result, my first listeners would hear the guitar intro "wowing in."

After a few more such rookie announcer mistakes, I made it. It was my entry into a field of work that has provided an honest way to make a living and wonderful time spent creating "epics" in my little studio.

*Lou Dumont
Producer
"Collectible Classics"
Harwich, Mass.*

of AMC. Because AMC systems produce power levels (and therefore peak voltage levels) only slightly higher than unmodulated carrier, the voltage stresses on older antenna systems often produced by modern transmitters (which can produce really high positive peak modulation) can be minimized.

Indeed, were a new installation to be operated only with AMC antenna components — capacitors, guy and feedthrough insulators, inductors, transmission lines — could be appropriately downsized and result in realistic savings. And the transmitter itself could also be reduced in cost if it were never required to make 100 percent or more positive peak modulation with full carrier.

My father taught me that over-engineering anything is just as bad as designing something that fails (a tenet that Henry Petroski of Duke University has written about), so in some cases I think AMC is a very useful technique despite my friend Fred's reservations!

*Benjamin F. Dawson III, P.E.
Hatfield & Dawson Consulting Engineers
North Seattle, Wash.*

TRY POWER-SIDE

If AM broadcast radio stations are trying to save money on their electric bills without reducing their coverage areas ("MDCL Techniques Draw Debate," March 1), they might want to consider using an old Power-Side exciter from Kahn Communications Inc.

Power-Side was intended to increase coverage while using the same power. But power could always be reduced (after installing Power-Side) to whatever level achieves the previous coverage, which would result in reduced electric bills.

*Steven Karty, BSEE
Vienna, Va.*

Courtesy Old Time Radio Catalog (www.otrcat.com)



Lou Dumont. A handwritten note on the photo says '1949 Birthday Boy.'

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

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SUBSCRIPTIONS

Radio World, P.O. Box 282, Lowell, MA 01853
TELEPHONE: 888-266-5828 (USA only 8:30 a.m.-5 p.m. EST)
978-667-0352 (Outside the US) FAX: 978-671-0460
WEBSITE: www.myRWNews.com
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US EAST & LATIN AMERICA: John Casey, jcasey@nbmedia.com
T: 212-378-0400, ext. 512 | F: 330-247-1288
US WEST & CANADA: David Carson, dcarson@nbmedia.com
T: 212-378-0400, ext. 511 | F: 866-572-6156
SOUTHERN EUROPE, AFRICA, MIDDLE EAST:
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T: +44-1480-461555 | F: +44-1480-461550
JAPAN: Eiji Yoshikawa, callmes@world.odn.ne.jp
T: +81-3-3327-5759 | F: +81-3-3322-7933
ASIA-PACIFIC: Wengong Wang, ww@imaschina.com
T: +86-755-83862930/40/50 | F: +86-755-83862920
CLASSIFIEDS: David Carson, dcarson@nbmedia.com
T: 212-378-0400, ext. 511 | F: 866-572-6156

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