



# RADIOWORLD

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## INSIDE

### REPORTING FROM THE TRENCHES

• Al Peterson reprises his columnist role — Page 4



### WALK THE TALK

• Media sales consultants need to live up to their name — Page 23

### THE JOURNAL IN THE DIGITAL AGE

• Media company cum newspaper pulls out all the stops for 21st century coverage — Page 24



## EAS: Lost in Translation?

MMTC, others seek multilingual federal mandate; broadcasters prefer voluntary, local collaboration

BY LESLIE STIMSON

**WASHINGTON** — The idea of transmitting EAS messages in languages other than English has been discussed at the Federal Communications Commission for nearly 10 years. Now broadcasters, alert originators and public interest groups are among those giving the commission opinions about how to accomplish “multilingual EAS.”

The nonprofit Minority Media Telecommunications Council first petitioned the agency about multilingual EAS after Hurricane Katrina in 2005. The organization suggested that the commission explore how emergency alerts could reach people who do not speak English as a first language, or at all, during times of crisis. Among other things, it called for cooperation between broadcasters and others in the alerting community on the issue, including a mandate that broadcasters provide translation. The Independent Spanish Broadcasters Association and the Office of Communications of the United Church of Christ joined the petition.

Since the 2005 petition, the commis-

sion twice asked for public comments on multilingual EAS but had not implemented any rule changes.

The MMTC and other public interest groups prodded new Chairman Tom Wheeler about the issue at the end of last year; and in March, the FCC’s Public Safety and Homeland Security Bureau sought to refresh the record on multilingual alerting, citing subsequent

changes in EAS including the transition to Common Alerting Protocol. The bureau asked for comments on MMTC’s petition.

MMTC proposed that the commission change its EAS rules so that Primary Entry Point stations would be required to air presidential-level messages in both English and Spanish. It also proposed that FCC rules ensure that local and state EAS plans include a Local Primary Spanish (LP-S) designation and — where a substantial portion of the population speaks languages other than English or Spanish — a Local Primary Multilingual (LP-M) designation.

(continued on page 6)

**page 10**

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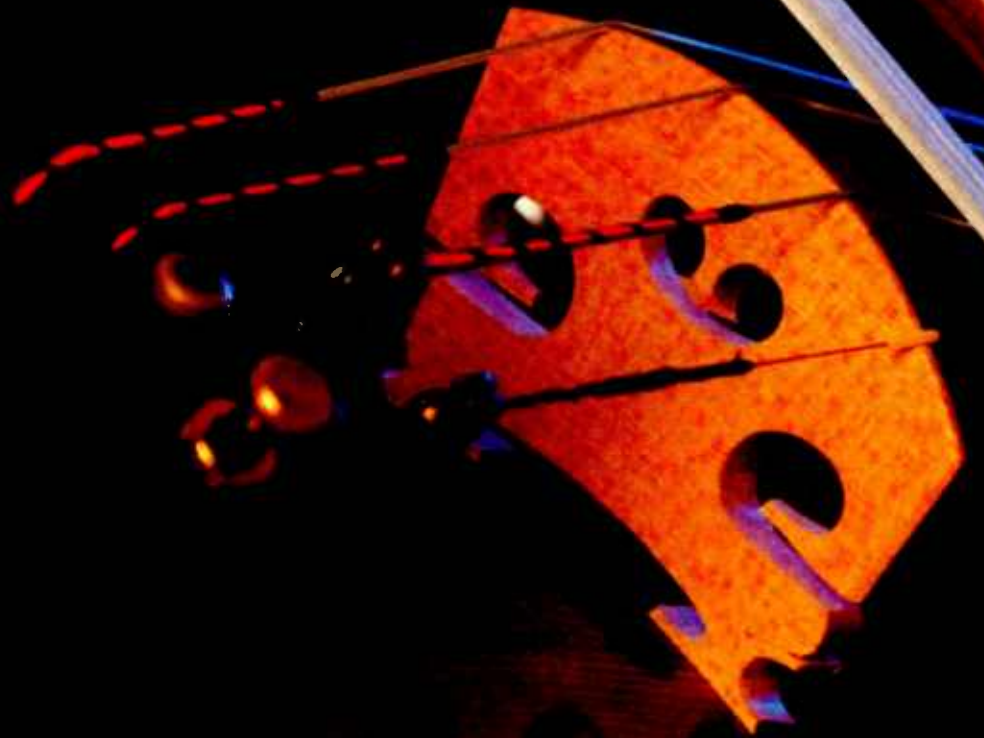
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# Royalties Limit Some Web Radio Growth

## Music fees deter some broadcasters from streaming

BY JAMES CARELESS

Regulation of music royalties paid by streaming radio stations varies from country to country. Many observers of that business sector say this limits its potential; they wonder what the royalty landscape means for the genre's future.

Fees charged to over-the-air broadcasters are less than those charged to streaming radio stations because the two sectors are governed under different rules. In some cases, the fees are so large that countries such as the United Kingdom simply do not have Internet-only music radio stations, according to experts.

As music royalty levying and collection systems developed, radio stations didn't initially pay artists and publishers for the use of their materials on-air, because this use was too novel. However, as radio gained traction around the world, music rights-holders such as the American Society of Composers, Authors and Publishers started charging radio stations for recorded music use, according to ASCAP.

In 1941, the battles between ASCAP and U.S. broadcasters over ever-rising music royalties grew so heated that the broadcasters formed their own music rights organization, Broadcast Music, Inc.

For eight months that year, CBS and NBC radio only played lesser-known BMI artists on-air, boycotting ASCAP's artists until the two sides reached a deal that saw music royalties lowered.

ence size being the transmission's coverage area.

Given this, Internet radio stations generally believe they should pay less than what over-the-air broadcasters pay in music royalties — at least in terms of their overall audience size and revenues. However, this isn't the case, typically. Traditional broadcasters argue they should pay less than their streamed



counterparts because air-play, in concert with promotional events, is valuable to the record labels, and therefore, the artists.

"Historically, traditional broadcast radio has received favorable agreements for using music, though the level of these differ to a great extent country by country," said James Cridland, managing director of Media UK, a U.K. media

analysis website. In practice, this means that "most countries charge broadcast radio stations a percentage of qualifying revenue, which significantly lessens risk for these companies."

In contrast, "Internet radio stations are charged per song, per listener — irrespective of revenues being earned," said Cridland. "And, in most countries, the charges are comparatively high in comparison to broadcast radio. A radio station that becomes successful has a double whammy of higher bandwidth bills and higher music costs, without necessarily being instantly able to translate that popularity into advertising revenue."

Pureplay webcaster Smooth Jazz Florida streams from Coconut Creek, Fla. In the U.S., for instance, hobby and small to midsize streaming stations can purchase a "blanket license" from a third-party firm such as Stream Licensing ([streamlicensing.com](http://streamlicensing.com)), which covers the royalty payments, reporting and other details in exchange for a monthly fee.

But this won't help larger broadcasters, according to Smooth Jazz owner Marvin Glass. "When a larger broadcaster discovers that, unless he takes in a significant amount of money, he is going to be paying out more than he takes in, he quickly throws in the towel on Internet music radio."

**NO RELIEF**

Internet music royalties are even tougher in the U.K. "I believe the online music royalty structure here is a large reason why we have no Internet-only radio stations of any scale," said Cridland. "It is simply uneconomical to attempt to run an Internet-only station."

(continued on page 5)



This is just one nation's copyright story; there are many others, because music royalty rates vary so much from nation to nation.

"There have been some efforts to unify how different nations handle copyright — like the Berne Convention and European Copyright Directive — but there are still many distinctions and differences that make operating an international streaming service very complicated," said Geoff Duncan, a media distribution/production consultant who writes on digital media for [www.digitaltrends.com](http://www.digitaltrends.com) and [www.tidbits.com](http://www.tidbits.com).

"This is why streaming services can often operate under different terms in different countries, or don't operate in some countries at all."

**TRANSMISSION DIFFERENCE**

An Internet radio station delivers content using a one-to-one delivery method, with each new listener requiring his or her own audio stream that must be provisioned and paid for. In contrast, a broadcaster can potentially reach millions with a single one-to-many transmission, with the main limit to audi-

# Back From the Trenches: 25 Years Hence

Al Peterson marks his Radio World anniversary with a walk down memory lane

BY ALAN R. PETERSON

It's a pleasure for me to pen this issue's guest column for Paul McLane, as it coincides with an interesting personal milestone: 25 years ago this month, I joined the Radio World family when former editor Judith Gross rolled out my original "From the Trenches" column. I wonder how many readers remember that feature?

RW was always a go-to read for me, starting in 1986 during my music jock days. I read Radio & Records for the Help Wanted ads, but RW showed me how to tear down and modernize an obsolete tube console with op amps. That was just cool.

I read where Judith had worked in upstate New York. I passed through there twice myself, so I began mailing her little local tidbits for her amusement. Some she printed in her column, and it was a hoot.

In April 1989, I was fired from WHEN(AM), Syracuse by then-PD (and present-day CBS Radio news reporter/anchor) Peter King. I was just 31, had never been let go from a gig before, and



This art accompanied Al's original bimonthly column.

it hit me hard.

I wrote Judith a really elaborate letter — almost embarrassingly so — as to what I was going to miss from the job and what I was going to do next. On the basis of that letter, she offered me my own column. "From the Trenches" became a bimonthly feature formatted as letters written from whatever station I was working at during that time.

When I became RW's tech editor in '95, my column was retooled and retitled, "The World According to ARP" (my initials), and it stayed that way when I dove

back into broadcasting in 1999.

Along the way, I was confused several times with "the other Al Peterson," who today runs *NTSMediaOnline.com*. Great fun.

So where did I go? Severe personal health issues derailed me in 2004. I couldn't meet my obligations, so the column ended. Just as well — the industry changed seismically, and the things I wrote about were no longer relevant. I would have started sounding like those cranks that wished for the return of cart machines and 6L6 tubes. "The World

## FROM THE EDITOR



Happy anniversary, Al! To celebrate this milestone, I turn my pen over to you this issue.

— Paul McLane



When Al came on board as tech editor in 1995, his column changed focus and format.

(continued on page 6)



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**NEWSROUNDUP**

**DIGITAL:** Ad management software company WideOrbit acquired Abacast, expanding its digital offerings for radio and other media companies. Abacast audio and ad insertion technologies are used by some 1,500 radio companies including Entercom. The deal closed June 6; financial terms were not disclosed. Abacast will operate as a subsidiary and its 16 employees join WideOrbit's staff of approximately 400.

**ADVERTISING:** Hot dog chain Wienerschnitzel has incorporated radio into its media mix to promote its new summer menu items. Those include new hot dog varieties, soft serve ice cream and lemonades. TV and direct mail are also part of the campaign. "Radio allows us to get creative and it really lends itself to showcasing the brand's fun, energetic personality," said Wienerschnitzel VP Marketing Tom Amberger. The company operates or franchises 350 stores in 10 states and Guam.



**DOJ:** The Antitrust Division of the Justice Department is reviewing its consent decrees with ASCAP and BMI. Those licensing organizations want the agreements modified to account for music's migration to digital. Current rules hark back to the 1940s; they're the products of lawsuits brought by the federal government against ASCAP and BMI to address anticompetitive concerns regarding market power the organizations acquired through the aggregation of public performance rights held by member songwriters and publishers. ASCAP and BMI also seek to have the royalty rate court replaced by arbitration.

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**ROYALTIES***(continued from page 3)*

Cridland has calculated that, should Pandora, the largest streamer by audience, according to Triton Digital, ever try to launch in the U.K., its music rights costs alone would be almost 100 percent of the available advertising revenue. This is "10 times what traditional broadcasters pay" in the U.K., he said. "It's impossible to run a station like that."

As Radio World readers know, Pandora is trying to get its music royalty fees lowered in the U.S., with supporters telling Congress that as it becomes more successful and more people listen, the fees are hampering its business model.

**Maybe streaming music services can generate enough ad revenue off non-paying users to stay afloat.**

— Geoff Duncan

There are a lot of players in the music royalty business, particularly the Big Three record labels — Sony Music Entertainment, Universal Music Group and Warner Music Group — who have major stakes in maintaining music royalties at current or higher levels.

Also, "It's almost impossible to find an artist who is satisfied with income they receive from Internet streaming," said Duncan. "Sure, massive acts like Jay-Z and Beyoncé might earn millions, but for every one of those massive success stories there are thousands of artists who earn only a few dollars — if anything at all."

Against this backdrop, it seems unlikely music royalties will drop significantly for Internet radio stations, despite the fact that these royalties may — in the eyes of supporters — be stunting the sector's growth and limiting the potential for exposing online listeners to music that they might subsequently buy and download directly.

"Maybe streaming music services can generate enough ad revenue off non-paying users to stay afloat," said Duncan. "Or perhaps streaming music services can survive as an adjunct or loss-leader to another, higher-margin business, like Apple with its iOS device empire. Either way, it's difficult to see right now where some of these companies will end up."

**THIS ISSUE**

JUNE 18, 2014

**NEWS**

EAS: Lost in Translation?	1
Royalties Limit Some Web Radio Growth	3
Back From the Trenches: 25 Years Hence	4
News Roundup	5, 8

**SUMMER OF PRODUCTS**

..... 10-15

**FEATURES**

If You Hate Surprises, You'll Love This Idea	18
Nuts and Bolts Engineering Trivia	20
Marketplace	22

**GM JOURNAL**

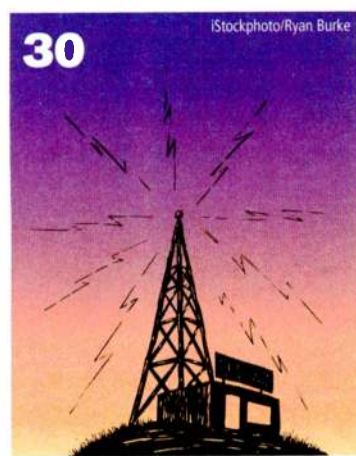
Are Your People Posers or Professionals?	23
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**STUDIO SESSIONS**

WSJ: Moving From Print to Multimedia Producer	24
Who's Buying What	27

**OPINION**

Reader's Forum	30
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## MULTILINGUAL EAS

(continued from page 1)

The MMTC also suggested the commission adopt a “designated hitter” approach for situations when an LP-S or LP-M station cannot transmit EAS down the daisy chain. The nonprofit envisions that broadcasters and alerting agencies would determine — before a crisis, as part of a wider emergency plan — which station in a market would be the “designated hitter.” That station would air emergency information in other languages “until the affected LP-S or LP-M station is restored to the air,” according to MMTC. For example, “one market plan might spell out the procedures by which non-English broadcasters can get physical access to another station’s facilities to alert the non-English-speaking community,” such as where to pick up a station key.

In the past, broadcasters have raised concerns that a designated hitter approach would require stations to retain employees who could translate emergency information in the language of the affected station. MMTC, though, believes designated hitter stations “could simply allow access to the employees of the downed non-English station. These employees, in turn, would be responsible for providing non-English EAS alerts” to the public, according to the FCC. It asked for public input on this view, as well as on costs.

Previously, broadcast/cable industry representatives have argued that originators of alert messages, which are typically local and state government agen-



The caption for this image on FEMA’s website notes that the Emergency Alert System “is used by alerting authorities to send warnings via broadcast, cable, satellite and wireline communications pathways.” Should alerts be issued in languages other than English?

cies, should bear the responsibility for issuing multilingual alerts. They’ve said it would be impractical for stations to generate timely, accurate alert translations, according to the commission.

The agency in March asked for updated comment on that, and sought input on other proposals. It also asked for comments about the availability and cost of technical solutions for multilingual EAS, such as text-to-speech translation software.

Initial comments were due to EB Docket No. 04-296 by May 28 and replies by June 12. Some 14 comments had been filed in the latest cycle as of early June. What follows are excerpts of the major themes. Topics are grouped by subject, so certain commenters appear more than once.

### PLAN SHOULD BE REQUIRED

*Minority Media Telecommunications Council:*

At its core, MMTC’s most recent request — requiring broadcasters to work together with state and market counterparts to develop a multilingual plan that communicates each party’s responsibilities in reasonably anticipated emergency circumstances — is a simple request that would help to ensure that non-English speaking populations receive timely access to both EAS alerts and non-EAS emergency information.

### “DESIGNATED HITTER” MODEL CAN WORK

*MMTC:*

[N]ews outlets and broadcasters have considerable experience working with each other and sharing information in extenuating circumstances. ... While translation technology exists, it is not yet capable of capturing the nuances of language through which critical information is transmitted, making it essential that a real person convey lifesaving information in a variety of languages. Under the designated hitter model, multilingual messages should be translated

at the point of origin or broadcast by a live person, since language software may confuse the meaning or intent behind a specific translation.

### NEXT NATIONAL EAS TEST SHOULD BE PRIORITY

*Fifty state broadcasters associations, including those of the District of Columbia and Puerto Rico:*

Conducting a second national EAS test should be the federal government’s top priority for fear that multilingual EAS alerting may complicate matters at a time when “getting it right” in English should be the first priority of our nation.

The state associations strongly oppose, for First Amendment and other reasons, the imposition of any direct, or indirect, requirement that an English language radio or television broadcast station air emergency information in a language other than in English, or for that matter, that a foreign language radio or television station air emergency information in a language other than the language of its general format.

### MAKE “DESIGNATED HITTER” APPROACH VOLUNTARY

*NAB:*

Federally mandating the creation of “emergency communications plans,” such as the proposed “designated hitter” approach, is unnecessary to ensure the continued delivery of emergency information, including non-English programming. First, broadcast markets have changed since the time of the Hurricane Katrina disaster that prompted the designated hitter proposal. It is extremely unlikely that another emergency will occur when the only non-English station in a market is rendered inoperable. There has also been significant growth in the number of Spanish language stations since Katrina hit in 2005. ...

In addition to market changes, evidence shows that voluntary cooperation among local stations, combined with commission processes created since 2005, such as the Disaster Information Reporting System, will ensure continued emergency programming, including non-English information, without federally mandated emergency communications plans suggesting a particular approach to local collaboration.

*Fifty state broadcasters associations:*

The state associations do support the concept of “designated hitter” compacts in which station licensees choose *voluntarily* to enter into formal or informal arrangements with each other, under which one station would agree to provide

(continued on page 8)

## ARP

(continued from page 4)

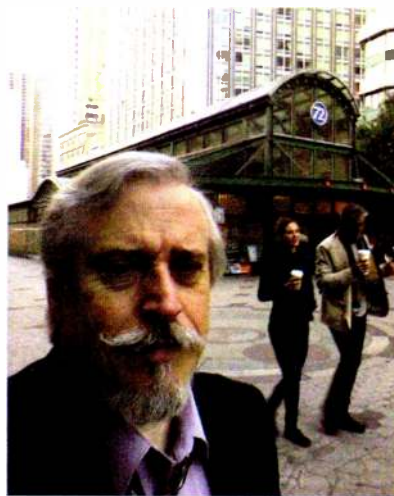
According to ARP” ended badly but humanely — and just when it should have.

To sum it all up: What a long, strange trip those 25 years have been.

Magnetic tape made way for digits. CDs stepped aside for music on hard drive. Spots arrived on reel, then via DG Systems, then over the Web in an email. Former rival stations all piled inside one building as a new family. Staffs shrank, debt grew. The Web beckoned, then threatened. AM suffered, satellites merged, dashboards changed. The morning guy is now six states away, and the traffic guy even farther than that.

Not only isn’t this “your daddy’s radio” anymore, it’s barely radio as I knew it when I started writing for RW. But somehow I’m still at it, much like you.

I’ve been honored to work under four fine editors: Judith, Alex Zavistovich, Lucia Cobo and current



Modern-day Al takes time for a selfie while covering the 135 AES convention for Radio World.

head honcho Paul McLane. While I’m not “Trenching” anymore, this has been the greatest writing gig this perpetually 31-year-old broadcaster could have asked for.

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## MULTILINGUAL EAS

(continued from page 6)

emergency information coverage also in the language of the other station, in the event that the other station's on-air operations were interrupted during an emergency. For that reason, MMTC's proposal does warrant careful consideration by the various state and local emergency management authorities, working with their local broadcasters and other communications providers to determine the feasibility of such compacts on a voluntary, case-by-case basis.

### MAKE MESSAGE ORIGINATORS RESPONSIBLE FOR MULTILINGUAL EAS

*NAB:*

Primary responsibility for the distribution of multilingual EAS alerts should lie with the government and emergency management authorities that originate such messages. Earlier commenters agreed that originating multilingual alerts from a centralized point would be much more efficient than requiring thousands of individual EAS participants to translate messages before relaying them to the public.

*National Cable Television Association:*

As we and others have put forth in the past, the practical solution to providing multilingual EAS is for EAS message originators, whether federal, state or local government entities, to issue dual-language messages in English and Spanish (or another appropriate language) for emergency alerts in appropriate communities. As the commission points out in the Notice, broadcasters and cable operators agree that the "responsibility for issuing multilingual alerts must rest with alert message originators, and that it would be impractical for EAS participants to effect timely and accurate alert translations at their facilities."

*Adrienne Abbott-Gutierrez, filing as an individual with experience with Nevada SECC, and broadcast engineer, reporter:*

Nevada's foreign language stations include approximately 30 Spanish and two Chinese broadcasters. ... Many

of these stations are fully or partially automated and only a few have a news department. Station managers tell me that they would have to be staffed 24/7/365 to carry EAS tests and messages in their language and that is beyond their budgets. They do acknowledge that having the text of the EAS message available through CAP will allow them the ability to translate the information on their own when activations are made during the hours that they are staffed.

The Las Vegas office of the National Weather Service offered several years ago to install a NOAA Weather Radio

public or other public warning dissemination and distribution methods. However, AAs should understand that some EAS encoder/decoder products may have limitations in text-to-speech conversions to languages other than English and compose messages intended for text-to-speech accordingly.

### EXEMPT NCE STATIONS

*Educational Media Foundation:*

NCE stations perpetually operate with limited resources to carry out their sometimes broad nonprofit man-

posed by the MMTC and others presents a number of concerns. In addition to finding ways to alert the non-English speaking population to tune to the appropriate station, one manager asked me how he could be sure that a person speaking a language he didn't understand was actually presenting useful emergency information or inciting the audience to riot and what that meant as far as his ability to retain control over his airwaves. [N]one of the managers I questioned approve of the idea of giving keys and station access to a non-employee, even an employee of another station.

### INCLUDE SIGN LANGUAGE

*Wireless Rehabilitation Engineering Research Center, Center for Advanced Communications Policy, Georgia Tech:*

There currently exists a great need from the deaf community for [American Sign Language] interpreted messages of government issued emergency alerts. ... These alerts are most often delivered through sound and text, though this provides many challenges for someone who relies solely on ASL.

For example, a local television news station reporter may verbally deliver a message on an approaching severe storm, but this audible message is not accessible to a deaf person. There are several incidents in which this inability to receive accessible information during emergencies can become a problem. One research study found, anecdotally, a deaf man who, in the midst of a tornado warning in Oklahoma, resorted to lip reading (to the best of his abilities). He only understood one word, "closet," which was the difference between him taking protective action or being completely unprepared for the impending tornado.

*Comment on this or any story. Email radioworld@nbmedia.com with "Letter to the Editor" in the subject field.*

**Conducting a second national EAS test should be the federal government's top priority for fear that multilingual EAS alerting may complicate matters at a time when "getting it right" in English should be the first priority of our nation.**

— 50 state broadcasters associations

transmitter for Spanish-language weather information if the broadcasters were able to raise the \$10,000 needed to buy and install the transmitter. The cost per station would have been approximately \$2,000 each but the stations responded that they could not afford the price.

There has been agreement here among our Spanish-speaking stations that an LP Spanish is needed. However, none of the stations feel they can fill that role because they lack the staff. ... The apparent lack of interest and commitment to foreign language EAS at the individual station level can only mean that there is not a lot of demand for translations.

### CAP EAS CAN HANDLE IT, BUT GEAR MAY NOT

*Federal Emergency Management Agency, Integrated Public Alert and Warning System Program Management Office:*

FEMA supports the work of MMTC to extend alerting to the non-English speaking population. The U.S. IPAWS Common Alerting Protocol profile specifically includes specified means and methods to propagate alert information received with multiple language versions to privately held broadcast, cable and commercial mobile service providers for delivery to members of the public using their systems. Alerting Authorities may originate alert messages in the language that they prefer for consumption by the

dates. ... NCEs simply do not have the resources to provide for a simultaneous translation to be on call 24 hours a day, 7 days a week in order to step in as the "designated hitter." ...

EMF requests that the commission either exempt noncommercial broadcasters from any new regulations promulgated to require the provision of multilingual EAS alerts, or allow these stations to opt out of any "designated hitter" rule that may be adopted.

### LIABILITY ISSUE?

*Adrienne Abbott-Gutierrez:*

The "designated hitter" approach pro-

## NEWSROUNDUP

**REPORTING:** Greater Media CEO Peter Smyth suggested that if streaming data reporting requirements don't change, some stations may need to stop streaming. He calls existing requirements "arcane and demanding." SoundExchange, which collects and distributes streaming royalties, has made suggestions to the Copyright Royalty Board, which is preparing to change rules that dictate what stations pay for streaming. Those would include more specifics about each song streamed, less time to file reports, the imposition of late fees and the mandatory use of a unique code identifying every sound recording. The radio industry continues to search for "reasonable agreements with music creators and labels to rationalize our partnerships and take the longer view that both sides need to find the win/win solution," according to Smyth.

**GREGG:** Bauer Transmitters owner Paul Gregg died in May at the age of 90. He also had worked with Grainger, Gates Radio, Sparta and Cetec. In the 1960s, Gregg created the Bauer 707, a 1 kW AM professional transmitter kit. Gregg also designed one of the first solid-state consoles, the Bauer 910.





# HIGH CAPACITY EVENT STUDIO TRANSMITTER LINKS



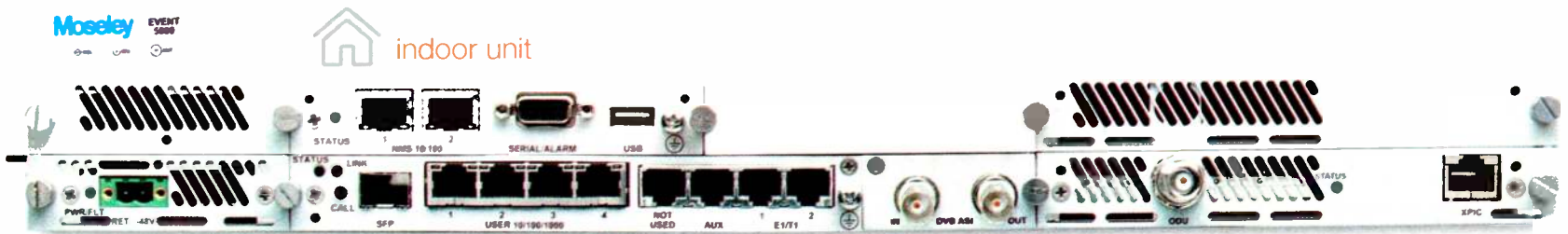
outdoor unit



## TAKE ADVANTAGE OF WIRELESS HIGH PAYLOAD STL/TSL CAPACITY

Moseley EVENT STL/TSL systems provide up to 155 Mbps combined IP, T1/E1 payloads. Multi-station clusters can convey multiple linear uncompressed audio pairs for a truly cost-effective STL/TSL link. Connect your existing T1/IP audio hardware directly into the EVENT system, or use Moseley Rincon for your audio payloads. An optional DVB-ASI module is available for full duplex video.

EVENT systems are fully bi-directional including a Software Defined Indoor Unit (SDIDU) and Outdoor Unit (ODU), eliminating the need for costly waveguide hardware. The ODU is available in the license free 5.8 GHz band, or licensed 11, 18, or 23 GHz bands. Appropriate external antennas are selected based on path length.



indoor unit

## INTELLIGENT SYSTEM DESIGN



Spectrum-scalable digital radios with user-selectable data rates enable broadcasters to have greater flexibility in STL planning and future growth. The integrated T1/E1 and Ethernet interfaces allow for a combination of T1/E1 and IP packet data.

### IP APPLIANCES AND APPLICATIONS

Offer IP transmitter control, surveillance security, and site monitoring to reduce downtime, and protect valuable station assets while saving travel time to the site.

### REMOTE MIRRORED SERVERS

From the transmitter site, offers backup of business records and programming content to get you back on the air quickly in the event of a studio outage.

### EMAIL AND INTERNET ACCESS FROM THE TRANSMITTER SITE

Saves engineers time accessing manuals or technical support from manufacturers during maintenance sessions.

### SIMPLE NETWORK MANAGEMENT PROTOCOL (SNMP)

Full SNMP package with GUI provides easy monitoring and configuration changes.

Contact The Moseley Sales Team to Custom Configure Your EVENT STL/TSL Today!

[moseleybroadcast.com](http://moseleybroadcast.com)





## AUDIOSCIENCE DEALS NEW CARDS

The ASI6788 marks the debut of AudioScience's new ASI6700 card series.



The half-height PCI Express card offers eight balanced stereo analog inputs and outputs with levels up to +24 dBu and eight AES/EBU inputs and outputs with sample rate converters on all inputs.

With the ASI6788 you can have eight or 16 stereo streams of playback into eight stereo outputs as well as eight stereo streams or 16 mono streams of record from eight stereo inputs.

Audio formats include PCM, MPEG Layer II and MP3 with sample rates up to 192 kHz. The ASI6788 supports MRX technology, allowing for the digital mixing of multiple stream formats and sample rates; TSX time scaling, which allows the compression/expansion of playout streams by up to ±20 percent with no pitch shift; and SSX for multichannel recording, playback and mixing (PCM only).

The ASI6788 has a dedicated AES/EBU and Word Clock Sync input. Drivers are available for 32/64-bit Windows 8, 7, Server 2012/2008 and Linux.

INFO: [www.audioscience.com](http://www.audioscience.com)

## COMREX TO PILOT THE INTERNET

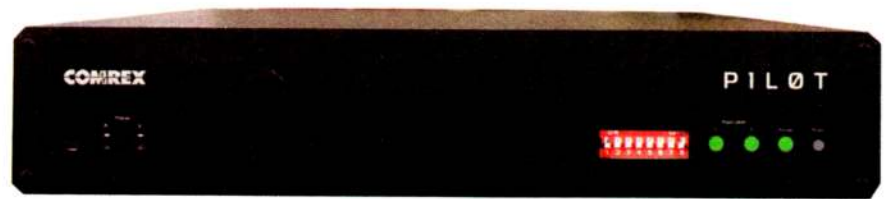
Comrex, well known for its codecs, is taking a slight detour these days with the debut of an IP streaming server called P1lot.

The company says P1lot uses a Linux-based core. It has DSP and a web-based interface. P1lot handles HE-AAC, Opus or MP3 encoding, simultaneously if necessary.

Hardware-wise the half-rack box has no moving parts and does not require a cooling fan. Other features include AES3 and analog balanced inputs.

Comrex's Chris Crump explained, "For a lot of stations, streaming is handled by an old PC that wasn't being used for anything else. With no fan sucking in dust, no moving hard drives or flaky operating system, P1LOT is a built for reliability and provides significantly more functionality than that old PC in the corner."

INFO: [www.comrex.com](http://www.comrex.com)



## NAUTEL DELIVERS NEW DIGITAL TRANSMITTERS

Pushing strongly in the HD Radio transmission game, Nautel has debuted a new line of solid-state transmitters that can scale up to 80 kW.

The GV line's full power scale ranges from 3.5 kW to 80 kW. The company says the GV line has the "highest HD power available, along with the highest digital efficiency."

The GV boxes have an integrated digital exciter (with an option for a second one for redundancy). In addition there are IP audio I/O, LiveWire and MPX over AES/EBU. A USB port allows for local program insertion as a backup. Orban Inside processing is available.

Other features include Nautel's HD PowerBoost technology for increasing transmission power output while enhancing power efficiency.

Power modules are hot-swappable and the amplifier pallets are designed for field repair.

The GV line makes use of Nautel's Advanced user Interface for local operation and remote control along with the Phone Home monitoring system. Also inside are a number of HD Radio measurement and analysis tools plus the MER measurement module.

INFO: [www.nautel.com](http://www.nautel.com)



## DAYSEQUERRA KEEPS HD RADIO IN LINE

Having time-alignment problems with your HD Radio? Look no further than the Day-Sequerra M4DDC Diversity Delay Control. It's a 1 RU, standalone AM-FM solution and runs the company's proprietary TimeLock algorithm to maintain time-alignment of the HD Radio MPS and HD-1 audio streams automatically. Email alerts are dispatched directly from the M4DDC for loss of TimeLock, Level-Lock (optional), program audio, carrier, or OFDM HD Radio Lock. There are five rear-panel alarm tallies.



Also from DaySequerra is the M4.2S (shown), an analog AM/FM and HD Radio AM/FM tuner, that can monitor HD Radio diversity delay 24/7 with its proprietary TimeLock

algorithm. According to the company, the unit receives the off-air broadcast, measures the timing difference between the MPS and HD-1 streams. Out-of-tolerance conditions can be reported via email or its built-in webserver using any browser on a network. The M4.2S can be flash-updated using its Ethernet port and has four additional rear panel alarm tallies.

DaySequerra's M2HDSP is an analog AM/FM modulation monitor can now monitor HD Radio diversity delay 24/7 with the proprietary TimeLock algorithm. It receives the off-air broadcast, measures the timing difference between the MPS and HD-1 streams. Out-of-tolerance conditions can be reported via email and its built-in Web server. It can be flash-updated and has four additional rear panel alarm tallies. Its built-in Web server displays a broadcast's Artist Experience album art, station logo and advertisers' branding.

INFO: [www.daysequerra.com](http://www.daysequerra.com)



Major Update!

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## BLAZING SPEED

Only 3.9ms of signal latency on the composite outputs, and power to live audio in under a second.



## BETTER PRESETS

25 choice presets tuned to make you stand out, without going all-out.

## NEW Rev. 3 FEATURES

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- Adjustable Multiband Crossovers Points.
- Adjustable Multiband Attack and Release Times.
- Built-in Test Tone Oscillator.
- Tighter Peak Control.
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Learn more at:  
[www.inovonicsbroadcast.com/model/719](http://www.inovonicsbroadcast.com/model/719)





## APT OFFERS NEW OSLO CODEC

Codec maker APT has announced a one-rack-unit version of its Oslo codec.



The Oslo 1U is a T1 (E1 in Europe) and IP codec with a modular frame that can hold a variety of audio cards in different configurations. In a T1/E1 configuration it will handle up to 12 channels of mono audio. Using APT's NextGen AoIP card, up to 16 channels of IP audio can be controlled. Or you can mix and match (though the presence of the T1/E1 card(s) requires a master control card) for T1 security and IP ease and cost-savings.

The Oslo 1U has twin power supplies for redundancy and also makes use of APT's SureStream signal assurity technology for minimizing dropped packets and solidifying connections.

APT's NextGen AoIP card handles MPEG-I/II L2, MPEG-4 AAC LC/LD/ELD, MPEG-4 HE-AAC v1 and v2, Enhanced aptX, and linear PCM 24-bit/48 kHz.

INFO: [www.aptcodex.com](http://www.aptcodex.com)

## ORBAN ROLLS OUT NEW OPTIMODS

Processor maker Orban has been busy lately with several new products, including Optimods.

The Orban Optimod-FM 5700 (shown) provides stereo enhancement, equalization, AGC, multiband compression, low-IM peak limiting, stereo encoding and composite limiting. Ethernet connectivity is standard, as is a PC remote control application that runs on Windows XP and higher and that can control many 5700 units on a TCP/IP network.



Additionally, programmable contact-closure (GPI) control plus ACSII terminal control via the 5700's RS-232 serial and Ethernet ports together give users freedom to interface the 5700 with a facility's remote control infrastructure, whatever it might be. SNMP support offers another way to control and monitor the 5700's operation.

The 5700 is available in two versions: an FM-only version (5700FM) and a version (5700HD) that includes simultaneous processing for FM and for digital transmissions like netcasts and HD Radio.

The Optimod 1552 is a new multistream audio processor and codec aimed at multiple applications — AM/FM, TV and Internet. Orban says that the 1552 incorporates a new generation of Optimod processing.

It includes MX peak limiter technology and its Intel Xeon processor can handle up to 16 streams of audio without MX limiting and eight streams with it engaged. The onboard codec is an Opticodec-PC software codec. The 1552 uses Ravenna as an Ethernet networking interface scheme.

Also onboard are BS.1770-3 and CBS loudness metering and controlling.

Orban also introduced a new Orban Loudness Meter. Version 2.7 adds support for 7.1 surround sound the ability to analyze audio files offline under ITU-R BS.1770-3 integrated loudness and loudness range.

INFO: [www.orban.com](http://www.orban.com)

## BROADCAST BIONICS PHONEBOX 4 DIALS THE RIGHT NUMBER

Broadcast Bionics hopes you'll answer the call of its new PhoneBOX 4 talk show system. It allows users to manage social media, phones, prizes, codecs, email, SMS from one cross-platform multi-featured software application.



It allows stations to tap into social media. It can filter, select and queue Facebook posts, Tweets etc. Operators can see a running commentary on chosen subjects and engage with potential new listeners on air. Listeners can tweet back directly to the studio, rate them or add to a VIP list.

The company says that smart cues hook into a playout system to give official artist feeds for the tracks that are played, or location coordinates can be used to find out who's saying what from an event downtown.

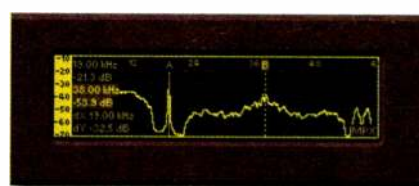
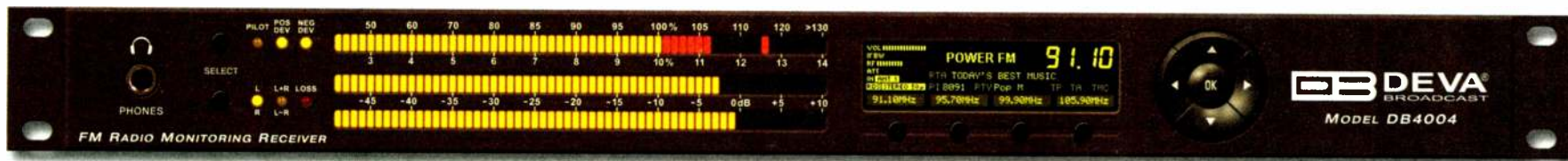
The user interface exploits the latest touch-screen technology, improving workflow and simplifying complex tasks. PhoneBOX 4 is scalable to suit any size enterprise from a single studio small independent through national and international broadcasters, the company says.

PhoneBox 4 can use SIP, ISDN or analog lines with superlative audio quality through the company's audio server software or from a Telos VX.

INFO: [www.bionics.co.uk](http://www.bionics.co.uk)



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



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 Built-in 50 channels Data Logger and FTP Server





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- Modular Operation in Op-X allows for a tiered system at a fraction of the cost of its competitors.
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- Remote voice-tracking allows for creation of content for remote studios also running Op-X.
- The revolutionary design of Op-X's clock builder turns the previous task of scheduling satellite programming into a few simple clicks.
- Share serial devices from any machine using the Op-X Serial Server.
- Importing logs now gets its own module that takes confusion out of the process.
- Engineers will enjoy Op-X because it's easy to install, maintain, and has automatic backup features.

## iPad app Features

- Live show real-time control from almost anywhere
- A powerful tool for remotes or voice tracking
- Take a show on the road
- Start, stop, copy and paste functions from the log
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- Initiate audio playback from hot buttons
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RADIO AUTOMATION SOFTWARE



## WHEATSTONE ADDS TO IP LINE

The Wheatstone IP16 is a networkable control surface-style console similar to the IP12. It operates through the company's WheatNet IP network.

Each channel has a 100 mm fader, LED scribble strip along with lighted bus assignment, cue/talkback and on/off switches.



The master section has control room, studio and headphone controls with source selector, and headphone jack, timer controls, a master talkback button, and a built-in cue speaker controls. There are four event switches and six programmable buttons available for user functions.

The meter bridge offers 30-segment LED meters, timer readout and speaker.

**INFO:** [www.wheatstone-radio.com](http://www.wheatstone-radio.com)

## TIELINE BRIDGE-IT HAS A LITTLE XTRA

The latest codec in the Tieline Bridge-IT IP codec line is the Bridge-IT XTRA.

According to Tieline, Bridge-IT XTRA has everything in the original Bridge-IT and more. New is a different footprint — a full single-rack-unit box instead of



the half-rack, along with dual PSUs. In addition, XTRA has a number of algorithms that were optional with Bridge-IT. A whole AAC suite has been added (HE-AAC, HE-AAC v2, LC-AAC, LD-AAC, ELD-AAC) plus 16-/24-bit Enhanced aptX. It also adds an 8 kHz G.711 algorithm.

The Bridge-IT XTRA can address up to six other units in multicast mode. It can be remotely controlled via the Web and has Tieline's SmartStream technology. Besides multicasting it can function as an STL or remote codec.

**INFO:** [www.tieline.com](http://www.tieline.com)

## DEVA DB6000 PACKS PERFORMANCE

Featuring an ultra-low latency DSP-based design, the DEVA Broadcast DB6000 gives broadcasters control over important sonic parameters and assures clean, artifact-free audio, says the firm. Processing includes dual-stage wideband AGC with "intelligent gating," multiband adjustable range equaliz-



er, advanced multiband peak limiter and a sophisticated distortion controlled pre-emphasized final clipper.

The DB6000 has an integrated DSP-based stereo encoder with advanced peak control and two independently configurable composite MPX outputs. It also features a built-in IP audio player, which supports MP3, AAC+ and PCM audio formats as well as a dynamic RDS/RBDS encoder.

Moreover, the HTML 5-based interface allows the Web interface to be accessed remotely through iOS, Android or any other mobile device.

**INFO:** [www.devabroadcast.com](http://www.devabroadcast.com)

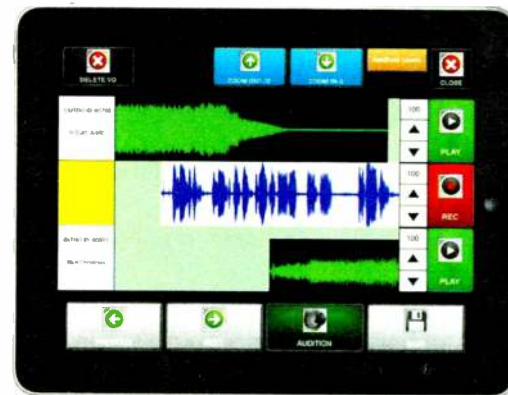
## ENCO GOES MOBILE WITH IDAD

ENCO iDAD is a mobile app that offers remote audio production and control from any Internet-capable iDevice. Audio can be recorded in the field and delivered directly to the main facility's automation system via the Internet.

Additionally, the iDAD application can remotely control several functions of ENCO's DAD software allowing the remote user to do things such as start breaks, switch remote broadcasts to air, record feeds or initiate emergency off air procedures.

The latest version of ENCO's iDAD app for iPhone and iPad now includes an audio editor and support for IOS7. iDAD requires ENCO's Interchange software to be installed at the main facility to act as a bridge between the outside world and the DAD automation network.

**INFO:** [www.enco.com](http://www.enco.com)



## INOVONICS INTRODUCES AARON

Inovonics' newest friend is Aaron, the rebroadcast/translator receiver.

The Aaron 650 is a new FM rebroadcast/translator receiver. Offering reception sensitivity and selectivity superior to even the most elite professional or consumer receivers, the Aaron 650 combines premium features with unparalleled receiver performance, the company says. Aaron operates in either a composite pass-through or composite-regeneration mode. Composite pass-through eliminates retransmission delay (latency), and composite-regenera-



tion lends the ability to completely reconstruct your baseband signal, even altering RDS messaging prior to rebroadcast.

The Aaron 640 provides the same reception performance and many of the features of its big brother Aaron 650, but at a budget-friendly price point. The sensitive and selective front end of the AARON 640 digitally decodes the entire analog baseband for rebroadcast.

**INFO:** [www.inovonicsbroadcast.com](http://www.inovonicsbroadcast.com)

## SENNHEISER ROLLS OUT NEW MIC

Microphone and headphone maker Sennheiser brought to the NAB Show a new multipattern microphone, the MK 8.

The MK 8 offers switchable omni, cardioid, wide cardioid, supercardioid and figure 8 patterns. Inside it has a one-inch gold-sputtered diaphragm.

Other features include a filter that can insert a 60 Hz low-cut of 100 Hz roll-off filter. A 10/20 dB pad is also available. Frequency response is listed at 20 Hz–20 kHz with a max SPL of 140 dB (no pad engaged). The company says the mic is made in Germany.

**INFO:** [www.sennheiser.com](http://www.sennheiser.com)





# SUMMER OF PRODUCTS

## AUDIO-TECHNICA UPGRADES HEADPHONES

The new Mx line of headphones from Audio-Technica comes in four models: ATH-M20x, ATH-M30x, ATH-M40x and at the high end, ATH-M50x.

The first four use 40 mm drivers while the M50x carries 45 mm drivers. The drivers use rare earth magnets and have copper-clad aluminum voice coils.



All are of a circumaural design.

The ATH-M40x and ATH-M50x ship with a choice of detachable cables: 1.2-3-meter coiled and 3-meter straight for the M40x, and 1.2-3-meter coiled, 1.2-meter straight and 3-meter straight for the M50x.

The ATH-M50x also comes in white and a limited edition blue besides the standard black. Prices: ATH-M20x \$69; ATH-M30x \$99; ATH-M40x \$139; ATH-M50x \$239 (basic black or white) and \$259 (limited edition blue).

INFO: [www.audio-technica.com](http://www.audio-technica.com)



## GATESAIR INTRODUCES DAB TRANSMITTERS

New name, new products. GatesAir is launching the Maxiva VAX line of VHF transmitters, which can be used for DAB broadcast.

The VAX line features PowerSmart 3D technology, which the company says makes the transmitters power efficient and offer low operating costs.

The transmitters are also air-cooled with variable-speed cooling fans. Power outputs available in DAB/DAB+ mode range from 300 W to 10 kW. Amp modules are hot-swappable.

Included exciter is the Maxiva M2X. Also included are all-digital linear and non-linear pre-correction and the Harris Broadcast Real-Time Adaptive Correction.

Onboard diagnostics and monitoring can also be accessed remotely via the web. An interface with IP networks is available.

INFO: [www.gatesair.com](http://www.gatesair.com)

## DIGIGRAM IS IN THE IP CARDS

Digigram has released the LX-IP Ravenna PCIe sound card, its first AES67-enabled product. Promising ultra-low latency down to one audio sample per IP packet, up to 256 Ravenna I/O channels from multiple Ravenna streams and a full MADI interface, the new card is suitable for high-density audio production or automation applications.



Digigram's LX-IP sound card enables users to record and play 128/128 AoIP Ravenna channels simultaneously in and out of a desktop computer.

According to the company, the card also features ultra-low round-trip latency down to three milliseconds, interoperability with all AES67 requirements, an embedded 128x128-switching matrix, Grandmaster PTP clock abilities and high redundancy.

An optical MADI interface may be directly connected to the embedded switching matrix to provide 64/64 inputs/outputs, as an option.

INFO: [www.digigram.com](http://www.digigram.com)

## LOGITEK ADDS PLUSSES

Equipment maker Logitek has added a "plus" to several pieces of its broadcast equipment.

JetStream Plus (shown) is a 240-channel AoIP audio node that offers high-density, user-configurable I/O with ample support for multiple rack rooms and TOCs. Fifteen card slots are provided for analog inputs, digital inputs, analog outputs, digital outputs, SDI inputs and microphone preamps. Any size Logitek digital console (Pilot, ROC, Mosaic, Artisan or vMix+) may be operated with the JetStream Plus and multiple consoles may be connected to a single unit.

The vMix+ virtual AoIP mixer combines all of Logitek's virtual clients into a customizable software package. According to Logitek, vMix+ can take the place of or run in parallel with a physical mixing console or router control panels, and can provide more metering space than is available via a standard bridge. Other features include individual faders for simple operation of a single source; router control "buttons;" single or multiple VU meters and any desired user graphics or text.

INFO: [www.logitekaudio.com](http://www.logitekaudio.com)



## USB AUDIO IS THIS EASY WITH USB MATCHBOX II



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TO THE REAL WORLD

The ease of USB audio without hum, buzz, or sound-card headaches! Get true professional levels with lots of headroom, and an AES digital output too.



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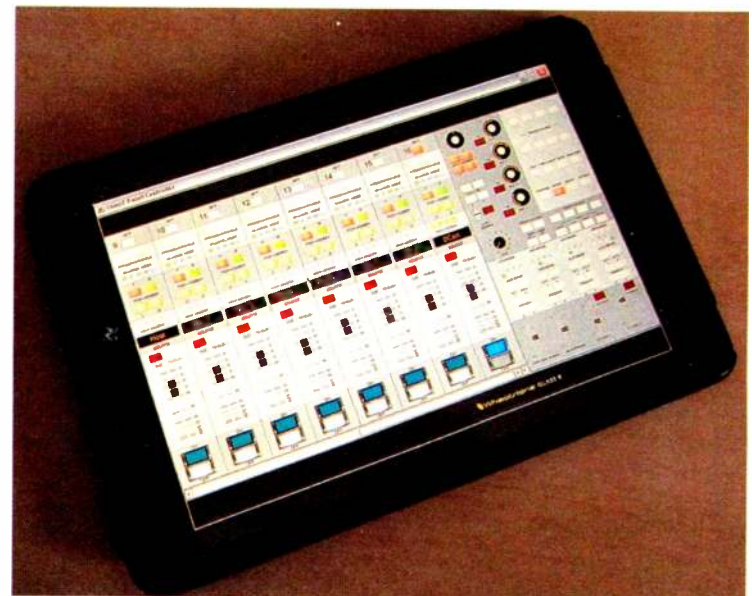


### Uniform Audio Across the Network

**You don't have to be into cars to know that a white door on a red car just doesn't work.**

The same goes for all those translators and sister stations that carry the same programming across the network. You shouldn't have to mix and match processors, and have to settle for a different sound for each. That's one reason why we just came out with the SG-192 stereo generator. With a high quality Wheatstone processor at your studio (may we suggest AirAura or the FM-531HD?), you can now distribute that audio uniformly to your transmitter sites by using the Wheatstone SG-192 as the final peak processor and stereo generator at each site.

[Click here to learn more.](http://INN11.wheatstone.com) INN11.wheatstone.com



### Virtual Consoles Are a Reality

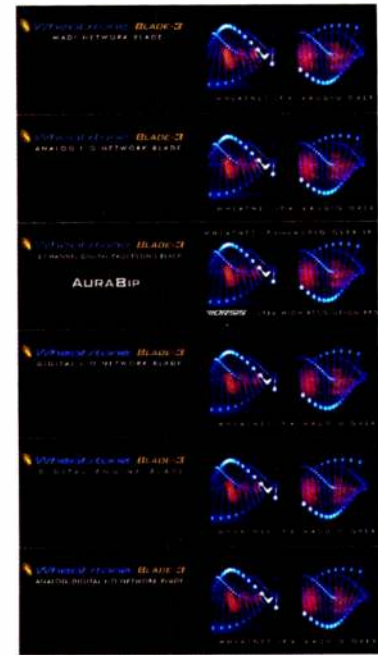
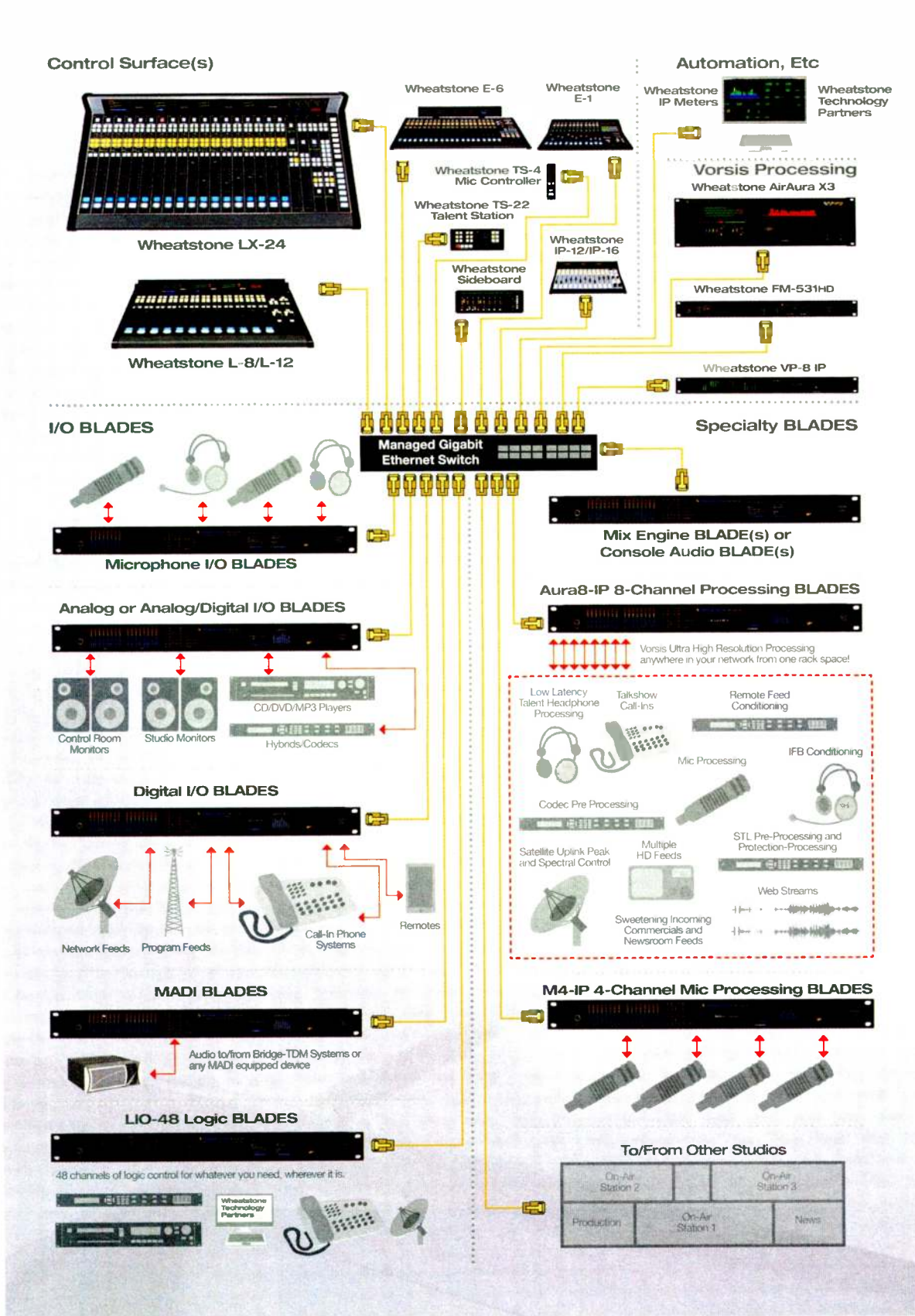
**Whoever said that the laws of physics are merely a suggestion could be onto something.**

The entirely virtual broadcast studio is not only possible, but most of the pieces are already in place. A good majority of what stations do today - schedule music, stream it, record news updates, even turn on a mic and preload settings for it - can be done without ever leaving the WheatNet-IP network. And, there's more to come, including a suite of WheatNet-IP applications for tablet/iPad devices that will make workflows even more virtual.

[Click here to learn more.](http://INN11.wheatstone.com) INN11.wheatstone.com



# With The Right Stuff, Your IP Audio "Feature Creep" is Already Under Control



Your job is to stick to the budget, yet build in some room for all those big ideas that will surely come along the minute you implement your new audio over IP system.



That's why our I/O BLADEs have microprocessors inside that we can add to, change, and adapt for just about any scenario the future holds. For example, we did away with costly distribution amps and made routable mixing possible by dropping virtual utility mixers into our network I/O BLADEs for this purpose. Now, we're adding multi-band stereo processing to our new I/O BLADEs as yet another cool routable function that can be used for spot processing of satellite feeds, headphone audio, web streams or whatever else comes down the studio line. Here's what else you need to know when planning your next IP Audio project.

[Read the rest of the story here: INN11.wheatstone.com](http://INN11.wheatstone.com)





# If You Hate Surprises, You'll Love This Idea

Also, take advantage of a simple Plexiglas solution

## WORKBENCH

by John Bisset

Read more Workbench articles online at [radioworld.com](http://radioworld.com)

The Federal Communications Commission conducts unscheduled inspections of broadcast facilities, both randomly and when they have a reason to believe a problem exists. Put your station under the microscope, and avoid an FCC inspection for 3 years by participating in an "Alternative Broadcast Inspection Program."

association manages the program and sets the fees, which may be higher for non-members.

The program is straightforward. After you complete the agreement, and pay the required fee, the state agency will notify the FCC that an inspection is pending. For a period of 150 days, dating from the the agreement, you will not be subject to a random inspection by the FCC. At a time convenient for both you and for the ABIP inspector, your station will then be inspected following

complete and *confidential* report detailing the findings, including violations and advisories, if any, and the forfeiture amount that may have been levied had it been an official FCC inspection.

If your station is in compliance, a Certificate of Compliance will be issued, and you will be exempt from random FCC inspections for three years.

Please note: There are certain exceptions, such as targeted inspections for safety matters related to towers or inspections responsive to a complaint, such as interference, where an FCC inspection may still occur.

issued a certificate of compliance.

Contact your state broadcasters' association for more information.

Console furniture takes a beating, and Evan Baker, assistant engineer and fleet manager for Cumulus Media Albuquerque, offers a great way to deal with hinged cabinet doors that sag.

Fig. 1 shows how the doors may not close evenly, and the years of opening and closing makes the screws holding the door hinges impossible to reset.

So what did Evan do? He replaced the heavy doors with 1/8-inch clear Plexiglas. After removing the doors and hardware, Evan installed Velcro brand hook-and-loop fastener strips on each side of the



Fig. 1: Old and sagging doors are both unsightly and inefficient.



Fig. 2: Evan Baker demonstrates the dangers to which exposed equipment can be subjected.



Fig. 3: Hook-and-loop fastener strips maintain easy access for adjustments.

Under this program, your state association of broadcasters will dispatch a private ABIP inspector to perform a complete FCC-type inspection of your station to ensure that it is in compliance with the commission's rules. In most cases, you do not have to be a member of the state association, although the

a specific, FCC-prepared checklist.

The inspection will take four to six hours, depending on the complexity of your operation. Any areas found not in compliance will be discussed with you, your chief operator and/or technical staff at the time of inspection. Shortly after the inspection, you will receive a

If your station was found not to be in compliance, you will be given a certain amount of time to make the necessary corrections and to provide the ABIP inspector with proof of correction and compliance. In some instances, a re-inspection may be required. Once everything is as it should be, you will be

cabinet, with matching Velcro on the sides of the Plexiglas sheet. The Plexiglas prevents feet or knees from kicking the rack mount equipment, as shown in Fig. 2. Plus, if you need access to the equipment, the plastic easily peels down to permit adjustment, as seen in Fig. 3.

Evan says the materials cost about \$60 total.

Evan Baker can be reached at [evan.baker@cumulus.com](mailto:evan.baker@cumulus.com).

It seems we've gone from winter right into the summer storms. It's an appropriate time to check your uninterruptible power supply's battery condition. Here's a sampling of some tips from several listservs.

Just like anything else, batteries require maintenance. A double conversion UPS system, like those offered by Tripp-Lite, needs to be tested by disconnecting the AC power after the batteries have been tested and confirmed as good.

If your UPS does not have an auto bypass switch, it's probably worthwhile investing in one. These switches permit the UPS to be swapped out of the circuit for maintenance and/or battery replacement. Having an external automatic bypass provides a necessary layer of redundant protection, and it also makes it easy to swap out an entire UPS, if needed.

Contribute to Workbench. Send tips to [johnpbisset@gmail.com](mailto:johnpbisset@gmail.com). Fax to (603) 472-4944.

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Version 3 update adds more features, new controls, and greater sonic power.

# INOmini 402

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NEW



Display your station's live RDS messaging for all to see.

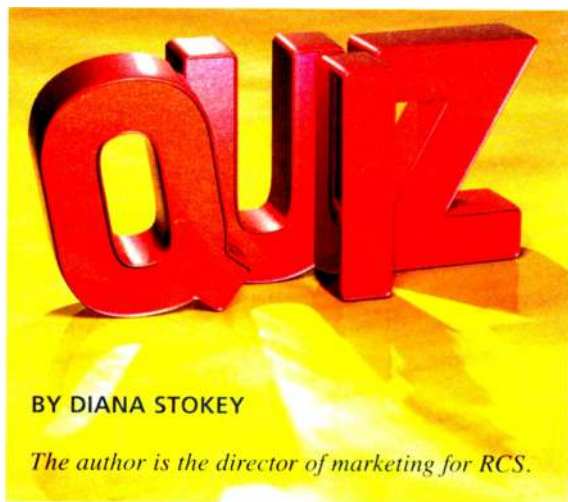
## New at NAB 2014

This year at NAB, we introduced **AARON 650**: a totally-new FM rebroadcast/translator receiver built to handle the most challenging reception scenarios. **Version 3 firmware** added adjustable crossovers, attack and release times, Windowed AGC and more to our **DAVID IV FM audio processor**. And our new **INOmini 402 RDS Sign-Driver** was on hand displaying live RDS for your control rooms, studios and outdoor billboards.

Learn more at [www.inovonicsbroadcast.com](http://www.inovonicsbroadcast.com)







# Nuts and Bolts Engineering Trivia

This quiz will test your technical knowledge and know-how

When was the last time you had fun at work and learned something while you were at it?

Do you think you know everything that the engineering position can throw at you? Do you remember punch-down color code orders, or what Raspberry Pi is?

I encourage you to match wits with your peers in the field and see how well you do on this quiz. Who really deserves the title of chief engineer?

Email us your answers to [radioworld@nbmedia.com](mailto:radioworld@nbmedia.com), and the high scorer(s) will receive a prize worthy of this achievement.

For those who are more humble and prefer to self-score, we will print the answers in the July 2 issue of the magazine. If you're the impatient type, we will also post the answers on the website at [radioworld.com/nutsandboltsquiz](http://radioworld.com/nutsandboltsquiz).

1. What is Raspberry Pi?

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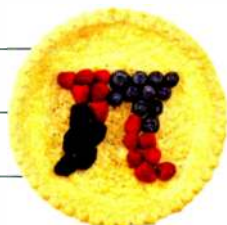
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2. If a Fresnel zone is not clear of obstacles, what can be the effect to signal transmission?

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3. What general factors determine Effective Radiated Power?

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4. What is NEMO?

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5. How many different amplitude levels can be represented in a 32-bit audio sample?

- a) 16,777,216
- b) 2,147,483,648
- c) 4,294,967,296
- d) 6,442,450,944

6. What is the punch-down color code order for a TIA-568B wiring interconnect cable?

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7. What does ASRN stand for and what is it?

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8. What property can be defined as the orientation of the electric field wave as it propagates away from an antenna?

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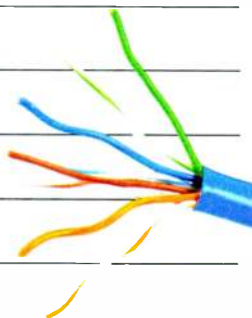
9. A wattmeter in a transmission system indicates there is 50,000 watts of forward power going up the line and 25 watts being reflected back to the transmitter. What is the return loss?

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10. A foam-filled transmission line has the following characteristics: inductance per unit length =  $0.2594\mu\text{H}$ , capacitance per unit length =  $98.65\text{ pF}$ . What formula should be used to solve for the speed at which electromagnetic waves propagate through the line? What is the speed?

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11. What is AVWS?

- a) Audio Visual Warning System
- b) Aerial Visual Warning System
- c) Antennae Voltage Wattage System
- d) Audio Variable Warning System

12. Some FM antennas are tuned by placing a piece of dielectric material at a strategic location near the antenna to match the antenna to the line and transmitter. Why do we not just add this material at the input of the line to match the transmitter and avoid climbing the tower?

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13. What is "angry IP" used for?




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14. How is null fill generally achieved in multi-element side-mounted FM antennas?

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15. A circle of a given diameter centered on the normalized locus of a Smith chart represents what quantity(s)?

---

16. Using a Smith chart, determine the input impedance seen at the input of a 108° lossless line having a characteristic impedance of 50Ω terminated in an impedance of 80+j40Ω.

- a) 25j0
- b) 23j0
- c) 106j0
- d) 15j0

17. What are two of the most common uses for a quarter wave 3 dB hybrid?

- a) Splitters and feeds
- b) Power and voltage
- c) Splitters and combiners
- d) Distribution and transmission

18. How is beam tilt generally achieved in multi-element side-mounted FM antennas?

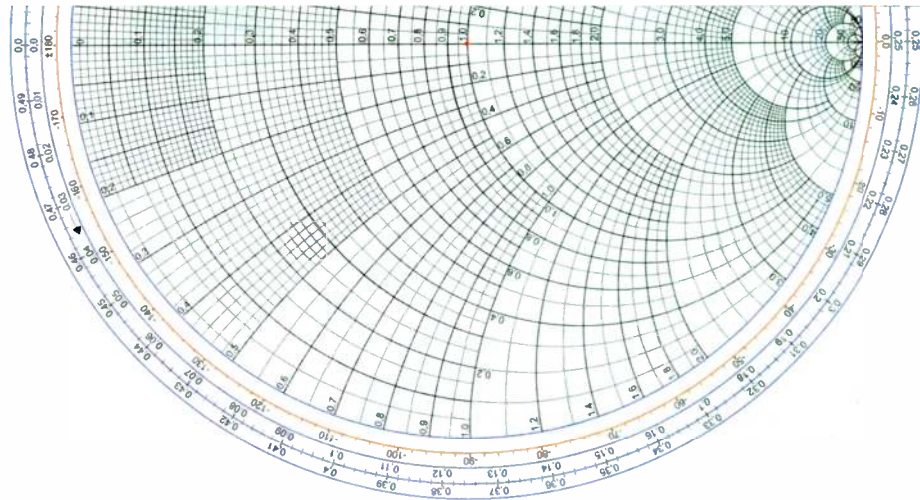
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19. Some FM antenna manufacturers use steatite as a dielectric material for slug tuning while others use brass. Why might steatite be considered superior to brass for this purpose?

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Smith chart by Wdwd. Used under a Creative Commons license. Source: Wikimedia Commons

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# MARKET PLACE

## Tube Dreams:

Sometimes it's nice to dream. D.W. Fearn has just released the VT-24, a four-channel version of its VT-1/VT-2 tube mic preamps.

Basically, the insides are the same as the VT-1 and 2, including Jensen transformers on inputs and outputs.

Of course it has 48 V phantom power, phase reverse and a 20 dB pad. There's also a special input for low-impedance microphones. It will handle everything from high-end condensers to dynamics to ribbons.

Each channel is independent and has its own controls along with a VU meter.

Doug Fearn says, "I did not want to compromise on the sound nor on the features of the VT-2 ... Specs are the same as a VT-2, and, most importantly, the sound is exactly the same."

With eight tubes, in the winter it could double as a heater. A really good-sounding heater, though Doug insists it won't get that hot. Imagine how good the VT-24 would look in your rack. Price: \$8,300.

Info: [www.dwfearn.com](http://www.dwfearn.com)



**Another Hound:** Joining the Signal Hound pack of portable RF spectrum analyzer and RF recorders is the BB60C. The C model has a frequency range of 9 kHz–6 GHz, with an instantaneous bandwidth of 27 MHz. The RF spectrum sweep is capable of 24 GHz.



Built on the base of the BB60A, Signal Hound says it has made some processing tweaks to improve the processing efficiency of the BB60C and lowered the noise floor. It also beefed up its environmental cred by extending its operational range from –40 C degrees (–40 F) to 65 C degrees (149 F).

Signal Hound CEO Bruce Devine said the BB60C is suitable for a range of applications. It embodies the 80–20 rule by being able to accomplish more than 80 percent of the work for less than 20 percent of the cost. It may look like a toy, because of its small size and its weight of 1.1 pounds, but once you put your hands on one, you'll know it's a serious instrument."

The Signal Hound BB60C is a USB 3.0 device. Price: \$2,879.

Info: [www.signalhound.com](http://www.signalhound.com)

**Loading Up:** RF and microwave products specialist Pasternack Enterprises has introduced new RF dummy loads in 25, 50 and 100 watt models.

They will be available in male and female SMA, N, TNC and 7/16 DIN versions. The company says that the 25 and 50 watt versions operate out to 18 GHz, except for the 7/16 DIN model. The 100 watt operates out to 8 GHz.

The loads should operate in a temperature range of –55 to +125 degrees C and in normal operation require no cooling beyond the attached heat sink.

Info: [www.pasternack.com](http://www.pasternack.com)



**Polishing the Apple:** The iMac is a popular computer for broadcasters, but some limitations in the stock models can bite, and Apple has never been much on DIY customization and aftermarket products. One frequent problem is a stuffed internal hard drive.

One Mac aftermarket specialist, OWC, has developed a kit for solving that problem. Designed for 2011 iMacs and 27-inch 2012 iMacs, the OWC Hard Drive Do-It-Yourself Kit, allows for the installation of a new 3.5-inch SATA internal hard drive.

The problem that it solves is that third-party drives lack a specific Apple-approved firmware that communicates with the iMac's System Management Controller on temperature and cooling fan issues. The OWC kit provides a thermal probe that can communicate with the SMC — voilà! — problem solved.

Drives up to 6 TB can be installed with the kit. The kit is available in two versions, with tools (including suction cups for handling the glass) — \$64.79, and without tools — \$47.99.

Info: [www.macsales.com](http://www.macsales.com)

**Alert!** Digital Alert Systems is offering new DASDEC-II LC units.

The low-cost units, designed for small operations and LPFMs, are the DASLC+ and DASLC+R. Thanks to additional inputs and an extra expansion slot they will accept more source inputs while still providing basic EAS/CAP decoding functions and emergency audio switching.



Digital Alert Systems Vice President of Business Development Bill Robertson said that the new units "provide customers with the best possible value for their money while meeting all their requirements." He added, "The DASLC+ models ... [supply] the higher input capacity that many low-power stations require, without additional features — and costs — they don't need."

The "+" models are four-channel units and the expansion slot can handle optional EXP-EAS, EXP-GPIO or MPEG-2 input options. The "R" model has an integrated receiver for AM/FM/WX reception.

Info: [www.digitalalertsystems.com](http://www.digitalalertsystems.com)



# Are Your People Posers or Professionals?

Calling yourself a media sales consultant doesn't automatically transfer those skills

It has become common practice for radio stations to portray their ad sales people as "media sales consultants."

This exotic title is printed on business cards and lauded as an advantage to potential clients. After all, the reasoning goes, if we're selling radio, digital, mobile and social, then our sales people are not just "radio account executives" anymore.

What's missing? The education and training necessary to back up the boast that we are indeed media sales experts.

## LOOK IN THE MIRROR

This is a huge issue for those joining the radio sales ranks, but you will

also find ongoing training lacking for even senior reps. It's time to look in the mirror and confess that we need to spend more time as an industry making certain that the people most important to our bottom line are representing us in the best possible light.

If you don't believe this is a weakness at your station, it's easy enough to do a quick reality check. Start by finding out if your sales people understand the basic mechanics of radio ad sales.

You can do this just by looking at a schedule they've put together for a current client. Does the schedule have enough frequency and reach within each single week to drive action?

Next, check out the creative for the radio spot and any other digital assets. Is the client's main selling proposition for this product clear? Does the offer have the potential to move the audience to action? Do the radio spot and digital creative convey the same messaging?

If the schedule constructed doesn't reach a substantial percentage of your audience more than three times per each week of the run, then your sales rep not only isn't a "media sales consultant" — she's barely a radio sales account rep.

If the copy doesn't cut it, then she also needs to spend time with your creative team to better understand how to move consumers.

## PROMO POWER



Mark Lapidus

right the first time: What's got the highest open rate of all digital media?

Answer: a text message.

That's precisely why you should never, never, ever send junk text messages with just ads and no content. Your recipients will see the message the first time and then probably never again because you have violated their phones with junk. Your client's reward will be scorn, and your SMS text list will shrink with unsubscribes.

Social sales is perhaps the trickiest of all because each social service

**It's time to look in the mirror and confess that we need to spend more time as an industry making certain that the people most important to our bottom line are representing us in the best possible light.**



**Lead Software Engineer  
Mobile Architecture  
ian Corporation, Reston,**

**WANTED: Radio sales person who doesn't know anything about media, but has great hair and can talk a good game.**

Beware of what I call the "That's What the Client Wants" defense. This is when a sales rep defends her actions by telling you in no uncertain terms that she's only doing what the client demands. It's not her fault if none of it works. This defense is acceptable once or twice, but after running campaigns multiple times on your air, consumers won't be coming back when ads fail to generate results.

A real "media sales consultant" should explain patiently and passionately how frequency, reach and great creative will offer the best potential for truly making the cash register ring.

## TESTING

The digital test comes next.

Can your sales reps explain basic digital terminology? The definitions for Uniques, Visitors, Pageviews, Impressions and Bounce Rate are all easily found on the Internet. Have they taken the time to understand and memorize them? Can they speak to typical cost per thousand advertising on websites in your market and how your websites rank against those rates? Have you trained them to understand that sponsorships of your important site sections are likely to generate better results than click-thrus on banner advertising? Do they know that pre-roll ads with good creative on your videos are a powerful tool?

Here's one that almost nobody gets

has terms-of-service statements that are easy to violate if you don't understand what they mean to you and your clients.

Don't laugh at direct mail! There's a reason why all that junk still arrives in your mailbox! A true "sales media consultant" knows that properly segmented lists with excellent creative will work for advertisers.

Finally, do all of your "media sales consultants" know how to conduct a needs analysis with their clients? This is all about asking the right questions, being a great listener and returning to the office with answers written down on paper that can be used to formulate the advertising action plan.

You have a choice! Your sales organization can be comprised of posers — or professionals.

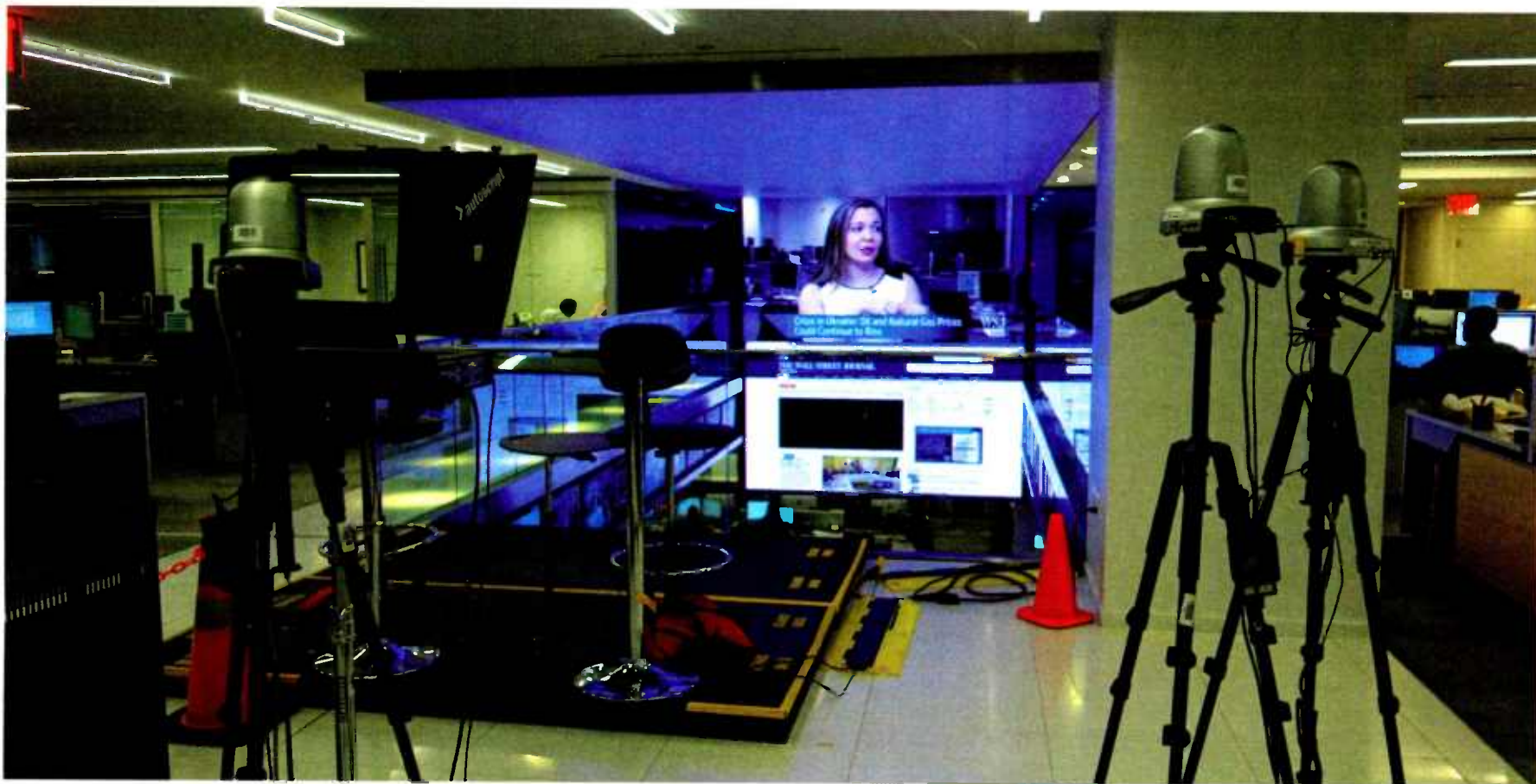
Posers produce short-term results. Professionals rule the world.

*The author is president of Lapidus Media and a longtime contributor. Email marklapidus@verizon.net.*





# WSJ: Moving From Print to Multimedia Producer



The Wall Street Journal's TV studio fits in its newsroom. Note the small footprint and automated cameras in the tripods.

Speaking with staffers about the publication's evolution from a print property to a multimedia content producer

## TRENDS

BY CHRISTOPHER SPRINGMANN

Ask anyone of a certain age what the Wall Street Journal is, and they'll almost immediately think of the traditional newspaper.

But the younger the respondent, the more likely they'll mention it's a website, video producer or even a radio program. The fact is, the WSJ, like so many of its former print-only newspaper industry confreres, isn't simply a large-circulation newspaper, but rather an international multimedia content producer.

### IT'S RADIO TIME

John Wardock is happy to briefly reminisce about his days as a starry-eyed 17-year-old sports announcer at Portland, Maine's WMER(AM) 1440.

*Very briefly.*

Then he moves on to the here-and-now.

Wardock is quite busy as the executive editor of both the Wall Street Journal and MarketWatch radio networks. Plus he oversees the nationally-syndicated "WSJ This Morning." Some 600 radio affiliates, some 30 million listeners, 90 percent national market penetration — those are the numbers.

In major markets like Manhattan, you cannot escape

it, with 24/7 programs on WABC, WCBS and WINS. Plus, there's iTunes, iHeartRadio, SoundCloud and Stitcher. Wardock's goal is to meet WSJ listeners where they are, all day, every day, on every device imaginable, in multiple length formats, from one-minute to one-hour features. Did I mention Facebook and Twitter, too?

And all this is accomplished with "fewer than three dozen anchors, reporters and producers to keep the needle moving," Wardock said.

"Remember the famous Wayne Gretzky quote about how he scored so many goals in hockey?" Wardock said. "You got to go to where the puck is going to be." So we are in the process of going to where the listeners are going to be."

When we first spoke, Wardock had just returned from the Washington Auto Show and, no, he wasn't kicking tires. "I was marveling at how the digital dashboard has become an entertainment center for consumers and drivers. Ford is leading the charge, and GM is heavily involved. My job is to get us on those dashboards. Is that radio? Is that digital audio? Both, actually."

Wardock's up-close and personal style is evident as he responds to listener emails, even about seemingly obscure stuff.

"The 'Wall Street Journal This Morning' syndicated show uses bumper music, and we often get requests or compliments about the various songs. Maybe we'll play

10 seconds of Jimmy Hendrix or the Foo Fighters that catches someone's ear buds. Just like that, they'll dash us off a note from their device," said Wardock. "It's very, very cool to have listeners who are engaged with us."

(Cool, yes, but those listeners are customers, too, and they expect answers!)

### CORD CUTTER

One significant, recurring Wardock theme is more and more reliance on IP wireless technology vs. so-called "hardwires," a fact driven home when super-storm Sandy literally drowned their ISDN capability, seemingly for months.

Not surprisingly, Wardock cut the copper cord long ago.

A classic example: He was in Austin on National Donut Day. Wardock found a shop that made awesome, fiery habanero donuts, breathlessly recorded the experience using the memo function on his iPhone, emailed the file to a WSJ producer — Boom! He was on the air in minutes. Just like the good old days, doing football broadcasts, donuts and all — but this time, the studio front-end was in his pocket.

Unlike veteran broadcaster Wardock, other WSJ staffers, many from the print side, needed to learn on-air skills. The WSJ instituted an in-house cross-training program for writers and producers to become effective presenters for both audio and video formats.

Story conferences and content decisions invariably revolve around multimedia usage, to expand distribution on multiple channels and amortize costs, plus adding value to products throughout the chain.



Tapping and training in-house assets, i.e. "the talent," is a big part of that program. Multiple skill-sets are crucial for employability, especially for an increasingly independent and mobile multitasking WSJ staff.

While keeping the WSJ's audio/radio content profitable is an enormous responsibility, Wardock still has the heart of that 17-year-old high school student who got his first break in local AM radio. However, he now has the added perspective of a network executive.

"Radio is very, very intimate. And we have to keep in mind that we need to make a connection with our listener and make sure that they feel comfortable with us at all times," he said. "That means we need to go mobile, as radio has the potential to have a very massive rebirth, because everyone who has a smartphone out there has a radio in their pockets. Station managers, GMs, PDs and news directors have to realize that, because of this phenomenon, we have a chance to really regain what has made radio great over the years."

**MULTIMEDIA**

The Wall Street Journal's Jason Bellini and Joe White love cars, especially Lamborghini's new \$200,000 Huracán, with a 600 HP V-10 that propels the machine to over 200 mph.

They also love their jobs and are dedicated to sustaining personal employability, by developing diverse, dynamic multimedia skill sets. Those skills were on display as I watched the two on the WSJ Live "Lunch Break." Bellini, senior producer and on-air talent and White, global auto editor for the WSJ, both gushed on about the Huracán's carbon fiber skin, smoking tires and how Lamborghini manages product scarcity.

The side-by-side live interview features White, casually but appropriately dressed, in his home office, speaking into an Audio-Technica ATR2500-USB mic connected to his laptop computer. A video insert, "Detroit via Skype" floats above his head.

Bellini, by contrast, wears a sharply tailored suit and stands at the WSJ Live anchor desk, in front of the show's logo, an effect dropped onto a green screen behind him. The production-rich, fast-paced segment features "two shots" of the talent in conversation plus rotating facial close-ups to vary the action, all intercut with b-roll of the smokin' Huracán, plus graphic treatments and closed captioning.

Closed captioning is crucial, as the show appears in noisy airports, bars and retail stores, in front of hearing-impaired and ESL audiences plus folks at work who watch silently.

Their professional performance, backed up by staff technical support, was not coincidental. Before joining the WSJ,



Screenshot of Jason Bellini and Joe White on the air

Bellini spent four years at CNN doing field production, where his tools were a laptop and video camera, plus excellent editing skills. Bellini, a "seasoned veteran" at 38, also produces and hosts in three-four weekly segments of "The Short Answer," a two+-minute news feature that often includes "user-generated content;" that is, clips supplied by the featured guest, sent via Instagram (0:15 sec. max. each upload) or posted to the WSJ's FTP site. He's also taken advantage of the WSJ's coaching and media training opportunities.

(continued on page 26)



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## MULTIMEDIA

(continued from page 25)

### CAREER TRAJECTORY

Joe White, another graduate of WSJ broadcast media classes, is a self-described old-school print journalist who has been on the Detroit auto beat for two decades. He now thinks like a producer and acts as director, managing reporters, coordinating interviews, but always, all-ways, considers the visual components of the story first.

"I think a lot of our younger readers are going to absorb what we have to say about the auto industry more readily through a two-to-three-minute video," White said. "You've got to be able to put your ideas across in whatever form the customer wants. A 1,000-word print story and all the depth? We've got that. Hear me talk on the radio for two minutes? I do that, too. There are a lot of people who know me, not from the print Journal, but through broadcast media, no doubt about it. The audiences don't necessarily overlap."

White's advice to up-and-comers or pros making the transition to multimedia?

"Get involved in acting, as that training, the ability to get up on stage and project, has been invaluable in my unexpected career turns over the last 10



**Author Christopher Springmann does his show here, poolside in Atlanta. He packs an Audio-Technica BP4073 shotgun and a Shure X2u USB adapter along with his camera. With those tools he's able to do high-quality audio from anywhere.**

years," White said.

Jason Bellini's career trajectory and especially that of Joe White, have paralleled my own path: newspapers, acting, publications and magazines, radio and video, multiple career changes compelled by aesthetic, creative and, yes, economic necessity.

My choices of technology-and-tools are similar to theirs, all driven by the necessity to produce a quality product on the road, especially great audio.

(Rush Limbaugh's show video has all the sexiness of watching a fixed-camera underground parking lot CCTV feed, but he sounds great.)

White, who is also a guitarist, saw a "Deal of the Day" on his favorite musician's site and impulsively picked up the Audio-Technica ATR2500-USB mic. That buy changed his life and the quality of his work on-air. Yes, the built-in webcam on the Apple laptop still produces acceptable video, but the

Audio-Technica mic made him *sound* like a star.

It's an important lesson that can't be underestimated.

Much like Bellini and White, I bounce between home, studio and locations like hotels, airports and the backseat of rent-a-cars; thus, I now only use small, lightweight shotgun mics, the Audio-Technica BP4073 for narration and VO. It's easy to pack at 9 inches and 3.5 ounces, has great presence plus a bit of urgency, often called the "L.A. Sound."

For my Canon Xa10 video camera, which has two phantom-powered XLR plugs, I use an Audio-Technica AT897, an unobtrusive 11-inch, 5-ounce shotgun, which also operates with a standard AA battery, great for the backup consumer-model Canon video camera or a DSLR without XLR/phantom power capabilities.

If someone had told me 10 years ago, when I was working on news-magazines, trade journals and corporate annual reports, that I'd be shooting video and cutting audio on the run, I'd have thought they were nuts. But like the Wall Street Journal personnel I spoke with, we are all evolving into multimedia content producers.

*Christopher Springmann is the producer of the syndicated "Life, Love & Health" health talk show.*

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KUPL(FM)'s Flexiva FAX20 transmitter, shown in the Portland, Ore., studio.

**WHO'S BUYING WHAT**

**Alpha Broadcasting** has outfitted its **KUPL(FM)**, Portland, Ore., with a new high-power 20 kW Flexiva FAX20 transmitter from **GatesAir**. The broadcaster says it expects an improvement in operating costs based on the transmitter's efficient design, emphasizing labor savings due to streamlined maintenance.

Michael Everhart is director of engineering at Alpha Broadcasting.

**WBUR(FM)** has fired up its new signal in Cape Cod, Mass. The new, full Class B FM "WBUH" transmitting on 89.1 MHz and licensed to Brewster, Mass., has begun broadcasting. WBUR's primary 50 kW signal on 90.9 MHz transmits across the Boston metro.

The major components of the Cape Cod station are:

**GatesAir** FAX10 transmitter, **Shively Labs** model 6600 horizontal-only polarization antenna, **Burk** ARC Plus remote control and **Orban** Optimod-FM 5500 audio processor. An **APT/WorldCast** codec is being used for the IP audio STL.

**Southern California Public Radio** has chosen digital publishing technology provider **Internet Broadcasting Systems Inc.**, to provide digital ad operations for SCPR's radio station group.

**NRG Media**, operator of 45 radio stations throughout the Midwest, has renewed and expanded their contract with **Marketron**. They will utilize the media business software provider's revenue management and digital software products.

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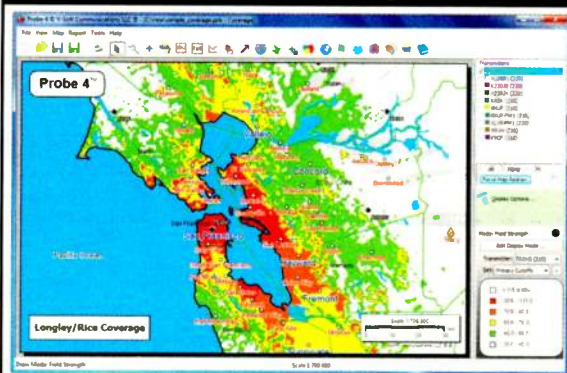
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## READER'S FORUM

### PROMOTE LOCALISM, PREVENT AM TURNOFFS

I have a thought about the FCC finally doing something positive about AM radio.

One of the big turnoffs over the years about AM radio was the fact that stations had to change patterns at night. Therefore, most stations were unable to cover their primary daytime coverage areas with their night signal. There are still many AM stations that go off the air at sundown so that a 50 kW clear channel can broadcast their local news and sports from 500 to 1,000 miles away.

I propose that pressure be placed on the FCC to only allow the 50 kW clears to have just 5,000 to 10,000 W of power at sundown. This would allow many stations to broadcast with a viable nighttime signal.

The 50 kW clear channel stations are no longer needed. (They get most of their advertising from local business anyway.)

With the Internet and the MLB Network, I can either or listen to baseball, football, hockey or basketball from anywhere in the world.

The FCC also should allow individuals to own low-power FMs, not just not-for-profit religious, educational and other organizations. Why? Because too many of them have gone off the air for financial reasons and lack of professional programming. Low-power FM should be allowed to sell advertising so they have the money to keep the lights on as well as the transmitter.

Don't we know by now that nearly everything the government touches, like the FCC, screws everything up?

A true American would say, "Let's practice capitalism and not socialism. Let individual states intercede when necessary, otherwise let the industry police its own."

Last but not least, if the FCC wants to promote localism, then don't renew the licenses of companies, religious organizations and other profit or nonprofit organizations that have no local live programming at all. (Example: the SonLife Broadcast Network.)

*Rod Douglas  
Saddle Sore Productions  
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