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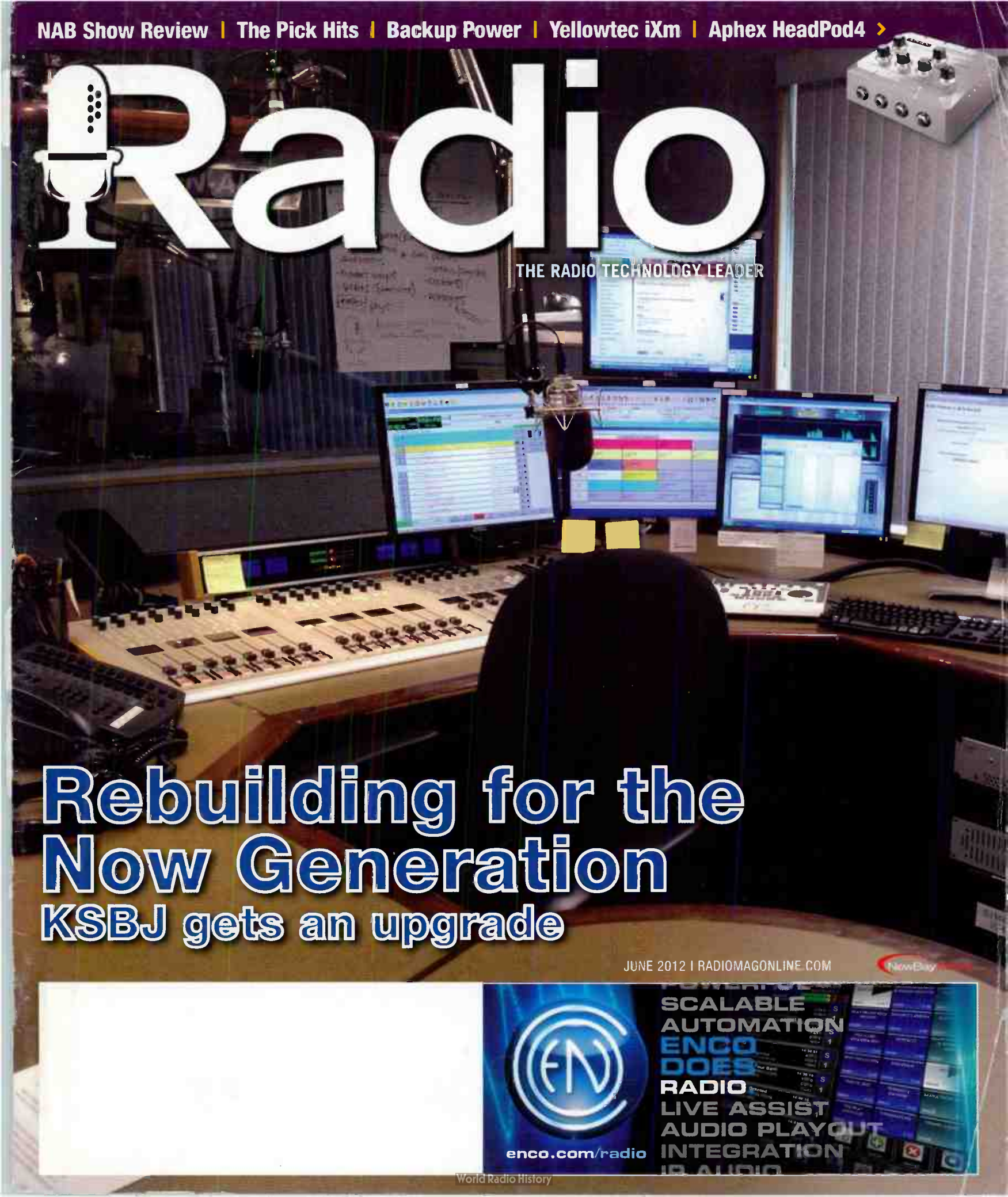

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TABLE OF CONTENTS

2012 PICK HIT Radio

22

FEATURES

14 **2012 NAB Show Pick Hits**
Get personal with the 20 Pick Hits from the 2012 NAB Show

32 **2012 NAB Show Wrap-up**
See more new products and staff photos from the convention

50 **Facility Showcase**
KSBP rebuilds to serve the now generation with NGEN

34

COLUMNS

8 **Viewpoint**
Are you ready for CAP?

10 **Managing Technology**
Repair or replace? Do you know when the time is right?

12 **FCC Update**
The Commission institutes changes in tower construction and registration

56 **Tech Tips**
Adding status inputs on remote control systems

DEPARTMENTS

58 **Field Report**
Aphex Headpod 4

60 **Field Report**
Yellowtec iXm

62 **Side By Side**
Backup power

70 **Sign Off**
Milestones for Inovonics and Henry Engineering

World Radio History

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Insignia Narrator Is Company's First "Talking" HD Radio

Best Buy and the International Association of Audio Information Services (IAAIS) previewed The Narrator, Insignia's first "talking" HD Radio product, at the IAAIS annual conference in Houston. The Narrator, named for its differentiating features includes audible voice responses, access to local HD Radio broadcasts of reading services, and an ergonomic design, was designed in collaboration with the IAAIS to be accessible for people with visual impairments.

In partnering with the IAAIS, the Insignia team was able to identify those radio features most requested by the roughly 20 million Americans who live with vision loss or impairment. With The Narrator, there is no need for another person to tune the radio, set the time, arrange pre-set favorites or be certain that the radio is powered down.

The Narrator can be pre-ordered on BestBuy.com for $99, and it will be available in July 2012.

RAB: Radio Shows Continued Revenue Gains in 1Q 2012

In a report created by the Radio Advertising Bureau, radio posted its third consecutive Q1 increase in 2012 with a 1 percent rise to $3.814B. Surges in digital (+10 percent) and network (+8 percent) and a significant increase in off-air (+3 percent) combined with a stable spot sector led to the positive results.

Growth from a diverse group of categories and advertisers contributed to the Q1 increases. The top ten spot radio advertisers for 1Q2012 in order:

Comcast Xfinity Cable	$89.7M
McDonald's	$87.6M
Safeway	$59.3M
Verizon Wireless	$48.5M
Geico	$46M
AT&T	$45.5M
T-Mobile	$42.2M
Toyota Dealer Association	$41.7M
Fox TV Network	$39.6M
Honda Dealer Association	$32M

Political advertising is playing an important role in radio's 2012 revenue growth. The RAB has partnered with PQ Media to provide the industry with a deep-dive view of the political sector and its impact on adio.

Revenue data has been randomly verified since 2002. The lineup of markets/stations/networks may vary from year to year. Percent change is calculated on revenue adjusted to current year reporting.

Harris Interactive Poll: Radio on Cell Phones

A nationwide poll conducted by Harris Interactive and commissioned by the National Association of Broadcasters shows that four out of five Americans who own a cellphone would consider paying a small, one-time only fee to access local radio stations on a mobile phone.

Eighty-one percent of cell phone owners would consider paying a one-time only fee of 30 cents (the approximate cost of a microchip) to access local radio stations through a built-in radio chip

Seven out of 10 cell phone owners, 69 percent compared to 73 percent in 2010, indicated that having a radio built into their cell phone, capable of providing local weather and emergency alerts in real-time, would be "very" or "somewhat" important. The number was higher for those with children in the home

Three-quarters (76 percent) of U.S. adults, would use a radio built into their cell phone. Younger adults are even more likely to use such a feature. Eighty-six percent of 18-34-year-olds, as well as 81 percent of single and never-married adults indicated they would use a built-in radio to listen to local stations if their phone was equipped to do so without using mobile apps or their wireless provider's data plan.

Inovonics President/CEO James Wood has promoted Ben Barber to be the company's president/CEO. Wood will remain chairman of the board of directors of Inovonics and will assume the title of founder.

RCS has hired Criss Onan as its northeast sales manager for the United States. Onan will have the day-to day responsibility for the development of RCS' customer base. He has more than 20 years of experience in radio station management and technology sales. An experienced broadcast technology salesperson, Onan recently was employed by Broadcast Electronics and championed its sales team.

Digital Alert Systems and Monroe Electronics have received FCC approval for certified next-generation Common Alerting Protocol (CAP) Emergency Alert System (EAS) alerting equipment. The FCC has certified that the DASDEC-II and R189 One-Net series of EAS equipment complies with the FCC's updated Part 11 regulations governing EAS.

Newest FCC Commissioners

The Senate has confirmed Republican Ajit Pai and Democrat Jessica Rosenworcel as the newest members of the Federal Communications Commission. The Senate unanimously approved the two nominees. Democrat Jessica Rosenworcel and Republican Ajit Pai fill the two empty seats at the FCC.

Pai

Rosenworcel

FIND THE MIC AND WIN!

Tell us where you think the mic icon is placed on this issue's cover and you could win a three-pack of Hosa HMIC-025 mic cables. Send your entry to radio@RadioMagOnline.com by July 10. Be sure to include your guess, name, job title, company name, mailing address and phone number. No purchase necessary. For complete rules, go to RadioMagOnline.com

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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.

The ROC is paired with the JetStream, a powerful 128-channel networked audio node.

Available in multiples of 6 faders (up to 24), the ROC is housed in an attractive tabletop enclosure. Durable Penny & Giles faders, OLED source indication and intuitive controls make the ROC a natural for on-air, production rooms or even in temporary studio setups. Two monitor feeds, front panel headphone connection and user-assignable softkeys will please even your fussiest operators.

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Are You Ready for CAP?

June 30 is a day most engineers are aware of, even though they're not watching for it like other deadlines. June 30 is the day when all radio stations must have Common Alerting Protocol-compliant EAS equipment installed and working. The date has been looming for months, so it shouldn't be much of a surprise to anyone.

Still, I have a feeling there are plenty of stations that have dragged their feet and are not ready.

What's required of stations by June 30? By that date, the FCC expects all broadcasters to have certified CAP EAS equipment in place. The equipment is supposed to be connected to the Internet, and it is expected to poll the IPAWS aggregator. If you have your updated EAS equipment installed, you should have already followed the device's instructions to setup IPAWS polling. That data feed is accessed at https://apps.fema.gov.

The entire process of implementing CAP has had several starts and stops. A common concern is that stations didn't want to buy a new EAS unit without it being certified as compliant. All the EAS encoder/decoder manufacturers have been working to obtain FCC certification. As I write this Digital Alert Systems has obtained the certification. I expect the other manufacturers will receive their certifications shortly. If you haven't ordered your new EAS unit, you probably won't be ready for the deadline.

About the time you receive the June issue in your mailbox, FEMA will hold a webinar to discuss the specifics of what is entailed for stations to be CAP-compliant. The webinar is scheduled for June 6. I don't expect much new information to be presented, but the webinar should offer a concise overview of what stations need to do.

So once CAP is in use, what other changes are in store for EAS? For one, state and local EAS plans most likely do not have any information on CAP. There were some other changes to EAS in the rules that took effect in April, and state and local plans likely don't incorporate those changes either.

It seems some states have at least thought about updates. Others are hesitant. And some EAS pros speculate that as many as half the states don't have a functioning State Emergency Communications Committee (SECC). Since state plans must be approved by the FCC, even those states who have planned ahead may not have a revised document in place by June 30.

But states and local areas should not sit idle and do nothing. There are some clear elements, and those can be addressed first. Other FCC changes, such as a national location code, are still unknown. Don't worry about them yet. But adding information about CAP, the 8-second attention tone, the elimination of non-participating stations, the removal of the Emergency Action Termination (EAT), and the renaming of FIPS codes to ANSI numbers (which is only a name change) can all be updated in plans now.

Many of the changes to EAS are items that have been discussed for some time, so they should be of little surprise to most broadcasters. Likewise, we knew the CAP-compliance deadline was coming, so ordering and installing an updated system should have been in works.

Now I wonder how many stations will receive FCC visits in July.

Chriss Scherer | Editor

PICK HITS VIDEOCASTS

On the last day of the 2012 NAB Show, Radio magazine visited most of the Pick Hits winners' booths and shot video demonstrations of the honored products. Those videos are posted on YouTube, so check them out: www.youtube.com/RadioMagOnline.

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THE RADIO TECHNOLOGY LEADER

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THIS CODEC HAS BEEN THROUGH TWO WARS, MULTIPLE ELECTIONS, FLOODS, FAMINE, EARTHQUAKES, HURRICANES, MARATHONS, CHAMPIONSHIP GAMES, REGATTAS, LOTS OF CONCERTS AND WAY TOO MANY CLUB EVENTS TO ADMIT.

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Repair or Replace?

by Kevin McNamara

While preparing to write this article I noticed that my four-year-old HP color laser printer stopped working; hmmm, coincidence? Maybe. I spent a couple of hours trying to figure out the problem only to discover there was a broken part. The mental conflict begins, the engineer (me), of course, wants to order the part and fix it. This would probably cost about $100 and several hours out of my life. The business owner (me) goes directly to the usual websites to price a replacement unit. This kind of struck home when I think back on my days in a station where the answer would be a little different, I call it general manager logic, goes something like; I go to the manager tell him (or her) *X* is broken, we can fix it for this much or we can buy a new one for this much.

Now most of you already know the answer here, most likely the response will favor whatever costs less, buying the part or buying a new unit. The key difference here is that the manager is generally not valuing your time in this equation, so if the part is $10 and it takes you two weeks to complete, no problem. Just to take this logic to the next level, let's assume the broken part in question prevents listeners from hearing the station, now the checkbook is open and your time is still not factored into it. Of course if you are billing hourly, this scenario changes slightly, and how much you are going to cost them becomes a huge factor in the decision because the manager now has to write a check to you as well. The point here is simply how people (managers) view an expense. If you are a salaried employee, the cost for you is already fixed and therefore an expense they assume regardless of the work you perform. On the other hand if you charge hourly, the company will view the expense as the cost for the part(s) and the labor (you). This is simply a generalized mindset of an owner or manager in most businesses.

The older the equipment, the easier the choice is as to repair or replace.

Since the 1970s we have increasingly become a "disposable economy." What was once considered to be a durable item now has finite lifespan. Manufacturers spend time and money figuring out how to build a product that will fail in a predetermined period of time; this is called planned obsolescence.

Shifts in technology can also cause equipment to need replacing long before it stops working from natural causes. As an example consider the rapid change in physical networking standards over the past 10 years. Much of the networking equipment (wired and wireless) purchased in that same period had to be replaced (in some cases more than once) to maintain compatibility with a new system upgrade. The good news is that the cost to acquire technology has dropped significantly, while offering a far greater range of features.

I purchased my old HP color LaserJet printer (yes the one that just broke) for around $600. It was a good and reliable printer, considered state-of-the-art at the time, however the current equivalent new unit is smaller, uses less power and ink, produces higher resolution, prints faster and prints full duplex out of the box. The price? About $200.00 less than I paid for the old one. This is the reality of the world we live in. Instinctively many of us (especially my fellow boomers) have a hard time justifying a new whatever every few years; however it is hard to deny we love getting the latest technology for a lower price. Using this justification it was a no-brainer for me to buy the new replacement color printer.

MAKING THE BEST DECISION

Using the aforementioned thought process, the primary consideration would be the

World Radio History

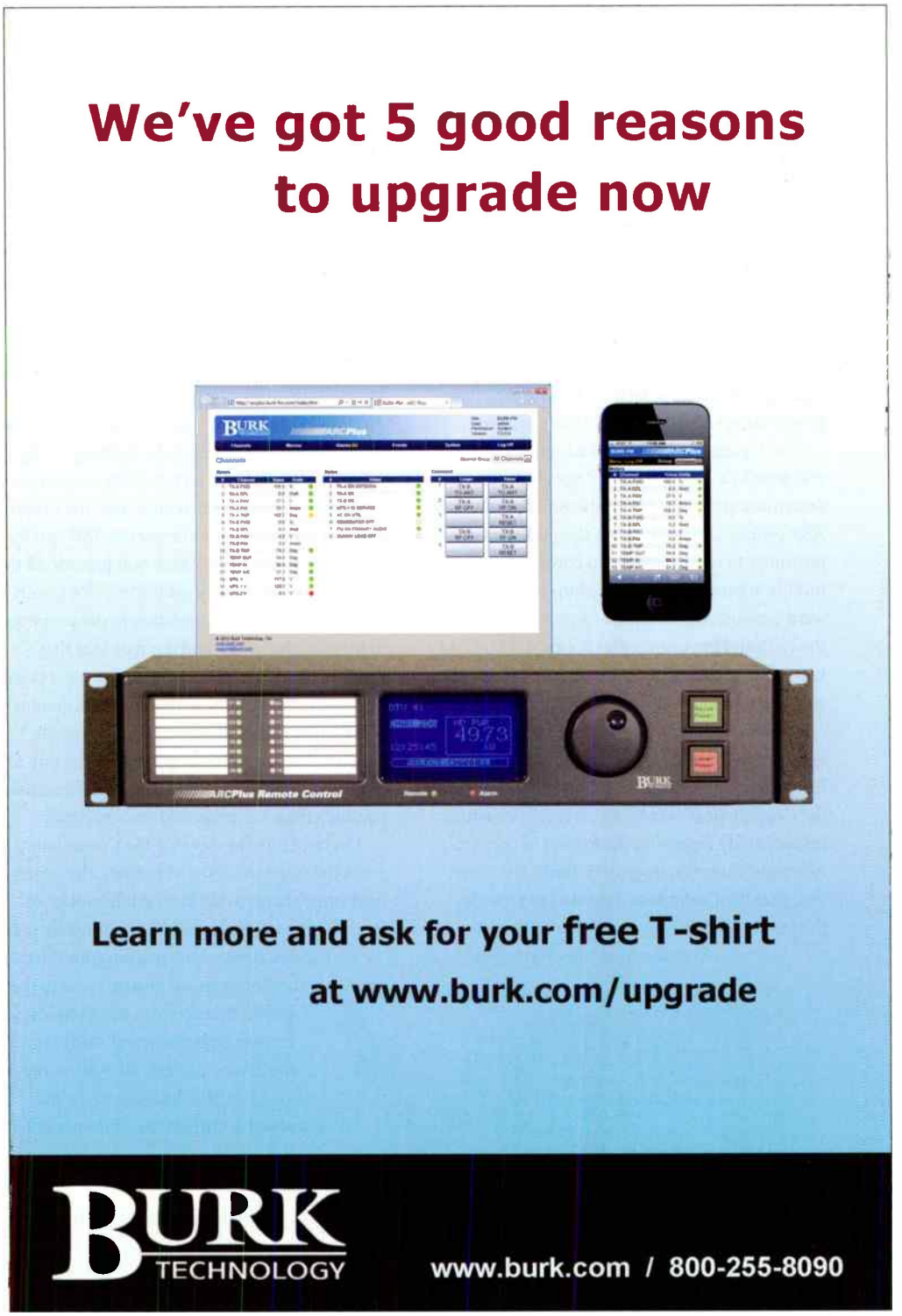
equipment in question, its age, the purchase price *and* "Is it likely to work with emerging technology standards?" These seem obvious but I would also consider the purpose for which equipment was originally designed. I think it is fair to say that most of the mission-critical equipment in a station was designed specifically for broadcast (or similar) applications and as such, is designed with a much higher level of reliability than consumer equipment. It has also been my experience that there is still a robust source of repair parts for the most popular old (and current) broadcast manufacturers, particularly RF equipment, whether those parts were removed from decommissioned equipment, remanufactured or new from third-party sources. Of course for studio and transmitter equipment, this was a good alternative up to about the late 1990s but the reality is that most of you have leaped into the IP/IBOC/digital everything world and all those rotary faders, miles of Belden 8451 and power guzzling transmitters were sold as scrap, so pretty much every aspect of the station is relatively new.

In reality this newer generation of commercial broadcast equipment is expensive, uses proprietary technologies and has very little that can be repaired in the field (at the component level) without the proper training, test equipment and skill. Tech rooms at stations look more like a network server farm than a radio station, mainly because that's what it is, therefore the overall approach to troubleshooting is at the system level i.e. find out where the error comes from, replace the box and everything is fine. OK, that is a little oversimplified, perhaps, but it accurately represents the trend going forward.

From a system perspective there could be another wrinkle. Does this particular piece of failed equipment utilize or operate over a system that uses a proprietary technology? This was more common with early attempts of digitizing the studio. Fortunately most of those systems were either replaced or upgraded to make them interoperable with other manufacturers' equipment that uses standard IP protocols. If you are lucky enough to have some of this older non-standard technology, there is probably a stronger case to replace the entire system rather than expending the time and money to fix the junk.

Finally let us not forget Moore's Law. That was Gordon Moore's (Intel co-founder) prediction that the densities of semiconductors in an integrated circuit will double every two years. Apparently the theory held true since 1965, however some experts think the trend will slow and we will only see the doubling every three years. Overall I think the case for replacement of broken equipment grows each day.

McNamara is president of Applied Wireless, Cape Coral, FL.



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New Tower Rules Mean New Procedures

by Lee Petro

Last December, the Commission issued an order relating to the registration process for the construction of communication towers. The new rules affect both the construction of new towers, and modifications to existing towers under certain circumstances. On May 9, 2012, the Commission released a public notice detailing the new procedures, and on May 21, 2012, the Commission held a public meeting to highlight the changes to the Antenna Structure Registration (ASR) electronic filing system.

The December Order was adopted in response to a 2008 Court of Appeals decision determining that the Commission's current ASR process did not provide the public an opportunity to review proposed constructions/modifications of communications towers that were categorically excluded from review under the National Environmental Policy Act (NEPA). If an ASR applicant claimed that the proposed construction or modification fell under the exemption, it did not need to prepare a costly environmental assessment report to be submitted with its application. In addition to requiring the Commission to conduct an Environmental Impact Study regarding the impact of communications towers on migratory birds, the Court held that the Commission needed to provide the public with an opportunity to comment or request environmental assessments before the Commission approved the proposed construction.

Currently, the Commission is in the process of conducting its assessment of the impact of communications towers on migratory birds. At the same time, the public notice highlighted the implementation of the procedures required by the Court. The new procedures will apply to (1) all new proposed construction projects; (2) modifications to towers that would increase the height of the tower by more than 10 percent or 20'; and (3) certain changes to the lighting of the tower, including changing the lighting configuration and/or lighting a previously unlit tower.

The new procedures require that the proponent submit a partially completed ASR application (FCC Form 854), which will provide all the information previously submitted, along with additional information relating to the proposed lighting of the tower, and the date that that proponent wishes to have the tower registration posted for public comment. The Commission will then post the submission on its website, which will open a 30-day period for the public to request that an environmental assessment be conducted for the proposed construction.

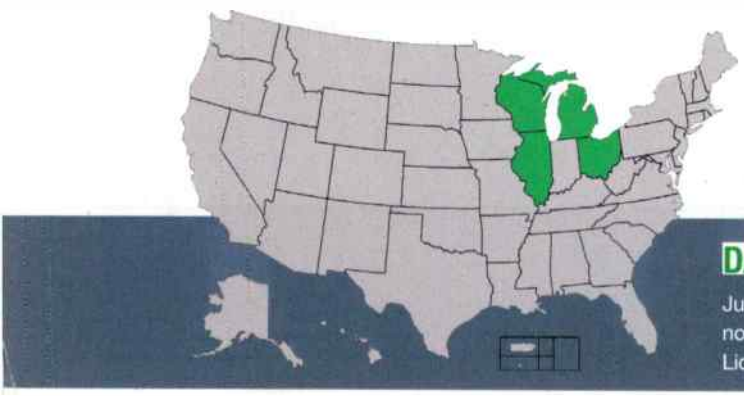
On or before the day that the Commission posts the submission on its website, the proponent must also provide local public notice of the submission. The public notice must include the descriptive information submitted to the Commission, instructions to the public that they can file a request for further environmental study within the 30-day period, the ASR number issued by the Commission for the proposed construction, and instructions on how to provide service of the request to the proponent. The public notice must be published in a local newspaper of general circulation, or by other appropriate means, such as following the local zoning requirements for public notice.

Assuming that the public does not request further environmental study, the Commission will change the status of the application to "Ready for Submission" and permit the proponent to update its application with the FAA Study Number, the date of the local public notice, and the certification that the tower will not have a significant environmental impact.

In the event that a member of the public does submit a request for further study, the Commission will require the requestor to provide specific reasons why the proposed construction will have a significant environmental impact, and, if an environmental assessment was already submitted by the proponent, the requestor must specifically address why the environmental assessment fails to resolve the concerns raised in the request. If the Commission agrees with the requestor, then the proponent will be required to submit an environmental assessment to address these concerns.

During the May 21 demonstration, the Commission's staff indicated that they expect that the new rules will become effective in early June, and the new ASR system will become operational shortly thereafter. In light of the extensive overhaul of the ASR system, therefore, broadcasters may want to submit any proposed constructions/modifications expeditiously before the ASR system becomes operational.

Petro is of counsel at Drinker Biddle & Reath, LLP. Email: lee.petro@dbr.com.



DATELINE

June 16, 2012: Stations in Michigan and Ohio continue running License Renewal Post-Filing Announcements, including July 1, and July 16. Stations in Illinois and Wisconsin continue running License Renewal Pre-Filing Announcements, including July 1, and July 16.

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We live in uncertain times.

"But even in uncertain times there is one thing you can count on."

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NAB SHOW Wrap-up

We've launched into summer, but the 2012 NAB Show is still fresh on our minds. After spending a week in Las Vegas, it takes almost a month to fully process, sort and absorb all the material and information we gathered, but we've done it. Our review focuses on the new products shown at the convention, starting with the *Radio* magazine Pick Hits, which are a tradition going back to 1985. These top 20 new products from the convention are chosen by our panel of radio engineers, and they provide a good cross section of technology trends. And if you want to know more about the Pick Hits, access our YouTube channel (RadioMagOnline) to see videos of the winners.

But there's more than just the Pick Hits. We have included a roundup of new products from the floor as well. While we previewed a lot in the March and April issues, there is still plenty of new technology to cover.

We have also included some of the photos from the convention to give you one last look at the convention.

And if you weren't one of the 92,112 people at the convention this year, start thinking about going in 2013. This is a good time to plan for it in next year's budget.

Chriss Scherer

– Chriss Scherer, editor

RF switches | Spinner

2-way Switches: With a compact design, Spinner 2-way Switches have a motor drive, optical position indicator, emergency manual operation, advanced interlock contacts and end position signal contacts. The 7/8" EIA connector version comes with a frequency range of 0-3.5GHz, proof voltage of 3.5kV, average power of 8kW at 100MHz (5kW at 230MHz, 2.5kW at 860MHz), VSWR of 1.02 at 100MHz (1.02 at 230MHz, 1.04 at 860MHz), isolation of 80dB, insertion loss of 0.03dB, operating voltage 230 Vac ±10 percent, 50-60Hz, control voltage 10-27Vdc, operating current of 0.5A, and switching time of 120ms. The 1 5/8 EIA connector version comes with 0-2GHz frequence range, proof voltage of 5.1kV, average power of 20kW at 100MHz (13.5kW at 230MHz, 7kW at 860MHz), VSWR of 1.03 at 100MHz (1.03 at 230MHz, 1.05 at 860 MHz), isolation of 80dB, insertion loss of 0.05dB, operating voltage 230Vac ± 10percent, 50-60Hz, control voltage 10-27Vdc, operating current of 0.5A and switching time of 100ms.

spinnerna.com

JUDGES' COMMENTS

"The compact design is just what I need."
"It's so much lighter than other units; easier to install."

Mic and headphone controller | Henry Engineering

Talent Pod: Talent Pod gives an announcer control of his mic and headphones. It lets the announcer turn his mic on and off, and also lets him create a mix of local and return (IFB) audio in his headphones. There are two headphone volume controls, one for local audio (from the remote site mixer) and another for return audio. The return/IFB audio is normally sent to the remote site from the main studio. To prevent confusion between the local and return audio, Talent Pod has two PAN switches, so the announcer can position the local and return audio in the center, left or right channel of his headphones. For broadcasts with multiple announcers, several Talent Pods can be linked together using CAT-5 cables, eliminating the need for multiple power sources, DAs and complicated wiring.

henryeng.com

JUDGES' COMMENTS

"This fixes an age-old studio problem"
"This is also useful for remotes."

Modular audio console | Wheatstone

LX-24: Low-profile design and a tabletop form factor allow the LX-24 to fit into almost any studio situation, requiring no holes or cut-outs in the furniture. The meter bridge features three sets of bright, ultra-high resolution LED meters, as well as LED talkbacks for auxiliary levels and pan control. A digital clock/timer is also included. Each fader provides access to four stereo buses, plus four pre-fader aux sends, a stereo cue bus, and four mix-minuses. An LED source name display, an A/B source selector, and two programmable soft buttons are also available, and a set button provides access to assignable controls in the master section.

wheatstone.com

JUDGES' COMMENTS

"I like the modular design without a motherboard."
"The metering is great; and the overload indicator is useful."

World Radio History

nautel

"Actually, there's more than one thing you can count on... more control, more innovation, more support."

"Nautel will be there working harder than anyone else to bring you the products you need and courteous dependable support for decades to come.

If you've never bought a Nautel transmitter I invite you to take a hard look at the company that 9 of the 10 largest radio groups depend on for broadcast transmission. We've always been there when they needed us, and we will be there for you, too. You can count on that."

Peter Conlon
Nautel President and CEO

Learn about Nautel's line of high quality, reliable transmission solutions, fresh from NAB.

Turn the page and discover the most intelligent transmitters ever designed.

World Radio History

Interactive mic arm | Kumotek Robotics

RoboBoom: Setting talent in front of a mic before going live is easy. Once the show begins, they tend to move around, and they move away from their mics. RoboBoom was designed to realign with the talent. A sensor identifies the speaker's face and tracks the movement. Servo motors keep the mic aimed at the speaker to maintain better mic placement as the speaker moves. The boom can also be remotely controlled, which is useful for video shoots to reorient the microphone.

kumotek.com

JUDGES' COMMENTS

"This is ideal for TV shots and remotely moving the mic boom.
"Remotely control or automatically control – always find the speaker."

Steel studio doors | Soundproof Windows and Doors

JUDGES' COMMENTS

"The lower cost, lighter weight and higher STC are great developments.
"I like that it uses standard door hardware."

175C: This model of steel doors boasts an STC (sound transmission class) of 58, which exceeds the STC53 found in similar doors from other manufacturers. The doors are 1.75" thick, so standard latching hardware can be used. The door sits on three cam hinges and uses invisible gaskets to hide the seals when closed. Gaskets can be replaced in the field if needed. The one-piece frame can be sized to a standard door opening or any custom size. Glass can be added to a door, and STC data for doors with glass is being gathered.

soundproofwindows.com

TECHNOLOGY HONOR: HD RADIO IN SMARTPHONES

Emmis Interactive, iBiquity and the NAB unveiled their work in getting HD Radio features in smartphones. The proof of concept garnered lots of attention during the convention, as well as support from major radio groups.

emmisinteractive.com, ibiquity.com, nab.org

World Radio History

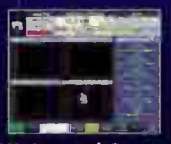
Introducing the

NV[LT] Series

3.5 - 10 kW Analog FM

Proven NV Series Architecture
Outstanding Efficiency
Intelligent Features
No-Compromise Performance

Meet the new NV[LT] Series for analog FM broadcasting. Based on the proven NV Series architecture, they're built tough with integrated exciter(s) and parallel power amplifiers, power modules and switching power supplies.



AUI Control System

IP Audio

NULLSOFT SHOUTcast

Streaming Input

Backup Audio

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nautel

Videos, webinars and more at
www.nautel.com/NVLT
+1.902.823.5131

World Radio History

Audio codec | Harris

Intraplex IP Link 100: IP Link 100 is the first in a new range of low-cost, high-performance audio codecs. It is a compact solution for reliable program audio transport between two or more points and brings "always on" Intraplex technology to an affordable price level. Features include dynamic stream splicing, multicoding and automatic backup.

broadcast.harris.com

JUDGES' COMMENTS

"The multiple IP paths and backup audio source wi keep us on the air.

"It can handle multiple bit-rates at once; great idea."

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The lowest electrical consumption

The highest signal quality

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Introductory offer valid when buying a Helios 750W or 1000W FM transmitter before June 30, 2012

AoIP interface | Axia Audio

xNodes: Axia xNodes are a family of audio interfaces that convert traditional analog and digital audio signals into the Livewire IP-audio streams used by Axia AoIP networks. xNodes can configure themselves, fit in 1RU with optional wall-mount kits, feature fanless power supplies and consume 14W of power. They can also draw power over Ethernet from a network switch or the power injector included. They also feature dual Livewire ports and a redundant power plan, work with both stereo and mono signals, have RJ-45 ports for each I/O and locking DB-25 connectors. There are five models available.

axiaaudio.com

JUDGES' COMMENTS

"The smaller size node and the greater assortment of connection options is great."

"These are a good bridge to the broader IP audio network."

Studio-to-transmitter link | BW Broadcast

STL-TX 950 and STL-RX 950: This studio-to-transmitter link set operates in the 950MHz band. Both units feature analog, AES3 and composite inputs (transmitters) and outputs (receiver). The transmitter produces 10W out and includes a BW Broadcast DSP-X four-band audio processor. The receiver includes an RDS encoder, Ethernet remote control for SMTP, SNMP and HTML connections, and will send email alerts when an alarm occurs. The receiver also includes additional analog and ASE3 input and backup audio capability. Both units occupy 1RU.

bwbroadcast.com

JUDGES' COMMENTS

"The plethora of input options is a great idea."

"I like that includes the on-board audio processing.

World Radio History

more solid-state power for powerful FM stations

NV Series

FM Digital/Analog HD Radio
Pure Digital. Clear Radio.

3.5 kW – 88 kW

Nautel affordable high power transmitters have changed the way broadcasters think about high power FM. In fact hundreds of America's highest power stations have recently switched to reliable Nautel solid-state transmitters. If you haven't considered us in the past, maybe it's time to learn why Nautel has emerged as one of the world's largest and most trusted radio transmitter manufacturers.

- Proven in top market stations
- Over 1000+ NV Series sold
- Single points of failure eliminated
- Built in instrumentation
- Remote control via web
- No tuning, no tubes

more control

No matter where you are, you're only moments away from ensuring your NV Series transmitter is operating optimally. Open a web browser, enter your transmitter's IP address and password and you're connected. 100% of the local NV Series display functionality is available via the web.
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Advanced User Interface and Control
SAVE TRIPS, SAVE TIME & SAVE MONEY

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Videos, webinars and more at
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World Radio History

Portable RBDS monitor | Dan Stofer

Proteus-1: This handheld device (slightly smaller than a deck of cards) is a portable radio receiver with RDS/RBDS monitoring software. The unit can display frequency, signal strength, stereo and RDS status, PI (Program Identification), PTY (Program Type), PR (Programs Service Name) and RT (Radio Text). Stations can be selected by direct channel tuning or seek function. The Active Groups Screen and Group Inspector Screen show greater detail about the RDS stream down to individual bits and can warn when RDS data is invalid.

dan.stofer@gmail.com

JUDGES' COMMENTS

"A very portable monitoring product."
"I like that it logs readings and shows bit-level data."

Mic compressor | RDL (Radio Design Labs)

HR-MCP2: The HR-MCP2 is a dual-channel microphone compressor that produces a consistent audio output level over wide variations (up to 25dB) in the microphone input level. Rear-panel switches allow setting each output to mic or line level. Each channel can therefore be used as a mic-level in-line compressor or as a microphone preamplifier with compression. The unique circuit design preserves full studio-quality low-noise performance at any gain setting. The HR-MCP2 is compatible with dynamic and condenser microphones. A front-panel switch is provided to enable 48Vdc phantom to both microphone inputs. It is designed to hold average output levels constant without altering the sonic integrity of dynamic sources. Gain reduction is nearly instantaneous for both expected and severe input overloads. Automatic release time adjustments result in nearly inaudible compression action over the entire dynamic gain reduction range.

rdlnet.com

JUDGES' COMMENTS

"Great input level handling. I could not overload it."
"The processor handles a wide dynamic range, which is perfect for studio and field applications."

World Radio History

2012 PICK HIT Radio

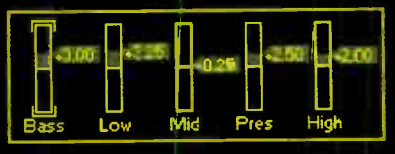
INOVONICS BROADCAST

INTRODUCING THE

DAVID IV

FM/HD Radio™ Broadcast Processor

Brilliantly designed, inside and out.



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World Radio History

Broadcast audio processor | Inovonics

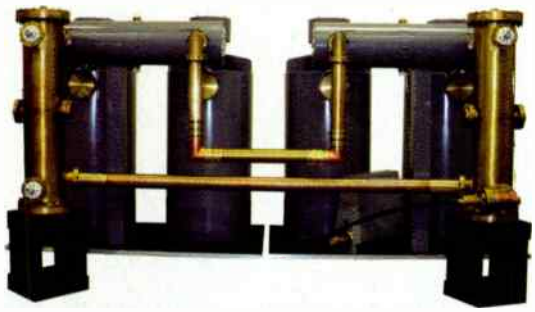
David IV:

This processor for FM and FM/HD Radio broadcasting features an all-digital, DSP-based design. Comprehensive audio processing includes gain-riding AGC, five bands of dynamics compression and equalization, stereo enhancement and sub-bass augmentation, plus Inovonics' PIPP limiter. Processing is integrated with a high-performance stereocoder (stereogen) that includes active and metered RDS combining. The DAVID IV can accept analog and AES-digital inputs, and has two separate composite/MPX outputs in addition to both analog and AES-digital line outputs. The line outputs can be configured for either FM or digital radio transmission characteristics. It may be set up and controlled using the front-panel graphic display and jog wheel, or connected directly to a network for full TCP/IP control over all parameters with a PC and supplied software.

inovonicsbroadcast.com

JUDGES' COMMENTS

"This is a very affordable alternative for audio processing."
"And it includes HD Radio delay? Perfect."



All pass FM analog/HD Radio diplexer | ERI-Electronics Research

788 Series: This high-level diplexer efficiently combines analog and digital. The system's analog insertion loss is -0.35dB or less and the digital loss is -1.4dB or less. In addition, the group delay performance is readily correctable by currently available FM transmitters. Group delay of the analog signal is less than 350 nanoseconds and the digital delay is less than 600 nanoseconds. The 788 is rated for up to 30kW analog and up to 5kW digital input power. The digiplexer gives FM radio stations currently operating a -20dBc IBOC power level with a 10dB hybrid injector the opportunity to increase digital power without having to invest in a new transmitter.

ERIinc.com

JUDGES' COMMENTS

"This is an easy way for me to increase my HD Radio sideband power."
"My transmitter space is already limited, so this really helps."

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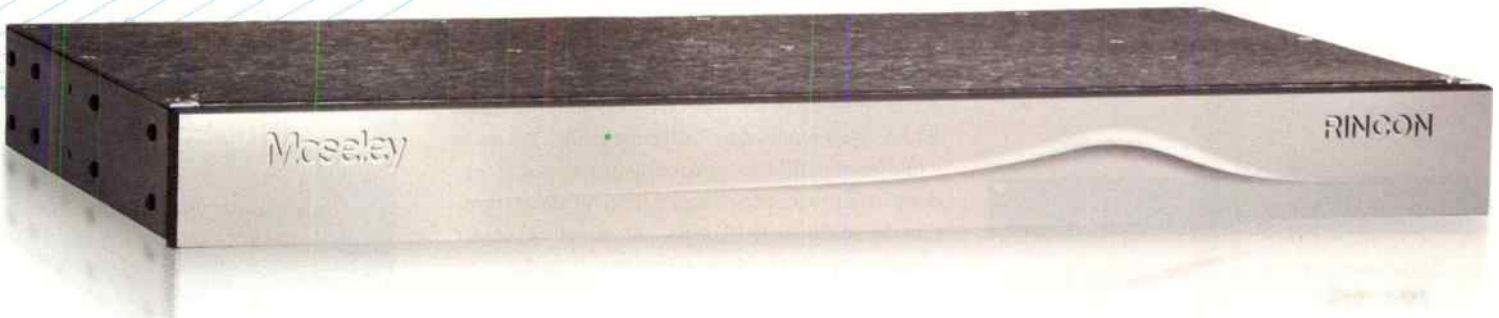

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World Radio History

Audio delay processor | 25-Seven Systems

Precision Delay: Precision Delay addresses a range of radio applications, such as drift between analog and HD Radio transmission signals; broadcast repeater synchronization; and delaying programs across time zones. It uses delay status readings from compatible Belar and Audemat modulation monitors to automatically adjust delay of the analog broadcast signal for synchronization with the HD Radio signal. In addition to the blend issue, some stations choose not to delay their analog signals during local sports events, so listeners can hear the analog signal in real-time with the game. Not only does Precision Delay provide both the inaudible exit from delay and precise post-game resynchronization with the HD Radio signal required by "ballgame mode," it does so while leaving PPM watermarking intact, so stations don't have to sacrifice ratings during the delay transition. Serial data over IP or RS-232, as well as contact closures, can also be delayed insync with audio.

25-seven.com

JUDGES' COMMENTS

"The exceedingly long delay with no moving parts is just what I need."

"Frame-level delay adjustments, and it talks to Audemat and Belar monitors; perfect for HD Radio."

Audio monitor | Ward-Beck Systems

32ME: With so many audio signals being distributed within a station, the 32ME provides an easy way to see 32 channels at once in 1RU. The unit accepts AES3-ID, SDI embedded or MADI audio signals depending on the model. All inputs have loop-through outputs. One channel can be selected for the monitor output. Levels are displayed in groups of eight (four stereo pairs) to easily identify tracks. A red LED at the 0 reference level allows monitoring from a distance. A blue LED indicates which audio pair is assigned to the stereo monitor output.

ward-beck.com

JUDGES' COMMENTS

"It accepts multiple audio formats and shows so many channels at once."

"The selectable monitor is perfect for the rack room."

RF adapters | Myat

Transitions to 7-16 DIN: These RF adapters provide an easy transition from male or female 7-16 DIN to 3 1/8", 4 1/16" or 6 1/8" connector. The sturdy aluminum construction includes handles around the DIN connector, which aid insertion and removal and also protect the connector when not in use. The inner conductor is silver plated for better conductivity and feature PTFE insulators.

myat.com

JUDGES' COMMENTS

"The handle makes it easy to install, and protects the connector."

"Great for backup planning."

World Radio History

WHERE GREAT RADIO BEGINS

The Harris® Flexiva™ FM Transmitter

The Harris® Flexiva™ FM solid-state transmitter family provides today's broadcaster with a transmitter platform capable of analog and digital operation. Incorporating field-proven Harris technology, the Flexiva family of products delivers world-class performance, reliability and quality.

Flexiva is designed for low- and high-power requirements, up to 40 kW, while utilizing the most compact design on the market today. Flexiva continues the legacy of the highly successful line of Harris FM transmitters and combines innovative, new Quad-mode RF amplification and software-defined exciter technology to take FM transmission to the next level.

Featuring Harris PowerSmart® technology in its transmitter architecture, the Flexiva line offers unmatched efficiency that makes it ideal for all FM applications and delivers a dramatic increase in power density, lower operating costs, servicability and reduced cost of ownership over the life of the transmitter.

Learn more at broadcast.harris.com or (800) 622-0022.

harris.com

HARRIS
assuredcommunications

World Radio History

Audio signal monitor | RTW

TM3 TouchMonitor: The TM3 includes features of the larger TM7 and TM9 versions and is controlled using a touch-sensitive display. With a 4.3" touchscreen, an exterior that allows for horizontal and vertical placement, PPM and true-peak instruments, the TM3 offers comprehensive loudness metering in compliance with all globally relevant standards, including EBU R128, ITU BS.1770-2/1771, ATSC A/85, and ARIB. Instruments include single-channel and summing bar graphs, an LRA instrument and numerical displays. The basic version handles analog and digital stereo audio, while the 5.1 option adds the support of six-channel digital input. The TM3 comes with a separate I/O unit that is connected with a single cable for audio transmission and power supply.
rtw.de

JUDGES' COMMENTS
"I like the customizable screen layout."
"It works in any orientation. Perfect."

AM/FM broadcast monitor | Davicom

FMBM: This monitor offers a number of advanced features in a compact package. Remotely controllable through Davicom's MAC line of intelligent site monitoring systems, the FMBM can also be manually configured and operated. It features: synthesized tuning, non-volatile configuration storage, on-site monitoring of transmitter power, off-air monitoring of receive signal strength, FM deviation measurement and alarms, carrier frequency measurement and alarms, RDS/RBDS decoding, balanced audio output on back panel and headphone output on front, all alarm levels are settable by the user, locally or remotely, full remote control and monitoring through any Davicom MAC with USB interface, alarm contacts for stereo absence, high/low deviation, low power, carrier frequency, and drift. Designed for full and easy integration into the MAC's powerful control and monitoring structure, the FMBM gives the benefit of remotely monitoring the key RF parameters of an AM or FM transmitter to ensure regulatory compliance.
davicom.com

JUDGES' COMMENTS
"It's so compact; so much info in a small space."
"I can really use the multiple alarm outputs."

orban
www.orban.com

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5 Band + 2 Band + 5 Band Ultra Low Latency Processing + Stand Alone Stereo Encoder = 1 Affordable Price

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Jim Peck	315-623-7655	North-East	Bernie O'Brien	731-695-1714	Central	Lily Massari	760-650-1427	Latin America
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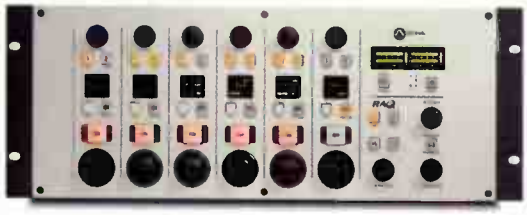
World Radio History



JUDGES' COMMENTS

"Lots of capability in 4RU"
"Sidekicks and newsrooms have an IP audio option on my network now."

AoIP console | Axia Audio

RAQ: A rackmount 6-channel IP mixer, RAQ is designed to meet the rigorous demands of newscasts or news assembly, or any application for which a rack- or turret-mounted mixer is needed. Paired with the fanless Axia QOR.16 console engine, RAQ is perfect for standalone operation, but can also connect to Axia Livewire networks to share audio with other studios. Setup is easy: RAQ connects to the QOR.16 with a single cable. QOR.16 is an "integrated console engine" which contains analog, AES/EBU and Livewire I/O, GPIO logic ports, console power supply and CPU, and a zero-configuration network switch with Gigabit. A single QOR.16 engine can be used with two Axia RAQ consoles.

axiaaudio.com

PICK HITS RULES

1. Products must be new and not shown at a previous NAB spring convention. In some cases, distinguishing a new product from a modified older one is difficult. For "Pick Hits" purposes, a new product is one with a new model number or designation. Software, firmware and operating system updates are eligible, but the new revision must carry an obvious designation (1.0 to 2.0 for example) and the feature set must provide clearly identifiable changes or updates.

2. Products must have some positive impact on the intended user's everyday work. Judges search for equipment intended for use on a regular basis. Products should provide new solutions to common problems.

3. Products must offer substantial improvement over previous technology. Unique circuit architecture need not be included, but some new approach or application must be involved in the product's design.

4. The price of the product must be within reach of its intended users. The judges seek products appropriate to a wide range of facilities.

5. The products must be available for purchase within the 2012 calendar year. Equipment must be on display on the show floor, currently (or imminently) in production, and some type of product literature must be available. Judges take the exhibitor's word on availability dates. Products demonstrated in private showings do not qualify.

6. The Pick Hits Judges operate independently from one another and remain anonymous to everyone including other judges until the selection meeting. This ensures that the products chosen are truly representative of the industry, that the judges were not persuaded in any way, and that the entire selection process is as fair as possible. The judge's identities are published in the June 2012 issue.

Introducing the 788 Series

Efficient High Level FM Analog/IBOC All Pass Diplexer * —

- Low insertion loss
- Excellent group delay performance
- Ideal for FM facilities that currently operate HD Radio at -20 dBc with a 10 dB Hybrid

When planning your next broadcast system call us toll-free at 877 ERI-LINE or visit us online at www.eriinc.com.

* Patent Pending

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THE NEXT GENERATION ANALOG CONSOLE

ARC-10BP... $2,495
ARC-10UP... $1,999
ARC-10U... $1,599
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ARC-10 ADVANCED RADIO CONSOLES

a NEXT generation analog cosole that mixes analog & digital with a PC USB sound card built in. And, for today's infrastructure the ARC-10BP uses Cat5 cables. Powerful, reliable, easy to install & easy to use.

- Ten channels
- Two Stereo Program outputs
- 2 mic, 6 stereo line, PC, & Phone in
- USB PC sound card on ARC-10UP & ARC-10BP
- Mix minus in-out for an external Telephone hybrid
- Conductive plastic faders & multimillion operation switches
- Socketed ICs for ease of on site repair & LED lamps for long life

CAT 5 cables included on the ARC-10BP

The ARC-10UP with unbalanced inputs and PC sound card built in is displayed above. The ARC-10U has unbalanced inputs without a sound card. The ARC-10BP has balanced inputs with the PC USB sound card

www.arrakis-systems.com

all prices are msrp

World Radio History

Transmitter support service | Nautel

Phone Home: This service helps Nautel NX, NV, NVL and VS-series transmitter users track, diagnose and repair problems, sometimes even before a failure. The Advanced User Interface (AUI) uses a firewall-friendly Remote Monitoring Database to send data from the transmitter to Nautel to track parameters. Parameter data can be tracked and displayed over time. A live mode shows the last 30 minutes of data. The software can directly access the transmitter AUI to obtain readings as well.

nautel.com

JUDGES' COMMENTS

"It tracks all the transmitter details; great for troubleshooting."

"This will help with diagnostics."

Voice processor | Sound4

Voice: Sound4 Voice processors are available in: AD, L and Ravenna. Eight-channel versions include VoiceRavenna and VoiceL, which is powered with an HQSound 192kHz audio processing engine. A 3-band, 6-channel voice processor, VoiceAD features analog/digital I/O. It runs on the Sound4 PCI express board, a card powered with Shark DSPs. All processors are powered with an HQ Sound 192kHz processing chain, which includes a 3-band noise gate, an advanced de-esser, a 3-band processor, a 4-band parametric EQ and a brick wall limiter for finalization.

sound4.biz

JUDGES' COMMENTS

"There's lots of processing power on the single card."

"An easier way to take care of multiple processing channels."

PICK HITS JUDGES

Bud Aiello
Director of Engineering Technology
NPR, Washington

Tom Atkins
VP Engineering
Backyard Broadcasting, Buffalo, NY

Bill Croghan, CPBE
Chief Engineer
Lotus Broadcasting, Las Vegas

Jim Leifer, CPBE
Director of Engineering
Clear Channel, Miami

Jim Paluzzi, CBT
General Manager
KJZZ/KBAQ, Phoenix

Lamar Smith
Chief Engineer
Beasley Broadcasting, Las Vegas

Martin Stabbert, CPBE
Regional Engineer
Cumulus, Reno, NV

Barry Thomas, CPBE CBNT
VP Engineering
Lincoln Financial Media, Atlanta

World Radio History

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- Digital and Analogue IO
- Ariane intelligent RMS leveller
- Multi-Band program dependent limiting
- Multi-Band look ahead limiting and distortion cancelled clipping
- High performance DSP stereo encoder with composite clipping control

and much more...

BW Broadcast's processors are in use in radio stations across the U.S.

From Class A stations to small translators these stations all owe their jump-out-the-dial presence to the DSPX range.

To celebrate SCMS is offering their world famous DSPXtra-FM processor with Ariane leveller for $2,695.00.

SCMS INC.
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Locate your local **SCMS** sales office at www.scmsinc.com/customer-service/ or call **1-800-438-6040**

World Radio History

NABSHOW Wrap-up

Products

IP audio codec | Tieline Technology

Merlin: Merlin is designed to deliver high quality bidirectional stereo and full duplex communications for point-to-point and remote broadcast connections over the full range of wired and wireless IP networks. Tieline's SmartStream IP technology provides advanced network management tools for dynamically responding to variable conditions over lossy IP networks, especially in situations when QoS is unavailable. SmartStream also delivers compatibility across both IPv4 and IPv6 network infrastructures to future-proof broadcasters as new networks and technologies emerge over time.

tieline.com

Cardioid dynamic mic | Audio-Technica

AT2005USB: AT2005USB cardioid dynamic USB/XLR microphone has both USB and XLR connections, enabling its use either with a computer or with a PA system. Its durable metal construction provides long-lasting performance. Its low-mass diaphragm and smooth, extended frequency response make the microphone ideally suited for podcasting, home studio recording, field recording, voiceover and live performance use. The AT2005USB features a headphone output with volume control that allows the user to monitor the audio signal right from the microphone. The mic's USB operation is compatible with both Windows- and Mac-based hardware and software. Its cardioid polar pattern reduces pickup of unwanted sounds from the sides and rear, improving isolation of the user's desired sound source.

audio-technica.com

Headphone amp | Aphex

HeadPod4: The HeadPod4 has plenty of headroom to drive any and all brands of professional headphones with dynamic range. It is simple to operate with four individual volume controls for each channel and a powerful amplifier. This means that each person can use his favorite headphones completely independent of the other channels. And, just as important, without having to worry about diminishing the sound quality because of mismatched headphone loads that typically pull down headphone amps employing just one amplifier for all channels. HeadPod4 provides both digital and analog inputs and the highest quality analog to digital conversion and sound monitoring available today. Another critical feature: there's no unplugging and re-plugging as the HeadPod4 allows users to leave all the inputs right in place and dial in exactly what each one needs.

aphex.com

World Radio History

Which is better for streaming: hardware or software?

Telos ProSTREAM:
Internet streaming in a box.

Everyone knows the answer is *hardware* — like a Zephyr! Introducing Telos ProSTREAM, the professional netcoder for Internet streaming, with Omnia multi-band processing built right in.

ProSTREAM makes sending programming to the Net easier than ever. Simple and bulletproof: analog or digital audio goes in, compressed audio streams out. Just hook up your input, select a bit rate and Omnia processing preset, send the output to your Shoutcast or Wowza server, and *Shazam!* Streaming audio, simple as 1, 2, 3.

And such audio...amazing. Thanks to our partnership with Fraunhofer (FhG), we were able to build a processing architecture that's specially optimized for MP3 and MPEG-AAC encoding algorithms. The result: detailed, commanding, blow-you-out-of-your-office-chair streaming audio, even at aggressive bit rates.

Telos

Telos-Systems.com/ProStream/

Omnia A/XE:
Internet streaming in a server.

Obviously, the correct answer is *software*, with the power to stream multiple channels from a single PC. Meet Omnia A/XE, the professional all-in-one software solution for Internet streaming.

Omnia A/XE can turn a couple of lonely servers into a supercharged streaming network. It runs in the background as a Windows service and can process and encode multiple streams in various formats simultaneously. Just hook up your audio, choose a bit rate and processing preset, select your Shoutcast or Wowza server, and *Voila!* Streaming audio, simple as A, B, C.

And that audio packs the clean, clear competition-crushing punch Omnia is famous for. Each stream is sweetened with its own adjustable wide-band AGC with three-band compressor/limiter, EQ and low-pass filter, and precision look-ahead final limiter. The result: clean, clear streams with more presence and character than you ever thought possible.

Omnia

OmniaAudio.com/AXE/

World Radio History

NABSHOW New Products

Digital AM/FM receiver | DaySequerra

M4.2S: This receiver improves upon and replaces its predecessors, the M4.0X and the M4.2R, and does so at a lower price. The M4.2S monitors audio and data from AM, FM and HD Radio broadcasts including FM multicast channels HD-2 through HD-8. The M4.2S stays locked to the selected stream even if the broadcast or ac power is interrupted. The Remote Dashboard Windows XP application provides remote control. The bright LCD display shows RDS and HD Radio PAD, network and alarm conditions along with audio level, digital audio quality and carrier quality indications. Transformer-isolated digital audio outputs and XLR balanced analog outputs are provided, as well as a headphone monitor output. It will also email alarms without Remote Dashboard.

daysequerra.com

USB sound cards | Digigram

Cancun 442-Mic, Cancun 222-Mic: This range of mobile USB sound cards offers high-end performance with an ergonomic design. They are initially available in two models: the Cancun 442-Mic with four inputs and outputs, and a dual input/output version, the Cancun 222-Mic. Both offer simultaneous analog and AES I/O with 2x500 MIPS dual-core processing power, embedded in a stylish robust casing. Cancun's high quality mic preamp delivers 55dB gain, 105dB THD+N, and a maximum sensitivity of -60dBu. The pro-grade specification delivers analog levels of +25dBu maximum and guaranteed low latency of less than 4ms on Windows and Mac OSX platforms.

digigram.com

Broadcast headphones | AKG

K44 Perception, K77 Perception, K99 Perception: The over-ear, semi-closed design of the K44 Perception provides a powerful low end and clean highs for an excellent sound, ranging from project studios to home recording. The K77 Perception is an over-ear, semi-closed headphone with powerful and convincing sound at value cost -- ready to use for home or project studios. Both products include comfortable leatherette ear pads and a self-adjusting headband for extended wear, without discomfort and a 3-meter fixed, straight cable and convertible jack. K99's high-performance, over-ear, semi-open headphones feature excellent sound quality. Its large, 40mm speakers provide a natural, uncolored sound, ideal for the studio. K99 Perception is lightweight and self-adjusting for a pleasant fit for long sessions.

akg.com

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World Radio History

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Restores peaks and dynamic range to poorly mastered source material.

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Dynamically widens or controls stereo sound field, providing a consistent stereo image.

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Input AGC, up to three wideband AGCs, and up to 7 bands of multiband compression and limiting.

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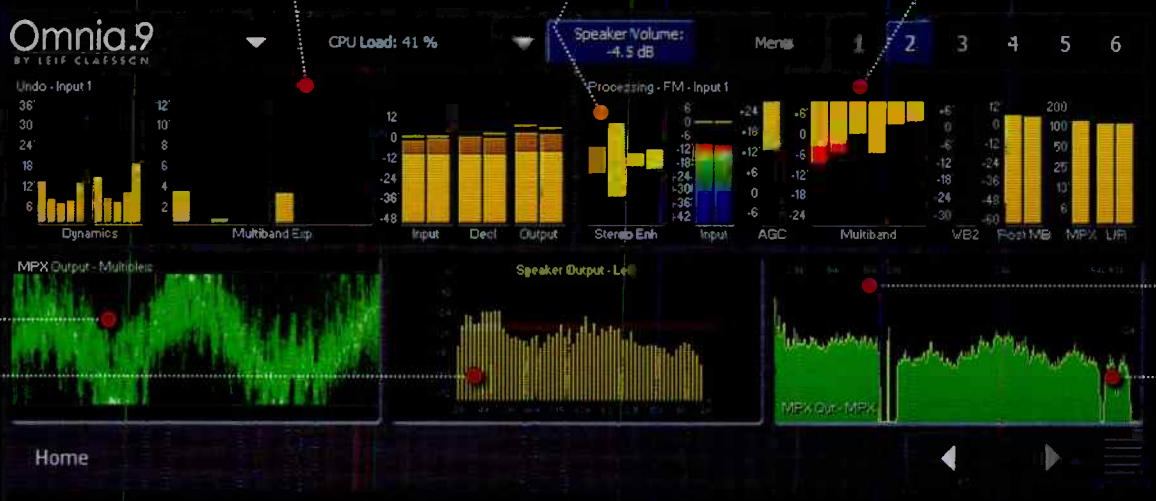
Enables up to 140% Left/Right peak modulation within 100% total modulation, making the choice between being louder clean a thing of the past. (Due to special sauce inside Omnia.9)



ON BOARD DIAGNOSTIC AND ANALYSIS TOOLS
A built-in digital oscilloscope, FFT spectrum analyzer, and RTA provide a visual reference so you can see what you hear.

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Built-in RTA and pink noise generator allow you to calibrate your speakers to ensure your processing decisions are made on accurate, calibrated monitors.

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Send RDS without losing loudness by using the built-in RDS encoder. Loudness is maintained due to the method of embedding the RDS signal. (More of that special sauce makes this possible)

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HD2 HD3 Streaming 1 Streaming 2 Streaming 3 Monitor Out System

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Monitor and measure audio at virtually any point in the processing chain for each individual core.

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Provides low-latency, independently-processed audio for talent monitoring.

More stuff. Less space.

OmniaAudio.com/9

Omnia

World Radio History

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- 15 channels, 30 inputs
- 3 stereo Output buses
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- Cat5 cabling for today's infrastructure
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- Socketed ICs for ease of on site repair & LED lamps for long life

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World Radio History

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www.arrakis-systems.com

all prices are usd

World Radio History

NABSHOW New Products

Mixer/amplifier | Contemporary Research

232-Amp+: This compact, programmable mixer/amplifier aimed at integration with flat-panel displays and video projectors, has been updated with more audio power. The versatile amp features a stereo line-level display/projector audio input and two mono aux inputs, and outputs stereo sound at 32/40W RMS. The aux inputs mix levels with the stereo input, and can be set to mute or lower other inputs when active. The Class D amplifier is highly energy-efficient, using 90 percent of dc power for amplification, operating with very little heat, and consuming almost no power at all when quiet.

crwww.com

DPS-100D True RMS Digital RF Power Meter

- Models available for all EIA transmission line sizes and include Type N and 7/16"
- Built in back-lit LCD simultaneously displays forward & reflected Power, temperature, pressure and status icons.
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- Suitable for Analog and/or Digital modulation formats and multi-carrier applications.
- Popular interface includes DC Voltage outputs,SNMP,and RS232/485 for connection to most remote control systems.
- Proprietary 3 Strike reflected power protection algorithm

www.broadcast-devices.com Broadcast Devices, Inc
Phone: 914-737-5032 sales@broadcast-devices.com
bdi

Streaming service | StreamOn

ListenLater: This cloud-based solution enables radio broadcasters to automatically upload all of their live audio content in real-time for immediate or delayed rebroadcasting; expedite or automate podcast creation; or tag and share select audio streams via social media channels. ListenLater provides radio stations with the ability to upload and archive all of their content to StreamOn's private Internet cloud -- automatically and in real-time while broadcasts are taking place. Through simple, Web-based tools, DJs and program directors are then able to tag and select specific "moments of interest" in real-time and redistribute this content -- when they want -- digitally across multiple channels much faster than via traditional means. DJs and broadcasters can encourage listeners to revisit songs or programs provided by the station by simply clicking on the "ListenLater" link on the station's Website. There, listeners will be able to enjoy "DVR-like" capabilities such as replay, pause, rewind and fast forward a station's chosen live audio content within moments of its original broadcast.

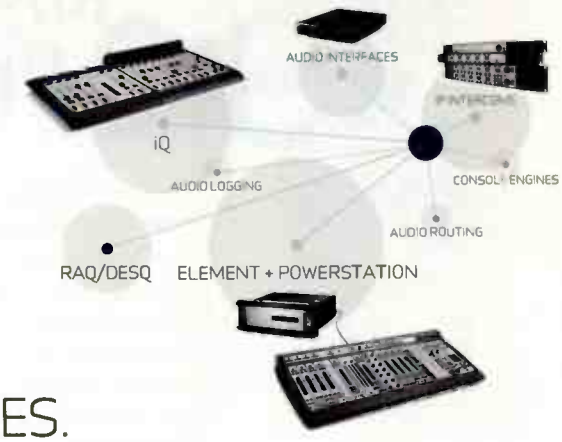
streamon.fm

Transmitter programming automation | Enco Systems

Push Radio Interface for Nautel: Push Radio is a program distribution model where content is stored in the transmitter with playlists executed at the same point. Because this model does not rely on real-time audio delivery, content can be delivered via low-cost Internet connections. Different content may be delivered to each transmitter, allowing each site to have local content in its programming. The Enco Push Radio interface provides audio delivery via the Enco DAD Automation platform. The system automatically updates files and playlists on each transmitter. It also pulls back "as played" logs and reconciles the logs with music and traffic schedulers. The interface will operate on any VS Series or new NVLT Series transmitter.

enco.com

World Radio History



MEET AXIA'S NEW, SMALLER IP CONSOLES.

THEY'RE BIG WHERE IT COUNTS.

Plastic labels? Not on these consoles. High-rez 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.

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.

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

Avionics-grade switches with LED lighting.

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

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

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

Event timer has manual and auto-reset options.

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

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

OLED channel displays have an audio confidence meter, too.

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

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

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."

AxiaAudio.com/RAQ | AxiaAudio.com/DESQ

AXIA

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

World Radio History

NABSHOW Products

Powered cables | Gepco International

RunONE: These cables combine audio and power, along with optional data, under a single durable, yet flexible jacket. RunONE allows the user to pull a single cable in place of multiple cables. Each cable combines one channel of power with two, eight or 12 channels of 110ohm balanced audio for line level, mic-level or digital AES audio signals and can be used with self-powered speakers or in DMX lighting control. The software will measure handling noise, interference and frequency performance.

gepco.com

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- Direct interface to the market leaders in EAS Systems
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SciptEasty enhancement | WorldCast Systems Audemat

MasterView Web: ScriptEasy lies at the heart of all Audemat's remote control devices. The intuitive interface consists of the ScriptEasy Designer, which supports easy development and the MasterView module, which allows real time status display and management. Now, with MasterView Web, the user can access the Masterview application via any Internet-enabled device to see at a glance the status and performance of a network. This information is essential for maintenance and management of the remote site as it enables the user to carry out periodic checks, respond to alarm notifications, remotely diagnose faults and trigger any necessary changes. MasterView Web allows broadcasters to gain a unique, comprehensive and integrated view of the entire broadcast chain wherever they may be and at whatever time they wish.

audemat.com

Paging station | Barix

Annuncicom PS1: The Annuncicom PS1 doubles as an IP paging and intercom device, with a simple and compact design. A push-to-talk button allows technical directors to facilitate camera movements and communicate with production personnel while remaining mobile. Camera operators can mount a simple belt clip to the back of the device for on-cable attachments. Power over Ethernet (PoE) capability allows studio and production personnel to move around the studio with freedom, using a single-wire, high-bandwidth IP connection. The Annuncicom PS1 design features well-illuminated, highly responsive front panel buttons for easy push-to-talk functionality.

barix.com

World Radio History

Why does Axia outsell every other IP console? We've got connections.

Did you know that there are over 2,500 Axia consoles on the air? That's more than all other AoIP consoles — combined. Is it because our ads are so irresistible? Our marketing guys think so... but, no. It's because broadcasters know that a network's value increases with the number of devices that talk to it. And nobody connects to more IP-Audio devices than Axia.

With this huge installed base of broadcast studios around the world, we've attracted dozens of partner companies, all offering Livewire™-compatible products. A device with a Livewire port is instantly available to any other device on the network. So, if you're shopping for IP consoles, be sure you ask: "How many partners do you have?" Because a network that only plays with itself isn't very well-connected... is it?

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www.AxiaAudio.com/Partners | AXIA

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World Radio History

NABSHOW New Products

Console | Audioarts Engineering

Air-1 USB: The ultra-compact Air-1 eight-channel radio console now features a USB audio I/O port. Now, this small console will be able to send and receive audio from devices such as digital audio workstations, play-out systems and automation systems. The Air-1 is ideal for remotes, small on-air studios, Web streaming, production, or any situation where a compact, low-cost, highly capable radio console is needed.
wheatstone.com

Acoustic panels | Aural Sonic

Aural Sonic: Typical absorbers only absorb in the high and mid frequencies, causing the room to sound unnaturally "dead." Aural Sonic touts specs that show even absorption at all frequencies. At less than 1" thick, Aural Sonic has soundproofing capabilities equivalent to conventional absorbers that are 10x thicker. If applied across an entire wall, it can have soundproofing qualities of a 10" wall. Because Aural Sonic delays reflections, it makes the room seem larger than it is. The delay also creates a considerable enhancement in sound.
auralsonic.com

FIND THE MIC WINNER
APRIL ISSUE
Congratulations to
John A. Rodenbarger
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West Lafayette, IN

He has won a pair of Hosa Technology HDC-800 headphones
www.hosatech.com

The mic was in the on-screen waveform.

The winner is drawn from the correct entries for the issue two months prior. No purchase necessary. For complete rules, go to RadioMagOnline.com.

World Radio History

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HIGHLIGHTS INCLUDE:

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World Radio History

NABSHOW New Products

Software suite | Netia Digital Audio

Content Management System: The new version of Netia's CMS allows users to manage all processes within the global production environment. The software suite also allows users to connect all of their partners and vendors within a single production ecosystem. New features are within its metadata management module, as well as in its indexing functionality. The CMS GUI includes a greater number of fields that can be personalized, and users can customize the system's metadata template. A multilingual thesaurus module ensures there are endless possibilities for precise content descriptions, in turn making it easier for users to access and retrieve specific content. Finally, the CMS will include an enhanced administration application that further simplifies system management.

netia.com

Headphone amp | Glensound Electronics

TopHat M3: Featuring two separate headphone amplifiers in a compact, portable box, these amplifiers are fed with four common inputs on XLR connectors. Each amplifier has four rotary pots to create an independent mix of the four inputs. Each amp has three 1/4" jack headphone outputs for a total of six monitoring outputs. The unit has an input and an output loop connector on an RJ-45 jack to connect multiple units with the cable passing the four audio inputs between units. An XLR mic input gives the operator a talkback circuit with an adjustable gain control. A front panel, three-position lever key allows for momentary or locking operation of the talkback circuit. A master XLR output switches between the output of either of the two headphone amplifiers. The unit powered by two C batteries or via an external USB power supply.

glensound.co.uk

VHF-FM radio module | Mayah Communications

C11FM: The C11FM is an accessory for the C11 audio codec family. It is a VHF-FM radio module in 1/2-width 1RU body (identical to C11). It receives the FM frequencies from 64 to 108MHz, controllable in steps of 10kHz. Additionally, it provides an automatic amplification control (AGC) as well as a controllable soft muting. In combination with any C11 audio codec it can be used for professional monitoring of the FM broadcasting at any location with IP connectivity. One C11 codec can even be used for supplying the signal to the FM transmitter and the monitoring audio from the C11FM back to the studio.

mayah.com

Sound cards built for broadcast, and broadcasters. AudioScience cards are designed for the rigors of broadcasting. State of the art design and extensive software support make for excellent performance in even the most demanding environments.

ASI6644 This PCI Express card features 4 stereo/8 mono inputs and outputs, analog and AES/EBU. Formats include PCM, MPEG layer 2 and MP3 with up to 96kHz sampling.

ASI6685 This Livewire/PCI Express card has up to 16 record and play streams and supports Axia AoIP protocols.

ASI5211 features mic input with 48v phantom power, plus 2 opto inputs and 2 relay outputs.

Broadcast-Centric Features such as SoundGuard surge protection, TSX time scaling, MRX multi-rate mixing and SSX surround sound make these powerful additions to any broadcast application.

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Welcome to "RoboBoom" the world's first interactive robotic microphone arm!!

This patented system employs super quiet robotic motors and special facial recognition technology to determine the distance between the person's face and the tip of the microphone. Once the "RoboBoom" is engaged, it automatically positions the microphone at an optimal distance from the talent for best audio quality pickup.

Contacts:

Brian Clark
bclark@kumotek.com

Mathew Fisher
mfisher@kumotek.com

KUMOTEK ROBOTICS

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Richardson, TX 75081 • 972-436-3867

World Radio History

HD digital hybrids | JK Audio

HD Voice: Three JK Audio digital hybrids are now available in HD versions to accommodate VoIP phone systems that offer 7kHz bandwidth audio. This is commonly referred to as HD Voice. Innkeeper PBX HD, Universal Host HD, and PBXport HD provide different features, but all work the same way. These digital hybrids provide talk show-quality caller audio from most IP and PBX telephone systems. They allow users to send mic or line level signals into a telephone while maintaining excellent separation between the sender's voice and the caller. The balanced XLR output jack contains only the caller's voice, ready for broadcast. These hybrids provide connections for a microphone, headphones, mixer or computer.

jkaudio.com

I/O interface | Burk Technology

Plus-X 600: The Plus-X 600 is Burk's latest addition to its Plus-X line of Ethernet I/O accessories for the ARC Plus. It offers 16 status inputs, eight metering inputs and six raise/lower relay pairs in a 1RU package. The Plus-X 600 joins the eight-channel Plus-X 300 and many other Ethernet I/O accessories.

burk.com

Broadcast receiver | Crown Broadcast

RFBA-1, RFBA-1MA: An AM/FM/WR broadcast receiver specifically designed to fill multiple needs, the RFBA-1 comes standard with three receivers built into a 1RU chassis. The RFBA-1 is configurable to accommodate any mix of FM and AM stations plus NOAA Weather Radio. It is a simple-to-deploy, highly sensitive, fully DSP-based monitor system. Being fully frequency agile in all receivers via display meets receiving needs for use as a translator receiver, EAS monitor or on-air monitor. The RFBA-1MA offers full DSP-based modulation monitoring for all three receivers. The unit can be fully controlled via Ethernet connection. Other features include PC-based user interface, programmable output relay, firmware updates via USB port, RDS encoder and decoder. Upgrades to allow for modulation monitor, ability to increase single tuner to receive two weather radio signals and potential future ability to stream audio via Ethernet.

crownbroadcast.com

iPhone/Android app | Comrex

VIP QC: VIP QC (which stands for Quick Connect) is an app that can be easily downloaded and installed on an iPhone and Android Smart Phone and used to call a Comrex STAC VIP VoIP Call Management System, using the phone's available data connection. Then, it's as simple as select and connect. A list of stations available for connection is presented to the user after the app starts. Once the station is selected, the app becomes locked to that station, displaying logo information whenever the app is restarted. The app can even be configured behind the scenes to call Comrex Access and BRIC-Link codecs.

comrex.com

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Crown's 1 kW FM transmitter system combines built-in audio processing and stereo generation in a rugged, compact unit.

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crown

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- I/O mix engine BLADE included ($3,995 value)
- WheatNet-IP compatible for smooth networking

IP-12 List ~~$7,995.00~~

Contact BSW For Lowest Prices

AUDIOARTS

World Radio History

NABSHOW Products

Analytics service | WideOrbit

WO Analytics: This turn-key analytics solution uses advanced interactive visualization technology, a pre-built scalable data warehouse and sophisticated pre-built valuable dashboards to enable clients to rapidly create, monitor and improve their key performance indicators (KPIs) and significantly improve their bottom line. WO Analytics allows users to quickly and easily track KPIs and reveal hidden revenue opportunities and cost savings. They can analyze the profitability of key programs, do a deep analysis of buying patterns of top advertisers, view the average unit rate spread for high-value programming, analyze pre-empts and makegoods, and most importantly, detect patterns in their data to improve the profitability of their business.

wideorbit.com

Stereo codec | AETA Audio Systems

Scoop 5: Building on the feature set of Scoop4+, Scoop 5 combines a major upgrade to the software platform with an ergonomically improved design. Features include faster, more intuitive operation; profile management and supervision via an embedded Web page; a new control panel with graphic displays; and an elastomer keyboard for greater comfort.

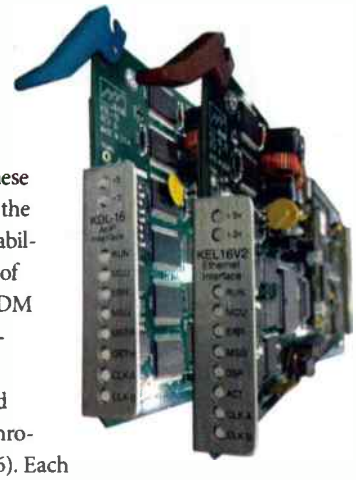
aeta-audio.com

Remote digital audio switcher | Broadcast Tools

AES Switcher Sentinel 4 Web: A simple way to remotely switch AES audio feeds via the Web or locally, the AES Switcher Sentinel 4 can be controlled over any IP network via a Web browser, Web-enabled mobile device, front panel switch and/or contact closures. Notify up to eight recipients of alarms via email. The user may also enable a sound effect to play on a PC speaker for alarms. The active AES output is monitored for activity and may be configured to perform user-defined action sequences if activity is lost and switch to a defined back-up source. Logging of system status along with the site ID may be emailed once an hour or once a day. SNMP and SMTP username and passwords are also supported. Audio connections are made with plug-in Euro-block screw terminals. Four units may be mounted on one RA-1 1RU shelf.

broadcasttools.com

AoIP interface cards | Sierra Automated Systems



KDL-16, KEL-16: These AoIP interfaces for the 32KD marry the stability and low latency of the synchronous TDM network with LAN-based synchronous AoIP (KDL-16) and WAN-based asynchronous AoIP (KEL-16). Each interface provides 32 channels of AoIP in and out of the 32KD network. The synchronous KDL utilizes the IEEE 802.1 AVB (Audio Video Bridging) standard, which provides linear AoIP using managed switches and compatibility with other AVB devices. The KDL enables an interface to computer-based editing and automation/delivery systems using a software driver and standard NIC, eliminating the sound card. The KEL module provides AAC and G.711 codecs along with high quality sample rate conversion. The KEL also serves as the 32KD interface for the SAS ICM-32 IP intercom system. SAS also plans to further develop interfaces to third-party codecs that conform to the EBU N/ACIP standard.

www.sasaudio.com

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Data storage system | GB Labs

Space LTO Mini: The first in a new line of archive devices, Space LTO Mini delivers an economical, high capacity tape system with long-term storage, plug and play usability and broadcast-level reliability. With 1.5TB storage and a 140MB/s write speed, LTO-5 tape is tailor-made for HD file backup. This system offers the sustained data rate required to transfer files to LTO without the need to continually adjust the tape speed. Preconfigured with a 2TB Raid 5 drive array, Space LTO Mini delivers read/write speeds that are class leading and rigorously tested in the field. Its real-world performance can consistently match the write speed of the LTO for painless data transfer.

gblabs.co.uk

Console control surface | Wheatstone

Sideboard Rack: This new surface packs all the features and power of the SideBoard control surface into a 4RU rack-mountable package. A true Ethernet-connected surface, the SideBoard controls the utility mixer of any WheatNet-IP BLADE; integrating it into a network requires no additional hardware. The SideBoard Rack features two buses, eight faders with on/off switches and source displays, a rotary source selector with display, six programmable monitor source selection buttons, and a built-in headphone jack and amplifier. The surface also has bright 20-segment LED bar graph meters.

wheatstone.com

Transmitter | Worldcast Systems Ecreso

Helios FM: Helios FM offers up to 74 percent efficiency together with the lowest heat dissipation. The FM range which spans 20W to 2kW power levels, now also offers 350W, 1kW and 1.5kW systems as well as a 1+1 system for mission-critical reliability. At the core of all formats in the range is an FM band direct-to-channel digital modulator, enhancing signal quality and performance. The Helios FM can operate as a standalone transmitter in a single, compact chassis or as a modular system comprising a separate modulator and powerful amplifier(s). The system also offers many additional features such as RDS and stereo coding, audio backup and an FM limiter, all integrated into the unit to reduce space, cabling and hardware requirements. In addition, all products within the new Ecreso FM range are fully protected against overheating, VSWR and lightning.

ecreso.com

World Radio History

NABSHOW Wrap-up

Photo Blog

Henry Engineering celebrated 30 years of making little blue boxes. Company president and founder Hank Landsberg has some cake to celebrate.

An attendee takes a closer look at the Broadcast Electronics FMi 703.

Registration was buzzing just before the exhibits opened on Monday.

World Radio History

1. It's all about connections at Clark Wire and Cable. 2. The opening hours on Monday saw a large crown working through the exhibits. 3. NAE President and CEO delivers the state of the Industry address. 4. Inovonics is celebrating its 40th year of being in business.

5. There's interest in IP audio routing and consoles at Wheatstone. 6. Ibiquity, Emmis Interactive and the NAB announced the HD Radio in smartphones initiative.

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World Radio History

Serving the Now Generation

KSBJ rebuilds and launches NGEN

By Chriss Scherer, editor

KSBJ, a non-commercial contemporary Christian music radio station based in the greater Houston area took to the airwaves in 1982. Since signing on, the station has grown its audience by adding several additional transmitters sites to its coverage. The main transmitter on 89.3 is in Humble, TX, and covers Houston. The other sites include:

- 96.9 KXBJ, El Campo, which covers Southwest Houston, Sugar Land and Katy
- 89.5 KZBJ, Bay City
- 89.7 KUBJ, Brenham
- 89.3 KXGJ, Victoria
- 92.5 KWUP, Navasota, which covers Bryn and College Station
- 91.1 KYBJ and 89.9 FM K210DF, Lake Jackson
- 99.5 K258BZ, Sugar Land
- 93.3 K227AI, Bryan/College Station
- 99.7 K259AH, Brenham
- Sky Angel Channel 225 IPTV

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The ARC-10UP with unbalanced inputs and PC sound card is displayed. The ARC-10U has unbalanced inputs without a sound card. The ARC-108P has balanced inputs with the PC USB sound card.

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World Radio History

In 2010, KSBJ began transmitting an HD Radio signal on its transmitters. With HD Radio multicasting, the range of transmitter sites and online streaming, the board management decided to develop a format aimed at a younger audience. NGEN was launched in November 2010. But to create this program stream, the station needed a studio upgrade.

The studios were ready for the upgrade as well. The plan started by gutting the existing space and starting over. It was an in-place rebuild, but because the new format wasn't on the air yet, there wasn't the need to shuffle operations back and forth to keep signals on the air.

The work started by building new on-air and production studios for KSBJ. There was sufficient

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Detail of the suspended mic boom mounting platform

room in the building already, so the work could be carried out without interrupting the program. KSBJ is live 24/7, and at no time was it necessary to switch to an automated feed during the construction.

Once the new KSBJ studios were finished, the focus turned to gutting and retrofitting the old KSBJ studios to become the new NGEN studios. The four studios are mirrored sets of two for each station.

IN WITH THE NEW

Having served KSBJ well for nearly 30 years, the previous studios were showing their age. Over time, more equipment was added as it was needed. The unintended consequence was more heat and unwatned noise in the studios. The fresh start not only added digital equipment and routing, but

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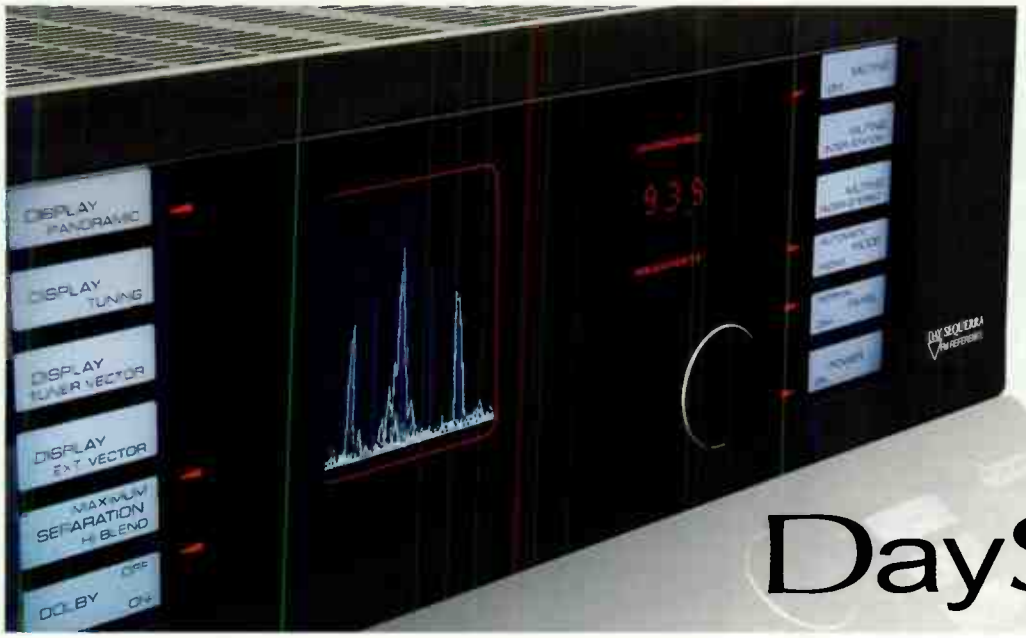

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PEER RECOGNITION

KSBJ won the NRB Radio Station of the Year for Major/Large Markets in 2010. This award recognizes the station that best represents excellence in providing service to the community, faithfulness to the mission, commitment to the Gospel, and personal integrity.

moved the computers to a server room where the fan noise and extra heat are not affecting the studio operation.

A major design focus was to build the studios to maximize the artist experience. The studios are cozy rather than having lots of hard surfaces and glass. The intent was to make the rooms inviting. This helps the on-air staff of course, but it also helps guests feel more relaxed. Engineering and programming worked together to determine where everything would go.

In keeping with the inviting feel, all the equipment has been placed to reduce clutter

Server room

INTEGRATING LOGITEK AND AXIA

By John Davis, CBNT

At the core, the Logitek JetNet and Axia Livewire AoIP systems are very similar. Both stream audio using RTP over UDP multicast packets, following Internet standards created for videoconferencing. Where they differ comes down to timing and mnemonics. When we set out to integrate the studios at KSBJ, we knew we could pick up the audio streams, but we had to find a way to stay synchronized, and we had to figure out how to name the streams coming from the Axia equipment.

On the timing front, things are starting to get easier. At the 2012 NAB Show, Axia announced support for Ravenna in its new products. Ravenna, a consortium backed by European manufacturer Lawo, calls for using the IEEE 1588 precision timing standard via PPTP, which is the same standard that Logitek already uses. Of course, when we were building KSBJ we didn't have this in common, so we connected an AES output from an Axia node to a Logitek JetStream sync input and rate locked the JetStreams to that AES signal.

Every stream in an AoIP system has a unique multicast IP address. Logitek uses a common multicast "announce channel" for each JetStream to tell each other what streams it has, their addresses, and their names, allowing each JetStream to build a channel guide of all available sources. At the time we were developing the JetStream, no standard channel guide existed, so we created our own (which holds true for the other AoIP manufacturers as well). To support other systems such as Axia, we created a translation table to fill in the multicast address of the stream coming from the other devices and how it should be labeled in the Logitek system. Standing at a console, all of the sources look and sound the same, regardless of whose box they came into first.

Looking ahead to the future, new standards such as AVB and Ravenna have come about since KSBJ was installed that unify both timing and mnemonics. We are currently evaluating how these new methods might make the installation of a blended networked console system easier. While the translation table does the job for now, finding standards that all manufacturers can agree upon will make audio networking universal.

Davis is technical support manager at Logitek.

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AUDIO TECHNOLOGY SWITZERLAND

World Radio History

and maximize operational use. The computer monitors are mounted on a single monitor tree to get them out of the way but still in a single-focus area. Computers and servers are housed in the server room and accessed via KVM extenders. The KVM is set up that one keyboard/mouse accesses all the various systems. This minimizes clutter in the studio. As a backup, individual keyboards and mice are mounted in pull-out drawers to directly access the systems as well.

Another unique installation aspect is the mic boom mounts. You can see in the photos that mic booms are not mounted to the countertop, but instead are supported from the ceiling. This was done to clean up the countertop area, but it also eliminates transmission noise from getting in the mics.

The mic booms and an on-air light are mounted to a wooden platform that is suspended from the ceiling via a metal pole. This pole is braced to the ceiling struts with isolators. The result is something of a mic boom spider that allows the mics to be placed wherever they are needed.

EQUIPMENT LIST

- Adobe Audition
- Airtools Voice Processor 2x
- Audion Labs VoxPro
- Avid Protools
- Axia Livewire
- Barix Exstreamer 1000
- Broadcast Tools s lent sense
- Denon DN-620
- Digital Alert Systems Dasdec EAS
- JBL 4410A
- Logitek Mosaic, JetStream
- Moseley SI-9003
- Nautel HD Exporter, Importer
- Neumann TLM-49, TLM-103
- RCS NexGen
- Symetrix 628E
- Telos 2101
- Tieline Commander G-III

The stand-up air studios can accommodate up to five guests. A full band has been hosted in the air studio, but the facility also has a small auditorium that will seat about 200 people. This space is used for the stations' fund drive as well as during some artist performances. The production studios are a sit-down height.

Another unique element is that the facility uses an Axia Livewire network and Logitek Mosaic and JetStream engines together. When the studios were being built, the Logitek surfaces provided the features and options the stations wanted, and the Axia network was already in use. The two systems work together to provide the routing needed.

To distribute the programming, the stations use three distribution links: satellite uplink, which feeds some remote sites, an MPLS network and over-the-air to feed one translator.

The NGEN format is gaining in popularity. Since its launch it has been carried on the HD2 of 89.3 KSBJ and 92.5 KWUP and the main program on 93.3 and 99.7. This summer, NGEN will become the primary program feed on 89.5 KZBJ, 91.1 KYBJ and 99.5 K258BZ.

FACILITY FOCUS

THE TECHNOLOGY BEHIND KSBJ

Logitek Mosaic

Classic styling and rugged construction make the Logitek Mosaic a natural for busy on-air studios. The Mosaic is an advanced control surface for the JetStream AoIP system; its modular design with 2 faders per module and multiple frame sizes allow a wide variety of configurations ranging from 10 to 32 modules. Fader modules, monitor modules and softkey modules include full color LCD screens and a suite of controls for managing audio inputs, bus selection, scene changes, timers and more. Multiple sizes of meter bridges are available along with Logitek's vScreen GUI. All of this ties to the JetStream Networked Audio Platform, a powerful 128-channel AoIP node with analog and/or digital I/O that only occupies two rack units.

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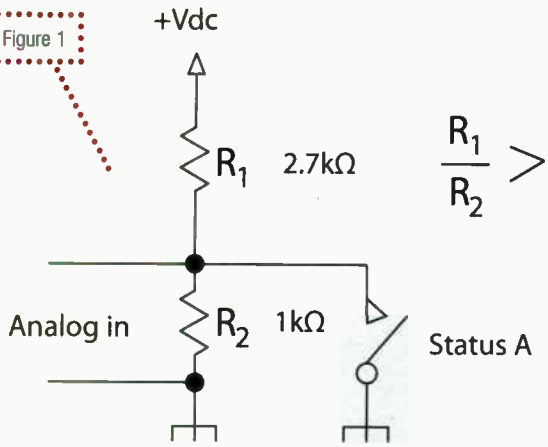
Status Symbols

by Doug Irwin
CPBE DRB AMD

Many times I have needed an additional status input on an already-installed remote control system after all the native options are used. Fortunately there are work-arounds.

I think everyone knows the ubiquitous ARC-16 – I'm sure there are thousands of them still in use. You can set up one of the analog inputs to mimic a status input easily enough (of course that means you have an analog input to work with). See Figure 1. Build a small voltage divider that has its low side connected across

Figure 1



$$\frac{R_1}{R_2} > \frac{\text{Source Vdc}}{5.0\ \text{Vdc}}$$

the available analog input. The top of the voltage divider has to come from a dc source – a wall wart will do. The dc across the analog input can't exceed 5.0V, so you'll chose your resistors based on that and the source dc. In other words, your resistor ratio can't exceed the voltage ratio:

If Source dc/5Vdc = X, then top resistor/bottom resistor > X.

This will keep you from exceeding the 5Vdc input limit on the ARC-16. Once you have this set-up connected, scale that channel's input calibration to read something convenient, like 500 or 1,000.

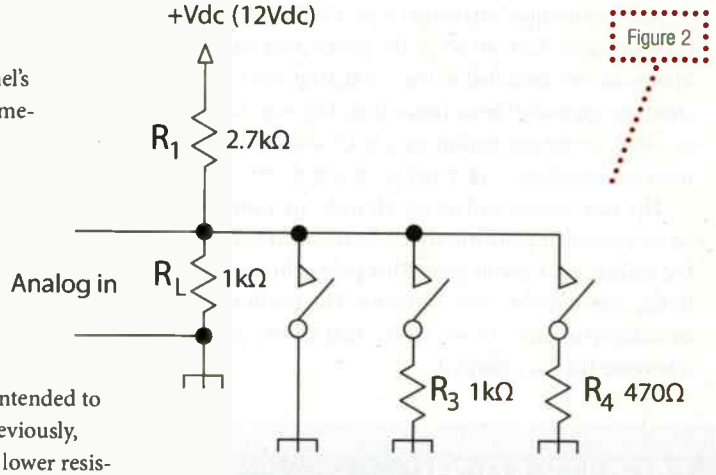
Clearly now when you short this lower resistor, the analog input will read zero. Take whatever device in your transmitter room that you intended to connect to a status input previously, and connect that across the lower resistor in the voltage divider. (Remember that when you do this, the wall-wart or other dc source will see the upper resistor as the load. Make sure the resistor can handle the power. In practice it's a good idea to use high values anyway (greater than 1kΩ)). A perfect example of this would be a squelch contact from a microwave or RPU receiver, or perhaps a magnet switch on a door.

The last step is to just set the lower limit on that analog channel to set off an alarm when its input reads zero, corresponding to the closed relay contact.

MORE THAN ONE

What if you need multiple status inputs? You can get around that requirement as well. Just like before, you'll need one spare analog input to work with. See Figure 2. This time we have the same normally open (N.O.) relay contact we had in Figure 1, which corresponds to Status A; we have a N.C. relay contact with a series resistor that corresponds to status B; and we have an additional N.O. contact with a series resistor, corresponding to Status C. Let R1 = 2.7kΩ, and let R2 = R3 = 1kΩ and let R4 = 470Ω. Various conditions will provide these results for analog voltage:

Figure 2



Condition	Analog voltage	Alarm output
Normal	1.88	none
Status A	zero	low limit
Status B	3.24	high limit
Status C	0.99	none
Status B+C	1.27	none

Set the low limit alarm to go off anytime the voltage goes below 0.99V; set the high limit alarm to go off any time the voltage reaches 3.24V (or somewhat lower, considering normal line voltage fluctuations in your source voltage). And there you go: one analog input can now distinguish five separate conditions, plus provide two alarm outputs. As the station's engineer, you'll map what all the conditions mean. You'll read these from the remote control or rely on it to call you.

Irwin is transmission systems supervisor for Clear Channel NYC and chief engineer of WKTU, New York. Contact him at doug@douginwin.net.

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Aphex Headpod 4

by Gill Wilson

When I first wanted to check out the Aphex Headpod 4, I was looking at it strictly from a remote broadcast engineer standpoint, especially live sportscasts. But as I was testing the unit I found the uses of this headphone amplifier could range from remote broadcasts to recording studio to even a podcaster, making it a very flexible headphone amp. It is simple in idea and takes away one of many worries when broadcasting or recording, making sure everyone hears the audio at the proper levels. Whether you're a musician, audio engineer, broadcaster, or podcaster this unit is very handy.

WAKO radio is in a typical small town and broadcasts high school games with an announcer and color commentator who share the same audio output to feed their headphones during the broadcasts. During pregame checks I hear them discussing the headphone levels. What's right for one is too loud or too quiet for the other. No more compromise; this unit solves that problem.

First let's look at what is involved in the inputs and outputs of the Headpod 4. The interface is very efficient with three inputs and four headphone outputs for monitoring flexibility. The three inputs on the rear panel of the box are a balanced 1/4" TRS left and right input (if you are using a mono input source then simply use the left input), unbalanced stereo analog 1/4" TRS input and a coaxial S/PDIF digital input. The analog inputs are 1/4" jack inputs, I would have liked an RCA jack analog input, but an adapter is an easy fix. The front panel has the four 1/4" jack headphone outputs.

The top of the unit has the main controls with the input selector, master volume and four individual volume controls for each output. The top control also has a small LED to alert when a digital input is available, and when power is applied the Aphex logo glows a pale green.

FLEXIBLE USES

The Headpod 4 allows me to use one of several inputs, and it packs some power and still sounds clean. I tried several source feeds ranging from low to high levels, and it sounded great with no crosstalk.

The stated headphone impedance range is 8Ω to 1kΩ. I tried headphones from earbuds to a broadcast headset and the unit provided a clean and loud (if needed) signal to all of them. Once the audio source was selected, I set (as per the instructions) the master volume to 12 o'clock and made or allowed others to make adjustments to each headset. The audio actually seemed to sound better through the Aphex HeadPod 4, which was likely due to the isolation between outputs instead of the shared load of our previous setup. The manual says the four stereo power amps provide a frequency response of 10Hz to 120kHz (wow) at 0.001 percent distortion.

One other aspect that I observed was the durability of the unit. The casing is metal and feels like a small tank (not in weight, but in strength). I would never risk dropping or recommend dropping any audio device, but this one looks and feels like it could take its share of bumps and dings, which makes it the perfect addition to any remote engineer's toolbag.

Wilson is an announcer, producer, webmaster and promotions guy at WAKO-AM/FM, Lawrenceville, IL, and an independent producer/voice talent.

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Yellowtec iXm

by Henrik Persson

I remember the first time I read about a certain handheld recorder in a microphone package. I had just gotten my first real job in the industry, filling in over the summer as a mid-day regional radio host. A lover of field work, I was looking to invest in some pro-level equipment of my own, and the all-in-one form factor of that mic-style recorder really caught my eye. Here was a product that combined a pro-spec recorder and a mic, but not in a boxy enclosure in an actual tube-shaped mic body.

Reading the spec sheet however, I quickly realized there were several drawbacks. First, there was no removable storage. Second, the capsule was fixed, resulting in a more limited unit overall. I ended up not buying that unit myself although I did use one quite a bit when the station where I worked eventually bought a couple.

Why mention all this? Because the Yellowtec iXm is a similar concept, except Yellowtec got it right.

HEAVY METAL

The iXm combines a digital recorder with a mono microphone, in a familiar handheld format. The unit itself is really well built – all metal by the looks and feel of it and everything feels really sturdy. It's a bit on the heavy side for extended sessions in handheld mode but that's a natural consequence of the all-metal body.

The controls are streamlined. On one side is the record section, comprised of one button for record and one for stop. There's a pre-record buffer that captures whatever has been said in the last 30 seconds.

There is no metering anywhere, and the only indication that you're recording is a solid red light. This is a bit uncomfortable at first, but once you realize the unit takes care of all the gain adjustments – and does a good job at it – you can stop worrying.

On the other side of the body is the playback section. Here we find the usual play, stop and skip buttons. All buttons also double as configuration controls, such as turning the unit on and off, and putting it in different modes. It may not be the most intuitive approach, but the manual explains it all fairly well.

On the bottom there's a line in and a headphone out, both on 3.5mm jacks. There's also the SD card slot and a battery section for three AA cells. The unit has a rechargeable battery built-in, but the ability to use regular alkaline cells as well could be a lifesaver when working away from a regular power source for long periods of time. Yellowtec claims a maximum total battery life of 14 hours.

SOUNDS "SEHR GUT"

Sound-wise, the iXm doesn't disappoint. Handling noise is minimal, and the built-in pop filter works fairly well although obviously a windsock is required for outdoor work. The headphone volume can be adjusted if the latest firmware release, which is available for download on the Yellowtec website.

There is a built-in leveler that seems to combine peak limiting with a pretty sophisticated automatic gain control (AGC). Yellowtec calls this "LEA engine," and it basically means you'll get consistent levels at all times as well as slightly increased intelligibility in human voices. It works really well and does not suffer from the "pumping" effect that can occur with lesser-quality AGCs, when recording in areas with a lot of background noise.

One of the main selling points of the iXm is the ability to change mic heads. The iXm is fitted with a system called TOTO, which is short for "twist on, twist off" which is self-explanatory.

There are six different heads to choose from, omnidirectional, cardioid and super cardioid, in a dynamic as well as a condenser version. The dynamic heads are made by Yellowtec themselves, while the condenser line is made by fellow Germans, Beyerdynamic.

I doubt anyone will need all six, but having at least one extra head will make for a more

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World Radio History

Interchangeable mic heads from Yellowtec and Beyerdynamic are available.

flexible unit overall. Since stations traditionally rely heavily on dynamic mics, the dynamic omni capsule will likely be a good choice.

Perhaps a super cardioid would be suitable for working in extremely noisy places like a trade show or sporting event.

All three dynamic heads are clear without sounding harsh, and voices come out sounding natural and focused. The Beyer condenser series is equally good but obviously sounds a bit more hi-fi. Whether that's good or bad is a question of personal taste, but the difference between the dynamic and condenser heads is pretty dramatic and a recording of regular street corner ambience is much more detailed through the omni condenser head than its dynamic counterpart.

The iXm is a really well built unit that sounds good and, for what it is, is really flexible. The automatic gain control works fine and the pre-record buffer will be appreciated by reporters. The iXm is made for mono handheld interview only. But if that's what you want to do, it doesn't get much better (or portable) than this.

Persson is a writer and radio journalist from Sweden.

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Backup Power

An uninterruptable power supply (UPS) is used for backup power, but the UPS term has become broad in its use to include systems that are not truly uninterruptable. There are essentially three types of battery-based backup power systems.

A standby system (often incorrectly called a UPS) provides power once the main feed is lost. There is a break in service of typically 2-4ms. The output of these devices is generally not a sine wave, but either a square wave or some quasi-sinusoidal waveform output. When the main feed is lost, a relay switches to the dc circuit and battery. Standby systems typically handle loads less than 1kVA.

A line-interactive system is still a standby device because there is a break in the power waveform, but they usually provide a sine wave or quasi-sine wave output with voltage regulation. These systems usually provide longer runtimes and can accept additional battery packs. They also commonly offer settings for input voltage ranges, battery management and system notifications. They typically start around 1kVA and handle up to 15kVA or more.

The true online systems are a real UPS. There is no break in the sine wave output. The batteries in these systems will last 3 to 5 years. These systems usually start at 1kVA and can handle single-phase and three-phase services. Because there is no break in the supply voltage, true online systems are ideal to cover computers and other devices that cannot tolerate a break in service.

A generator is a standby system in that there is a break in the supply voltage, although the output is a sine wave. A true online system can be used to cover the switchover period. Flywheel generators use a rotary flywheel effect to cover a break in supply voltage from commercial power to a UPS or generator.

With a generator or flywheel, the UPS itself may not need to carry the full load for an extended period of time. Assuming the backup system doesn't fail, the UPS only needs to cover the switchover time and little more. Most systems offer a way to extend the battery life by adding additional power cell shelves as needed.

When the UPS is active, communications, such as RS-232, can provide status monitoring. This communication can also be used to initiate a shutdown in situations where the backup power has failed as well. In this case, computers and other devices can begin a shut-down process to protect themselves and prevent any loss of data.

We looked at true online systems to compare features and specs.

Thanks to Mike Miga at Superior Electric for providing information for this article.

Model	APC Smart-UPS RT 2200VA RM	CyberPower OL2000RMXL2U	Staco Energy USCH-20001	Superior Electric SEG2000R
Input Voltage	90 - 150	60 - 142	60 - 144	87 - 140
Output (VA)	2200	2000	2000	2000
Output (W)	1600	1400	1600	1400
Backup Time (mins.)				
Full Load	6	8	7	7
Half Load	18	19	18	20
Outlets	6	5	4	5
Communications	RS-232, Smart Slot, USB	RS-232, USB, EPO, opt. SNMP	RS-232	RS-232
Extended Battery	Y	Y	Y	Y
Weight (lbs)	60.63	70	64.7	80.7
Height	2RU	2RU	2RU	2RU
Models in Series	Cabinet and rackmount (convertible), 120/208/240V input, 1kVa to 20kVa output	120/240V input, 1kVa to 10kVa ouput	Cabinet and rackmount, 120/240V input, 1kVa to 3kVa output	Cabinet and rackmount versions, 120/240V input, 1kVA to 6kVa output
MSRP	$1,590	$1,000	$1,120	$1,995
URL	apc.com	cyberpowersystems.com	stacoenergy.com	superiorelectric.com

NEXT MONTH Coming up in July, we look at the realm of IP codecs.

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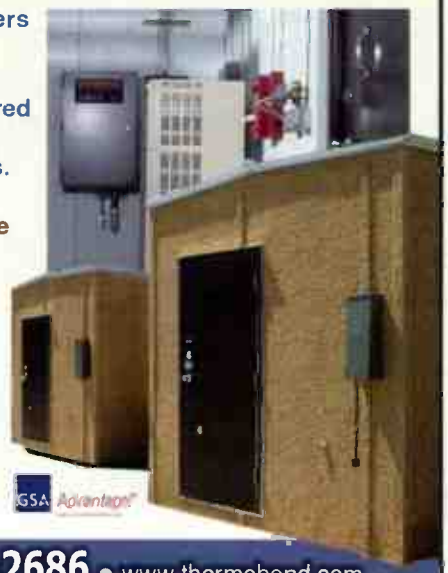

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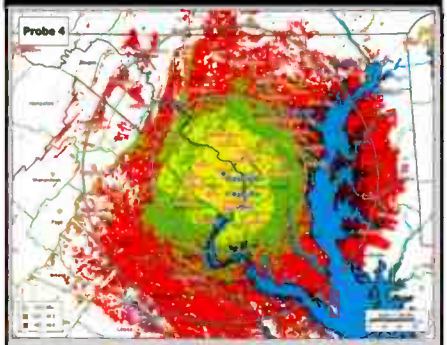

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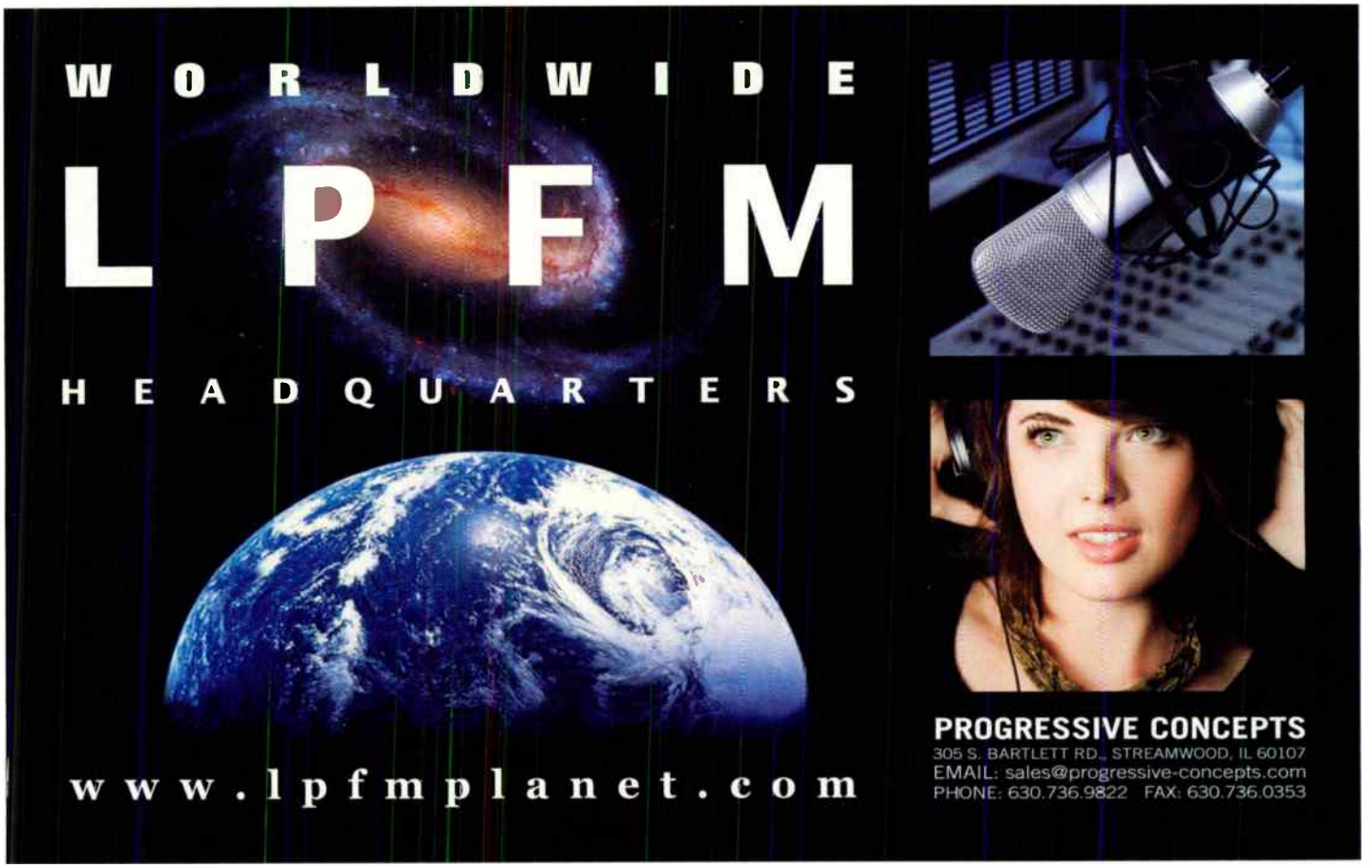

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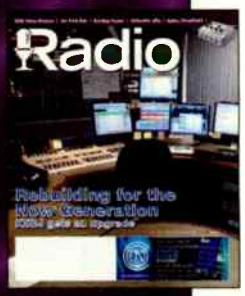

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World Radio History

Inovonics at 40 Years

by Erin Shipps, senior associate editor

This Inovonics is celebrating 40 years in business. President Jim Wood had this to say:

"In May of 2012, Inovonics celebrates its 40th birthday. Beginning with a single product idea, a replacement tape recorder electronics for tired, old vacuum-tube machines, Inovonics has kept attuned to the wants and needs of broadcasters, evolving into an innovator and leader in the broadcast equipment field. We are proud of our 40 years under the same ownership and management, and proud to be associated with an industry dedicated to serving "...in the public interest, convenience and necessity."

The quote at the end is from the Radio Act of 1927, still included in applicable laws and, in Wood's opinion, the soul and spirit of radio and television broadcasting.

First 10 Years

Year	Event or Product
1972	Inovonics founded in Campbell, CA; R&D begins.
1973	First products released: 355 Replacement Tape Electronics, 200 Limiter, 360 Tape Electronics
1974	Patented: frequency-selective limiting means. OEM Development: Zi-Tech, Inc. TB-100 Precision DC Voltage Standard. 201 Average/Peak Limiter, 210 Frequency-Selective Limiter, 220 "ALO" Broadcast Processor.
1975	375 Tap Electronics, 405 and 420 Constant-Tape-Tension Servos (under license from Studer)
1976	Headquarters moved to a new, larger building in Campbell, CA. OEM Development: Ampex Corp. TS-40 Tension Servo. 240 and 241 "Dynex" Adaptive Noise Suppressor, 376 Magnetic Reproduce Electronics
1978	221 "ALO-II" Broadcast Processor, 230 "MAP" Multiband Audio Processor
1979	215 Modular Broadcast Processor, 231 "MAP-II" Multiband Audio Processor, 500 RTA Real-Time Acoustic Analyzer
1981	370 and 380 Replacement Tape Electronics
1982	OEM Development: Westrex RA1125 Mag-Film "Insert" Recording Electronics. 250 Programmable Multiband Broadcast Processor (pioneering the use of quasi-digital PWM technology in audio processing)

For the rest of the timeline, visit RadioMagOnline.com.

Henry Engineering Celebrates 30 YEARS

There's a very good chance you have a Henry Engineering product in your studio. And that product is very likely the most popular product the company makes: The Matchbox. But this was not the first product made by Hank Landsberg.

In 1982, Hank was the chief engineer of Drake Chenault, a producer of programming for radio automation. He was contacted by his friend Steve Keating, who Hank thinks was working at Continental Electronics at the time. Keating suggested that Hank should build a series of replacement modules for the Autogram consoles. These consoles used socket-mounted modules, so Hank designed four modules that provided balanced I/O, eliminated transformers and coupling capacitors, and made the consoles sound even better. Henry Engineering was born. He produced the Autogram modules for about 20 years.

The Matchbox came about from his own need to interface consumer equipment into the professional studio environment. The Matchbox was introduced in 1983. Hank estimates that 90,000 to 95,000 Matchboxes have been sold. The USB Matchbox II has since joined the line.

Another popular product came from the need to control on-air lights from console tallies. The Superelay was introduced about 1986. Henry Engineering has sold about 20,000 of them.

When asked how many total products the company has sold, Hank estimates it to be about 140,000. The earliest records were on paper, so it's hard to know for sure.

What's the inspiration for the products? In most cases, ideas come from users and engineers. He is often given ideas for a new product or an enhancement or addition to an existing product.

Henry Engineering has always been based in Southern California, and Hank Landsberg is proud that nearly every product is built locally in the USA.

World Radio History

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15 channel modular console
supports two phone hybrids
USB sound card modules
control room & studio

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PC USB , and Phone input
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Live On Air,
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16 stereo input switcher
with logic

ARC-10
three models

ARC-10U: $1,599 unbalanced
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both balanced & unbalanced
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studio furniture

all ARC consoles
(except ARC-10U) feature built in
PC USB sound cards and come with
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the Mayan calendar predicts the end of
the world in 2012... so Accent Furniture
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ACCENT is a contemporary blend of brushed metals, pleasing colors, and interesting textures. The metal structure is artfully integrated into the visible design decor of the cabinetry. Cabinetry and electronic equipment complement each other to create a bold visual environment for talent, guests, and clients alike.

www.arrakis-systems.com

all prices are msrp

World Radio History

THE INTELLIGENT NETWORK

"gotta have it!"

"Wow, Wow!"

Rick Hunt, Vice President & Director of Radio Engineering, Entravision Communications Corporation

"Considering the LX-24's attractive good looks, modularity, traditional console layout and functionality, I can't wait to get my hands on one!"

Greg Landgraf, Senior Engineering Manager,Corus Radio Western Canada

"A high performance, reasonably priced, great looking console integrating common sense features such as overload indicators for meters and ergonomic controls. Very impressive and well thought out."

Benjamin Brinitzer, Regional VP Engineering Clear Channel Media & Entertainment

"By far the most elegant and feature rich control surface on the market. The attention to detail and functionality is remarkable. Its architecture, such as "hot swappable" modular design, is a winner. A traditional meter bridge is appreciated by users and your millwork guy will appreciate the fact that it's a table-top design."

Kris Rodts, Director of Engineering, IT & Facilities, CKUA Radio Network

"Wheatstone's innovation continues to make AoIP a viable product for professional broadcasting facilities. Just a few things that make the LX-24 stand out to me are the clear and decisive metering, individual fader modules, and "out of the box" thinking with faders for the headphone and monitor volume controls instead of rotary knobs."

Phillip Vaughan, Chief Engineer KFROG, CBS Radio

"Leave it to the exquisite design talents of Gary Snow and the Wheatstone team to really hit the nail on the head. The LX-24 is not only the most functional, feature-laden IP based console for radio, it also raises the bar for the finest ergonomic radio command center on the planet."

Tim Schwieger, President / CEO, BSW- Broadcast Supply Worldwide

"I didn't think Wheatstone could improve upon the E-Series of consoles, but they have done it with the new LX-24. This is a beautiful, well designed console and the individual faders, integrated meters with overload indicators and low profile table-top design make this a must have for our facilities."

Michael Cooney, Vice President of Engineering & CTO, Beasley Broadcast Group, Inc.

"Cool and sexy (I sound like Bruno from Dancing with the Stars). A great addition to the WheatNet-IP family."

Norman Philips, Vice President of Engineering, Townsquare Media

"I am very impressed with the sleek new design that incorporates single channel-strip architecture, integrated metering and stereo cue speakers in a thin, sloping chassis that needs no cabinetry cut out. Well done."

Erik Kuhlmann, Senior Vice President of Engineering, Clear Channel Media + Entertainment

"Wheatstone continues to hit balls out of the park and this year they did so again with the LX-24 control surface. This new product marries the best of the old (modular design architecture) with the new (Audio-over-IP). Continuing in that theme was a Wheatstone module that marries their bridge router system to the new "BLADE" audio-over-IP system. This has the potential to extend the life of bridge router facilities indefinitely."

W.C. Alexander, CPBE, AMD, DRB, Director of Engineering, Crawford Broadcasting Company

"The LX caught my attention on the NAB Show floor. The look, form and function are unlike any other IP console available today. The easy-to-read buttons and displays are just second to none, not to mention the most bang for the buck. I can't wait 'til I have the opportunity to deploy my first LX."

Anthony A. Gervasi, Jr., Sr. Vice President Engineering & Technology, Nassau Broadcasting

Wheatstone

LX-24

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