



Radio

THE RADIO TECHNOLOGY LEADER



A Historic Move The new digital home of CKUA

JUNE 2013 | RADIOMAGONLINE.COM



868-RDM1
000010663

BARRETT MISHKIND
CLIENT ENGINEER
KUNH
2033 S AUGUSTA PL
TUCSON AZ 85710-7905

RK001294
P0006

#BXBRZFT *****AVT0**SCH 3-DIGIT 856
#0010545 2# RDM1 0010545 E1304

INTUITIVE
FLEXIBLE
**ENCO
DOES
RADIO**
AUTOMATION
AUDIO PLAYOUT
MUSIC SCHEDULING



ENCO
ENCO.COM

THE TELOS ALLIANCE™
 From the bottom of our heart...
 Thank You!



Telos-Systems.com/hx6



OmniaAudio.com/11



AxiaAudio.com/xswitch



LinearAcoustic.com/award

Telos

Omnia



AXIA

L⁴ LINEAR ACOUSTIC

www.TelosAlliance.com



A Litt is worth a thousand words.



On Air. Recording. Stand By. Applause!

Communication is key. That's why we created Litt, an all-new high definition LED indicator for broadcasters. Programmable, intelligent and modular, Litt brings a high-tech look to your studio. Perfect for use with our renowned M!ka Mic Arms, Litt takes light to a new level of sophistication and elegance. **Now that's a bright idea!**



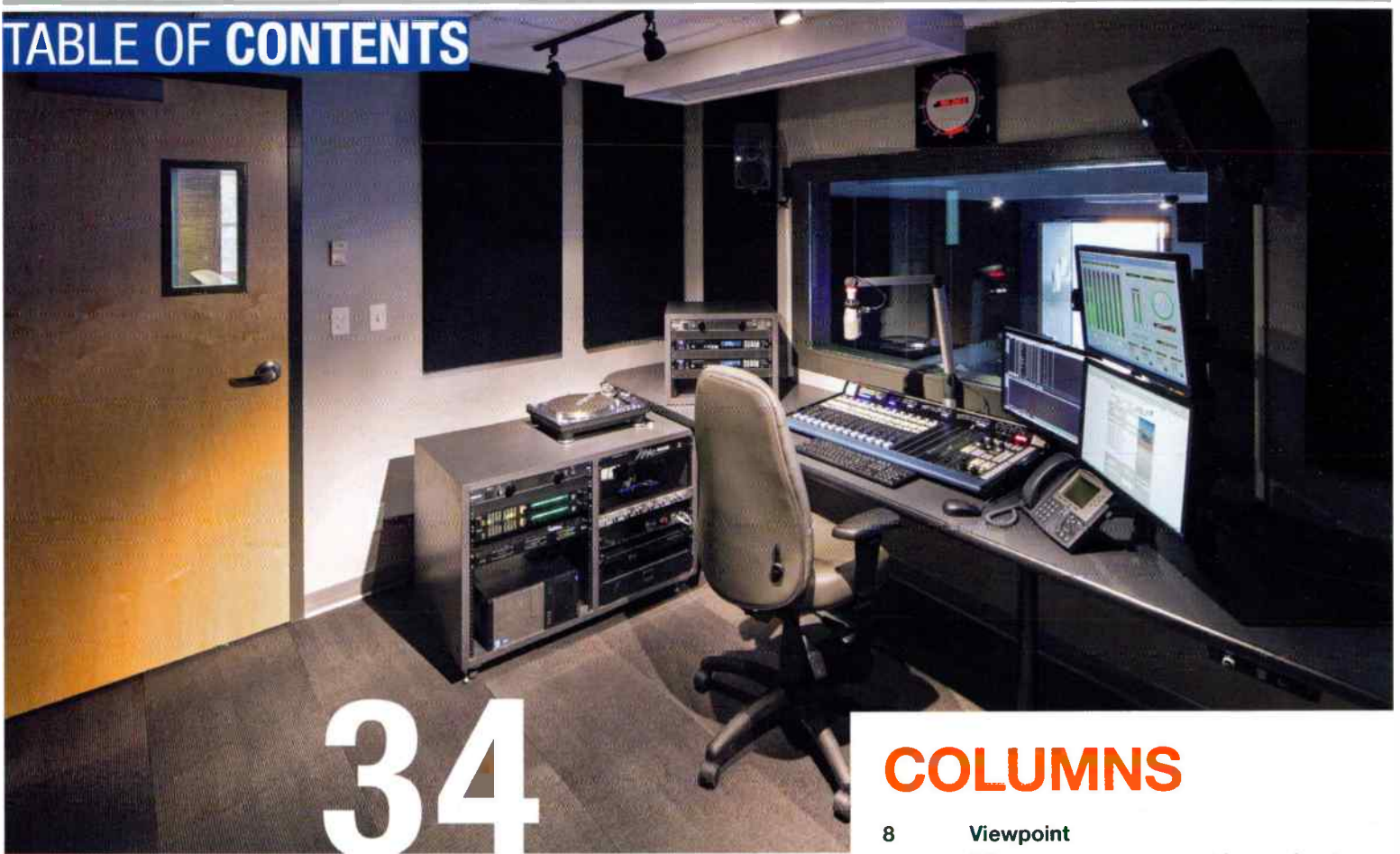
reddot design award
winner 2013

 **YELLOWTEC**

www.yellowtec.com

World Radio History

TABLE OF CONTENTS



34

FEATURES

- 14 **2013 NAB Show Pick Hits**
The top 20 radio products picked by our pro panel of judges
- 34 **Facility Showcase**
Canada's CKUA moves its facility and its enormous archive into an old hotel

46



COLUMNS

- 8 **Viewpoint**
What you may or may not know about the *Radio* magazine Pick Hits Awards
- 10 **Managing Technology**
Thwart metal theft with proper site management and monitoring
- 12 **FCC Update**
Navigating the settlement/amendment process for FM translators
- 42 **Tech Tips**
Out in the elements: Expert tips for better coaxial cable runs

DEPARTMENTS

- 44 **Side By Side**
Headphones
- 46 **Field Report**
Røde iXY
- 48 **Field Report**
iZotope Insight
- 54 **Sign Off**
20 Years of *Radio* magazine, and current consumer media usage



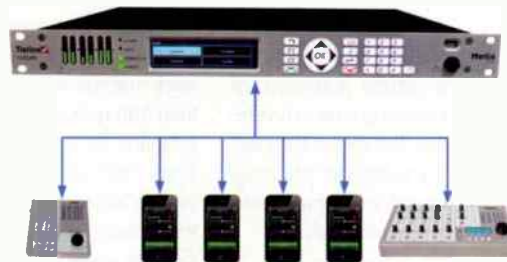
SIX REMOTES IN EVERY BOX



Rapidly expand your remote capability with 6 simultaneous bidirectional mono connections to IP codecs or smartphones using Report-IT, saving money on hardware costs and reducing rack space requirements.

- * SmartStream PLUS dual IP streaming
- * Dual Power Supplies
- * Dual Ethernet ports
- * IPv4/v6 Ready

Merlin PLUS at the studio



6 bidirectional mono remotes



GAO Issues Report on National Alerting Capability

Since 2009, the Federal Emergency Management Agency (FEMA) has taken steps to improve the capabilities of the Integrated Public Alert and Warning System (IPAWS) and to increase federal, state and local capabilities to alert the public, but barriers remain to fully implementing an integrated system. One area where alerting has improved includes the IPAWS capability to receive and authenticate

Internet-based alerts from federal, state and local public authorities and disseminate them to the public through multiple systems. But state and local alerting authorities contacted by the General Accountability Office cited a need for more guidance from FEMA on how to integrate and test IPAWS capabilities with their existing alerting systems.

For mor info, visit RadioMagOnline.com.

SBE Announces 2013 Election Candidates

The Society of Broadcast Engineers Nominations Committee has presented a list of candidates for the 2013 national board of directors' election. The list includes one candidate for each officer position and seven candidates for six available director seats. Candidates may still be nominated by voting SBE members and will appear on the ballot if received by July 9, 2013. Nominees must be voting members in good standing (dues paid) and hold an engineering level of SBE certification. Nominees are to be nominated by letter (written or electronic) and sent to SBE Secretary Jim Leifer at jimleifer@hotmail.com or 8553 Tourmaline Blvd., Boynton Beach, FL 33437. The nominee must be endorsed by 10 voting SBE members.

The nominees presented by the Nominations Committee follows.

President

Joseph Snelson,
CPBE 8-VSB

Vice President

Jerry Massey,
CPBE 8-VSB AMD
DRB CBNT

Secretary

James Leifer, CPBE

Treasurer

Andrea Cummis,
CBT CTO

Director Candidates

Kirk Harnack, CBRE
Tom Ray, CPBE DRB AMD
Ted Hand, CPBE 8-VSB DRB AMD
Kim Sacks, CBT
Mark Heller, CPBE CTO
Ched Keiler, CPBE 8-VSB CBNT
Dennis Wallace, CBTE

There are six directors currently in the middle of their two-year terms. Half the directors are elected every year. Voting will take place in August.

For more info on these candidates, visit RadioMagOnline.com.



Snelson



Hubbard Radio Chair Ginny Morris to Receive National Radio Award

Ginny Hubbard Morris, chair of Hubbard Radio, will receive the National Radio Award during the

2013 Radio Show Luncheon on Sept. 20, 2013.

Morris has more than 30 years of broadcast industry, business and general management experience.

As chair of Hubbard Radio LLC, Morris is responsible for managing the strategic direction for Hubbard's 21 radio stations throughout Chicago; Washington, DC; Minneapolis/St. Paul; St. Louis and Cincinnati.

As part of the company's growth strategy, in 2011, Morris led Hubbard's acquisition of 17 radio stations from Bonneville International.

NAB Releases AM IBOC-Only Test Results

The recent AM IBOC-only test (MA3 mode) tests that were conducted with CBS radio station WBCN-AM were discussed in detail during the 2013 NAB Show. The results are of great interest to many, so here's a look at how they were derived.

The test used an all-digital transmission, which places the digital carriers in the center of the carrier channel. In the hybrid mode, the analog signal is placed in the center of the carrier with the digital information on either side.

According to data from the Radio Advertising Bureau, radio plays a dominant role with people who are considering a vehicle purchase, or spending time in a vehicle. The closer listeners get purchase, the more important a part radio advertising plays.

iBiquity Digital reports virtually all 2013 aftermarket automotive in-dash receivers with HD Radio have been officially launched and available at retail.

With Premiere Networks and private sector broadcasters, FEMA has added the nationally syndicated audio network that reaches more than 190 million weekly listeners as a Primary Entry Point station, delivering information and instructions to the public in an emergency. As part of the cooperative effort, Premiere satellite program receivers in thousands of affiliate radio stations will be another method to deliver EAS messages.



FIND THE MIC AND WIN!

Tell us where you think the mic icon is placed on this issue's cover and you could win Ilosa HDC-800 headphones. 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



SONY.
make.believe

harmonious tandem

New audio editing applications from Sony bring unparalleled design elegance and technical sophistication to the OS X platform. Built on a clean slate for OS X, Sound Forge™ Pro Mac provides a contemporary application environment perfect for recording, editing, processing, and rendering broadcast quality audio master files. Already acclaimed as a groundbreaking new software application, award-winning SpectraLayers™ Pro (WIN/MAC) allows editors to actually *unmix* audio files into component layers for processing in an infinite number of ways. The reimagined Sound Forge Pro Mac and futuristic SpectraLayers Pro software programs together will change the way you think about working with sound.

Learn more about these exciting new apps, and download the free trials at:
www.sonycreativesoftware.com



SpectraLayers™ Pro
January 2013



Let Me Tell You About the Pick Hits



Each year near the end of the NAB Show, placards appear in exhibitors' booths indicating that the exhibitor has received a *Radio* magazine Pick Hit Award. If you attend the convention, I'm sure you've seen them. Perhaps you've seen me working my way through the exhibit floor on Wednesday afternoon to make the presentations.

The Pick Hit Awards were created even before *Radio* magazine was a stand-alone publication. The awards were launched in 1985, and *Radio* magazine, a spin-off of another publication, was first published in 1994. (We've been highlighting that first year of publication in Sign Off the past several issues.)

The Pick Hits are very popular, and quite coveted. But perhaps you don't know exactly what they are and why we're so proud of them. As we put the wraps on the 2013 NAB Show, you'll find all the Pick Hit winners starting on page 14. Here are the details on how they are decided.

First, the Pick Hits follow an established set of rules (see them on page 33). While the rules have evolved slightly over the years, the basic ideas from 1985 are still in place. In general, the products to be considered must be new, must fit a real need in radio, must be reasonably priced, and they must be available for purchase within the current calendar year. These items set the baseline. The price and availability are both based on the manufacturer's word, and we have to accept that. It's true that over the years there have been a few products that didn't ship within that time, but the judges can only act on the provided information.

The judges are an important part of the selection process. The *Radio* magazine staff has no direct part in selecting the winners. While I invite panelists to serve as judges, only I know their identities, which remain secret until the winners are chosen. The engineers I ask to serve are corporate VPs of engineering, network engineers, regional engineers, market chiefs, staff engineers and contract engineers. In previous years I've asked technically oriented managers to participate as well. My goal is to have a wide cross section of skill, experience and responsibility represented. Some are stronger in RF. Others are stronger in audio or IT. I also try to have geographic diversity.

The judges, who don't know who the other judges are, go about the convention like anyone else. They look for new products that interest them and apply to their needs of course, but I also ask them to look for items outside their usual scope. The anonymity prevents any persuasion or outside influence. Like you, the judges read the product previews in the trades and read the *NAB Show Daily*. If a manufacturer asks me how his product can be considered, I tell him do whatever he would do to attract attendees in general.

The judges gather on Wednesday afternoon to make their selections. I moderate that meeting, but I have no vote in the selections. Once the list of winners is created, I set out to present them. You'll see in our review, I also include some notes about what the judges had to say about the product. We do this so you have an idea about what caught the judges' eyes.

In 2011, I began shooting video of the winners on the show floor so the manufacturers could tell you about their winning products. It's frantic on Thursday as I run from booth to booth to capture the footage, but we think it all pays off in the end. Those videos are posted on our YouTube channel.

We're proud of the Pick Hit Awards and the established process we have followed for nearly 30 years. And now I hope you can appreciate the effort we put into them as well. ☺

Chriss Scherer | Editor

FOLLOW RADIO MAGAZINE

Email | cscherer@RadioMagOnline.com
 Facebook | [RadioMagazine](https://www.facebook.com/RadioMagazine)
 Twitter | [@RadioMagazine](https://twitter.com/@RadioMagazine)
 YouTube | [RadioMagOnline](https://www.youtube.com/RadioMagOnline)
 LinkedIn | [/groups?gid=3210911](https://www.linkedin.com/groups?gid=3210911)
 Pinterest | [RadioMagazine](https://www.pinterest.com/RadioMagazine)

EDITORIAL

Editor: Chriss Scherer, CPBE CBNT
cscherer@radiomagonline.com
 Senior Associate Editor: Erin Shipp
eshipp@radiomagonline.com

TECHNICAL CONSULTANTS

Contact them via radio@radiomagonline.com
 Kevin McNamara, Computers and Networks
 Jeremy Ruck, P.E., RF and Transmission
 Lee Petro, Legal
 Russ Berger, Broadcast Acoustics
 Doug Irwin, CPBE DRB AMD, IBOC

CONTRIBUTORS

Doug Irwin, CPBE DRB AMD
 Chris Wygal, CBRE

CORPORATE

President and CEO: Steve Palm
 Chief Financial Officer: Paul Mastronardi
 Controller: Jack Liedke
 Group Circulation Director: Denise Robbins
 Vice President of Web Development: Joe Ferrick

VIDEO/BROADCAST GROUP

Executive Vice President: Carmel King
 Vice President of Sales/Group Publisher: Eric Trabb

ADMINISTRATION AND PRODUCTION

Editorial Director: Paul J. McLane
 Production Director: Davis White
 Production Publication Coordinator: Karen Lee
 Advertising Coordinator: Caroline Freeland

CIRCULATION

Group Director, Audience Development: Meg Estevez
 Circulation Manager: Kwentin Keenan
 Circulation Coordinator: Michele Fornville

ADVERTISING SALES REPRESENTATIVES

Associate Publisher, U.S. Sales: Steven Bell
sbell@radiomagonline.com | 212-378-0400 x519
 Southern Europe, Africa, Middle East: Rafaella Calabrese
rcalabrese@broadcast.it | +39 02 9288 4940
 UK, Ireland, Central and Northern Europe: Graham Kirk
gkirk@audiomedia.com | +44 1480 461555
 Japan: Eiji Yoshikawa
callem@world.odn.ne.jp | +81 3 3327 5759
 Asia-Pacific: Wengong Wang
wwg@imaschina.com | +86 755 83862930/40/50

Member: American Business Media

A NewBay Media Publication



NewBay Media, LLC
 28 East 28th Street, 12th floor
 New York, NY 10016

SUBSCRIPTIONS: Free and controlled circulation to qualified subscribers. Customer Service can be reached at newbay@computerfulfillment.com or by calling 888-266-5828 (USA only) or 978 667-0352 (Outside US) or write us at Radio Magazine, P.O. Box 282, Lowell, MA 01853, USA. Back issues are available by calling Customer Service.

LIST RENTAL: 914-925-2449
danny.grubert@lakegroupmedia.com

REPRINTS: For custom reprints and eprints please contact our reprints coordinator at Wright's Media 877-652-5295 or NewBay@wrightsmedia.com.

PHOTOCOPIES: Authorization to photocopy articles for internal corporate, personal or instructional use may be obtained from the Copyright Clearance Center (CCC) at 978-750-8400. Obtain further information at copyright.com.

Radio, Volume 19, Number 6, (ISSN 1542-0620) is published monthly by NewBay Media LLC, 28 East 28th Street, 12th floor, New York, NY 10016. Periodical postage paid at New York, NY and additional mailing offices. Postmaster: Send address changes to Radio, PO Box 282, Lowell, MA 01853.



IP • 3G • Wi Fi • 4G • BGAN / VSAT • PSTN • DSL

《ACCESS》
2USB

COMPLETE REMOTE STUDIO **ON TWO WHEELS**



We are pretty sure this is a first – an open-air moving studio broadcast on two wheels (well, six, technically).



All audio was fed to a Comrex ACCESS Portable, complete with optional mixer, which Dan used to mix the live



on-air feed as the trio traversed the winding roads of

Dan Jackson, engineer for 92.9 FM in Perth, Australia was faced with a unique challenge. Breakfast hosts Paul Hogan and Lisa Fernandez would be cycling for hours in strong winds and pouring rain as part of the 92.9 Kids Appeal for Telethon.

The unique solution was to equip Dan's bike as a mobile production facility. The talent wore wireless mics AND in-the-ear monitors which communicated with receivers and transmitters in a rack bag on Dan's bike.



Perth. How did it all work out? Absolutely flawlessly – the show went on without as much as a speed bump!

ACCESS Portable lets you send studio-quality live audio, real time over IP using 3G, 4G, Wi Fi, BGAN/VSAT, PSTN or DSL to make any remote broadcast really stand out. Connect with your audience from anywhere, live, with the easy to use, handheld ACCESS Portable!

comrex.com

COMREX

19 Pine Road Devens, MA 01434 USA Tel: 978-784-1776 • Fax: 978-784-1717 • Toll Free: 800-237-1776 • e-mail: info@comrex.com

TELL US HOW YOU USE YOUR ACCESS AND WE'LL POST IT AT OUR ROAD WARRIOR BLOG

remotes.comrex.com

World Radio History



by Kevin
McNamara

Keeping the Copper Safe

Recently I offered some tips on site security, particularly in light of the myriad of copper thefts occurring around the country, especially in copper rich environments like communications sites. The reality is, if someone wants copper, he will get it, if given enough time with no other people around. But the few dollars a thief might realize selling this material is nothing compared to the cost of damage repair, or more importantly the costs incurred should a station be taken off the air for any period of time.

While scrap copper is paying nearly \$3 per pound, brass and some types of steel can bring about \$2 per pound. As it turns out, we have a lot of these at typical broadcast transmitter sites.

Tampering with a licensed communication facility is a federal offense; however, I'm not aware of any time when the federal government was directly involved with this type of theft. It has primarily been handled by local law enforcement. Many police departments have a copper theft task force. They tend to have good intelligence on specific activities going on within their jurisdiction. It might be worth a call to see if they would be willing to meet at your facilities to evaluate the level of risk for theft and perhaps offer some advice on theft proofing these sites.

CO-LOCATED SITES

Whether you share your transmitter site with other broadcasters and wireless tenants or lease space to wireless tenants on a company owned-tower, be aware that *all* combinations used on locks provided by wireless carriers are well known throughout the industry. Typically they daisy-chain their locks to others. Pretty much anyone with exposure to that industry has the cheat-sheet. In my experience, I have seen several sites sustain damage by a thief, but no indication of forced break-in. This suggests the job was done by someone with a little knowledge about the site. Along the same lines, be careful hiring new



The owner of this site replaced the stolen ground strap on the pier, and then covered it all with a foundation cement.

employees, as part of your hiring practice, consider running a criminal background check on all applicants. This may give you additional insight into a prospective employee.

It is almost impossible to eliminate exposed copper or other metals. Copper isn't worth as much dirty as it is bare. Thieves usually don't want to take the time to clean it. This also applies to jacked transmission lines; however, going back to my previous statement, someone on the inside would know that it's easy to strip and this would not deter them. The simple answer is to use an industrial paint-on coating like roofing tar, Tammcoat, Rhino-Liner or equivalent material that can be painted on wet, adheres to the metal and basically makes it very difficult to clean. Using a tar-like product will also remain sticky to the touch and leave a lot of staining on the thieves hands and clothes. These materials may make routine repairs a little difficult, but it's a small price to pay in the big picture. Tammcoat is a material primarily used to waterproof concrete foundations. It's relatively inexpensive and as it turns out has some good conductivity characteristics that may be desirable in some applications.

In addition to coating the copper, when purchasing new copper wire or ground bars, make



Photos by Ben Weiss, CPBE

sure they are tin-plated. This is what most wireless carriers are using. A knowledgeable thief might know that this is only tinning, but keep in mind the tinning also reduces the copper scrap value as well and may not be worth someone's efforts. The use of tamper-proof hardware to attach copper ground bars to buildings can also be an effective means to slow down the progress of a theft.

You can also purchase copper bars with wording such as "Stolen, please report to police." This would send a red flag to a scrap yard to alert police. Build partnerships with local scrap companies in the area. Many recycling centers will not accept copper that has been painted.

ALARM IT, WATCH IT, LIGHT IT

Sometimes simple solutions are the most effective. Run jumpers, in series, from different metal items (i.e. ground bars, ground strap, etc.) that you want to protect. Connect one end of the cable to one side of a relay coil and the other end of the coil to a low-voltage power source sized to the relay. Now attach the remaining side of the power supply to the other cable and you have an alarm that will trip if anything in the current path is removed. This is actually a product that was patented in 2007 and is being used on several

SOUND OFF

How do you thwart copper thieves? Tell us at radio@radiomagonline.com

wireless sites, but it's easy enough for anyone to implement.

The use of surveillance cameras with body detection is an effective solution to deter theft. Cameras can be placed at all points around the perimeter of a site, as well as inside the building. Even the cheapest camera systems provide alarms should someone enter its field of vision. The sentinel can sound alarms and/or trigger strobe lights as well trigger a remote control system or alert an alarm company. The cameras can be adjusted to disregard smaller animals or birds that might send false triggers. Even better is adding a local DVR to record events at the site. The video could also be sent back to a monitoring location with the proper dedicated (typically T1) line. Clips of the video could be emailed to select persons if Internet access is available.

If budget is a problem, consider adding deer cameras at strategic locations. Similar to traditional surveillance systems these cameras are triggered by bodies within their field of vision. They

are cheap and can either record video or clips of pictures it takes and records to an SD card. The downside is that someone needs to visit the site to exchange SD cards periodically. There are some more sophisticated deer cams available that use an Internet connection to email clips, but these can be pricey and probably more than a basic low-cost camera/DVR system.

STORAGE DURING CONSTRUCTION

Ninety percent of all theft takes place on weekends, so have someone check the jobsite several times during the weekend. Provide sufficient lighting at night as a potential deterrent. A thief might enter the premises with the intention of stealing copper but may find other objects to take.

Consider pre-cutting the wire and delivering what you need at a jobsite on a daily basis. This will avoid large quantities sitting at a job waiting to be used. I typically instruct my antenna/line vendors to take any cable not used back with them each day. I also require that they complete

(i.e. into the building and attached completely to ice bridges, etc.) any cables runs worked on that day. Inform law enforcement about construction sites and provide after hour and emergency contact information. Sometimes you could request additional patrols in the subject area; this is where developing a relationship with members of the appropriate law enforcement agency can pay off. Avoid storing copper wire, pipe, fittings and other components at remote jobsites. Even securing a parts trailer with a lock is not a deterrent to motivated thieves.

If you sustain a loss, consider the following steps in your investigation: take pictures, protect the crime scene, preserve the evidence, talk with people who may have witnessed the crime, and identify the cable markings. They reveal the cable's original location and can assist in identifying the suspect or provide an affirmative lead. **Q**

McNamara is president of McNamara Associates, Cape Coral, FL.

CROWN BROADCAST

New E Series Transmitter!



- **Direct-to-Channel digital transmitter from 20 watts to 5kW's**
- **10-Year Warranty With EMR Service Program**
- **TCP/IP Remote Command and Control with SNMP Management**
- **24/7 Best-In-Class Crown Broadcast Service and Support**
- **Advanced Metering Interface**
- **Efficient Cost-Effective Solution**
- **Built-In Dynamic RDS and Audio Backup**
- **Available Via Current Crown Broadcast Dealer**
- **Powered by Ecreso a WorldCast Systems Company**

Crown Broadcast IREC, 25166 Leer Drive, Elkhart, IN, 46514 www.crownbroadcast.com ph 866-262-8972



by Lee Petro

The Settlement/Amendment Process for FM Translators

On May 21, 2013, the FCC opened a two-month window for applicants with pending FM translators that are mutually exclusive with other FM translator applications to enter into settlement negotiations, or to submit minor-change technical amendments to their applications to eliminate conflicts with other applications. Since there are many moving parts to this window, the following is a brief summary of the major issues.

Identification. First, if you know that you have a pending FM translator application filed in the 2003 window, the first step will be to identify whether the FCC has placed the application into an MX Group. Attached to the FCC's May 21 Public Notice was a list of all the MX groups, which identifies the conflicting applicants with whom you will have to reach an accommodation, or against whom you will have to compete in the auction. This list also serves to limit the pool of potential conflicting applicants as well. In particular, while the FCC will permit the submission of technical amendments, such amendments may not create new MX situations with applicants outside of the applicant's current MX group.

Technical Amendments. As noted above, an applicant may submit a technical amendment in an attempt to extract itself from its respective MX group. The amendment must eliminate all technical conflicts with the MX groups, and must avoid creating new


technical conflicts. In addition, any amendment that proposes a transmitter site within 39km of an Appendix A Market grid, or a site within a Top-50 Spectrum Limited market, must also provide a new preclusion showing. This showing demonstrates that the grant of the FM translator will not prevent the future licensing of low power FM stations.

Settlements. In addition to the option of filing a technical amendment to eliminate mutual exclusivity with other applicants in a particular MX group, two or more parties also can enter into a settlement agreement by which some applicants agree to dismiss their application in exchange for compensation. The FCC's rules, however, limit the amount of compensation that a dismissing applicant may receive to an amount equal to the legitimate and prudent expenses associated with submitting and prosecuting the application, which may include legal and engineering expenses. As with the submission of technical amendments, while the settlement agreement may not include all of the parties to the MX group, the effect of the settlement agreement must be that at least one application in the MX group becomes a singleton, i.e., has no technical conflicts with the other members of the MX group.

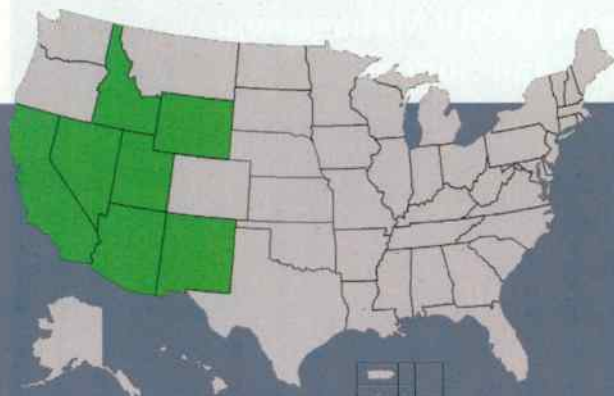
FCC Filings. The deadline for filing a technical amendment or a settlement agreement is July 22, 2013. The technical amendment must be filed through the Commission's CDBS filing system, and should indicate that the submission is an amendment to the pending short-form

application. In addition to filing the settlement agreement, the parties to the agreement must also file a Joint Request for Approval of the Settlement Agreement, along with affidavits from the parties demonstrating that the agreement complies with the FCC's rules. A copy of the filing should also be sent to the Bureau's staff, so that the request can be reviewed and processed expeditiously.

Primary Station Notification. Finally, the FCC will permit amendments to modify the designation of the primary station that will be carried by the FM translator. The need for an amendment arises from the FCC's prior filing window for noncommercial educational applications, whereby NCE applicants converted their filing statuses from noncommercial to commercial so to be able to participate in a future auction. Since the FCC's rules confers upon the FM translator the same status of the primary station to be carried, an applicant that previously converted to commercial status still will face dismissal prior to the auction if its 2003 short-form application specifies a noncommercial station. So, the FCC will permit parties to change their primary station by July 22 to avoid dismissal under these circumstances.

The foregoing is a brief overview of the considerations that must be taken into account for applicants listed in the public notice. Since each applicant has unique circumstances, consultation with an engineer or communications attorney is important to ensure that all options are considered. 

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



DATELINE

June 1: Stations in California commence running license renewal pre-filing announcements, continuing on June 16, July 1 and July 16.

June 3: Stations in Arizona, Idaho, Nevada, New Mexico, Utah, and Wyoming file License Renewal Application and EEO Program Report, and noncommercial radio stations file Ownership Report (323-E). Commence running license renewal post-filing announcements, continuing on June 16, July 1 and 16.

July 10: Stations place Issues/Programs Lists for 2Q2013 in public inspection file.

WINNER OF:



Broadcast Electronics redefines INNOVATION...

For over 50 years BE has been the industry leader in bringing groundbreaking technology to radio worldwide. Today's BE has ALL the answers, is re-energized and brings a whole new class of industry-leading technology solutions to radio stations. BE is ready to introduce you to the Next Great Low Power Transmitter and Exciter from the STX Series!



STXe

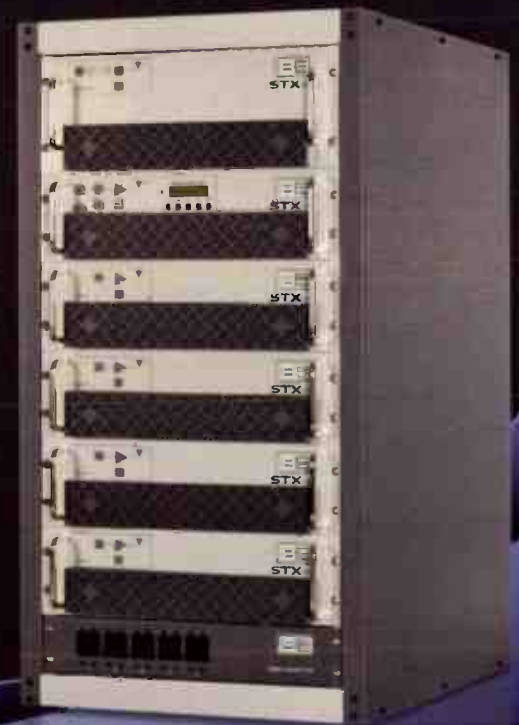
BE's Next Great Exciter

Providing unparalleled audio performance, the new STXe exciter will continue BE's dynamically engineered excellence. STXe exciters have a small footprint, are operational in FM, FM + HD Radio™, HD Radio only, DRM+, or FM + DRM+ modes, are IP connectable and range in power from 5 W to 60 W with higher power levels coming soon. The STXe exciter is now standard in BE's S and T Series FM transmitters.

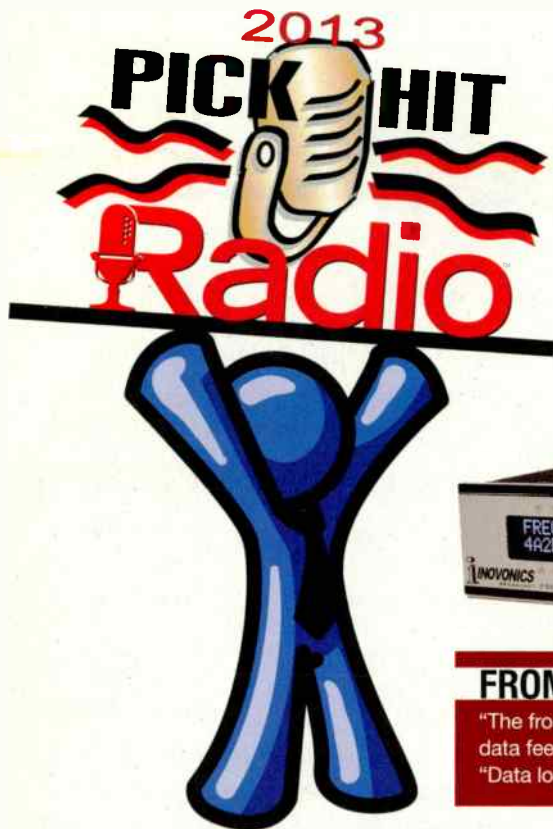
STX LP

1 kW - 5 kW FM Transmitters

The new STX LP Generation II series offers better performance, flexibility, reliability and value than any other transmitter in its class. This 2nd Generation STX LP now includes enhancements to provide more redundancy options and more value such as an integrated digital exciter, improved audio performance equal to the legendary FXi Series, improved AC to RF efficiency, SNMP Level 3 Control, HD and DRM+ capability, quieter fans, and a new remote GUI for transmitter monitoring and control.



Broadcast Electronics • 4100 North 24th Street • Quincy, Illinois 62305-3606 U.S.A.
Telephone: (217) 224-9600 • E-Mail: bdcast@bdcast.com • www.bdcast.com



from the NABSHOW®



FM/RDS monitor receiver | Inovonics INOmini 633:

This sensitive and selective FM and FM/RDS receiver ranges from a simple confidence monitor to a rebroadcast receiver in FM translator (rebroadcast) service. The 633 also decodes and displays data from most RDS/RBDS data groups. In addition, it supplies a raw RadioData stream from a front-panel USB port to be used with supplied software and any PC for further monitoring, logging, qualification and analysis of the RDS/RBDS data groups. It features alarm tallies for carrier and audio loss, analog L/R and AES digital line outs, and displays and exports important RDS info for logging.
inovonicsbroadcast.com

FROM THE JUDGES

"The front-panel USB gives me the data feed I needed."
"Data logging — I can really use that."



Solid-state tower lighting | Flash Technology

FTS 370w: Part of a complete tower-lighting system, the FTS 370w is a white or red LED flashing light for day and night use on towers between 200' and 500' in height. The Smart flashhead/marker interface provides forward compatibility as technology improves. A single 2-conductor cable provides power and communication to the flashhead and markers. The LED bypass circuitry provides longer life by allowing the loss of individual LEDs up to the 25 percent limit per the FAA. It exceeds IEC 61000-4-5 Surge Immunity specification for power surges and transient voltage. Optional Wi-Fi allows any Wi-fi enabled device wireless connectivity on site for diagnostics, programming and lighting inspections.
flashtechology.com

FROM THE JUDGES

"Control and voltage on a single pair of wires — simplifies installation."
"Reporting via Wi-Fi makes it so easy to check the light operation."

Shively Labs®

Putting FM first for 50 years

...looking forward to the next 50 years,
thanks to you.



How can we help you?

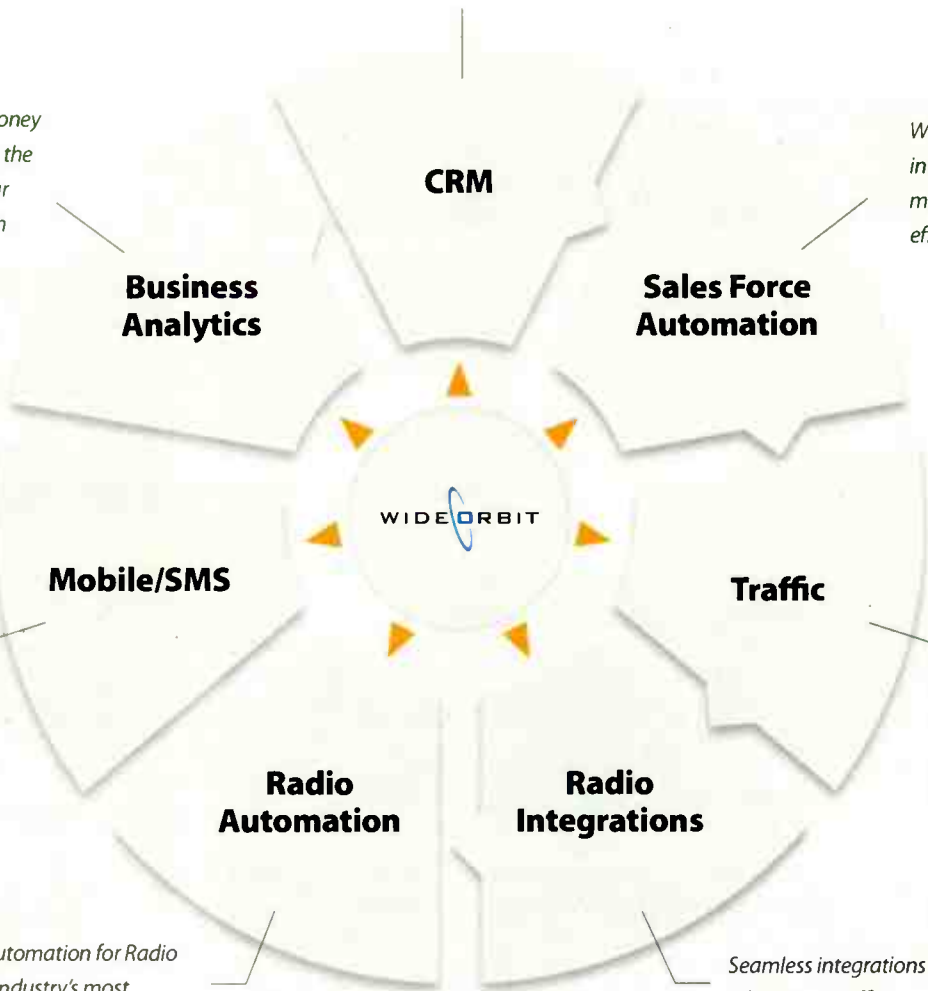
Proudly Employee owned in Bridgton Maine 207-647-3327



Gain complete control and visibility across your sales organization with WO CRM.

Where is your money going? Leverage the full power of your information with WO Analytics.

WO Media Sales delivers intelligent tools that will make your AEs more effective and efficient.



Business Analytics

Sales Force Automation

CRM

Mobile/SMS

Traffic

WIDEORBIT

Radio Automation

Radio Integrations

WO Mobile delivers new revenue opportunities and audience engagement.

With WO Traffic you can manage multiple stations, markets and groups from a single system.

WO Automation for Radio is the industry's most modern and powerful radio automation system.

Seamless integrations with all popular traffic systems and music schedulers.

WE COVER THE ENTIRE BUSINESS CYCLE OF RADIO

Nearly 4,000 Radio stations depend on one or more WideOrbit products to operate and streamline their business.

To learn more or schedule a demo, go to: www.wideorbit.com/radiocycle



Driving the Business of Advertising

Questions? Please contact: Jim Hammond – Director of Sales, Radio Automation
Office: +1.214.451.4070 | Mobile: +1.469.744.1350 | jhammond@wideorbit.com

World Radio History



IP audio codecs | WorldCast Systems
Horizon NextGen: The WorldCast Horizon NextGen will be the first IP audio codec to feature the company's SmartIP package of advanced IP techniques that include SureStream technology. Utilizing packet re-sequencing methods, SureStream enables broadcasters to obtain the audio quality and link reliability traditionally associated with T1 and E1 links utilizing only inexpensive public Internet connections such as ADSL, wireless 3G and 4G, LAN, WAN and Wi-fi. Any combination of these can be used in a dual-streaming configuration to provide additional levels of redundancy.

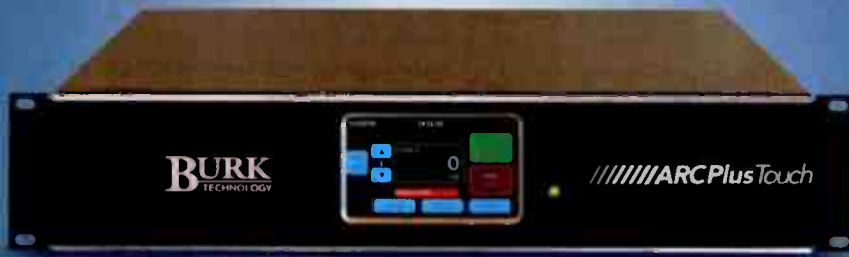


FROM THE JUDGES

"Multiple streams provide great backup potential."
 "Plenty of connectivity in 1RU."

aptcodecs.com

TAKE CONTROL WITH THE NEW ARC PLUS TOUCH and our famous "one-hour upgrade."



Remote control should be powerful, yet simple. The ARC Plus Touch combines the features of the award winning ARC Plus with the intuitive navigation of a touch screen for a truly remarkable remote control experience.

Better communications with your site, better automatic functions, better alarm reporting, and now simpler operation. Isn't it time you considered upgrading your existing system? It's easy and economical with our Plus-X Adapters. Chances are, your current system qualifies for a one hour upgrade that will provide years of easier operation and less down time.

Already have an ARC Plus? Ask about our "Good As New" program. You, too, can be in Touch with your sites. Call, click or email for more information: 978 486 0086 x7200, www.burk.com/upgrade or upgrade@burk.com.

SOLUTIONS YOU CAN USE. EXPERIENCE YOU CAN TRUST.

BURK TECHNOLOGY
 www.burk.com/upgrade

Take even more control using a Web-browser, Smartphone, AutoPilot® 2010 software, or dial In to your system over the phone.



Automation control app | Broadcast Software International
Simian Remote for iPhone:

With this remote access, users can connect to Simian 2.2 Pro on a PC at the studio using an iPhone to control live playback, edit program logs, perform live assist functions, initiate hot-key playback, adjust mixer levels, record voice tracks, load trigger sets and more. It shows the complete program log. When used on a remote broadcast, songs can be remotely loaded as needed. Triggers can be used to remotely fire events or control equipment, such as turning a console channel on to enable a codec feed. Remote voice tracking provides the intro and segue cuts so the voice track can be adjusted to customize the finished voice track.
 bsiusa.com

FROM THE JUDGES

"A really easy way to access the automation."
 "Voice tracking from an iPhone? Cool."

Announcing the **new** MOSAIC

Logitek's flagship console is now even better with enhanced styling and functionality.

Updated for use with today's advanced audio streaming and networking technologies, the Mosaic gives you fast, easy access to sources and smooth, consistent operation no matter where it's used.

The Mosaic provides anywhere from four to 24 faders in a durable, attractive tabletop enclosure that can be placed anywhere or moved out of the way when not needed. OLED screens are used throughout the console and have been added to the Softkey module for easier source selection. We've made access to controls more intuitive and have illuminated key controls for use in any type of studio lighting.

Available now, the Mosaic is perfect for operation with our JetStream Networked Audio platform.

**New styling, new features,
same Logitek performance**



Logitek Electronic Systems, Inc.
Phone: (713) 664-4470
Toll Free: (800) 231-5670
www.logitekaudio.com


Logitek
Networked Audio Systems



Microphone processor | Wheatstone

M-4 IP: This four-channel, DSP-based voice processor can

operate in completely independent channel mode or, at the touch of a button, dual stereo mode for professional stereo recording applications. The M4-IP Microphone Processor Blade combines four high-quality microphone preamps, four channels of Vorsis microphone processing, and a WheatNet-IP Blade interface can operate stand-alone or as part of a WheatNet network.



FROM THE JUDGES

"It talks WheatNet, but it also works with AES3 I/O."
 "Four powerful processors in 1RU — fantastic."

Equipped with four, matched Super-Quiet (SQ) microphone preamplifiers, 24-bit A/D converters, 96kHz base sample rate, a four-section equalizer with high and low shelving EQ and two bands of fully parametric EQ, high and low pass filters, de-esser, expander, and up to three bands of processing. Adjustable from anywhere on a network the M4-IP offers the security of password-protected TCP/IP-based remote control and no front panel controls.
wheatstone.com



AM array monitor | Dalke Broadcast Services

All-digital Antenna Monitor: A new, graphic display for AM antenna systems, the company says it's likely the first significant change in AM antenna monitoring since 1932. Sample loops are connected via fiber optic cables to the monitor. All the towers are shown on a graphic display, with boxes to represent the correct phase and ratio within +/- 3 degrees and +/- 5 percent. An out-of-tolerance tower shows as a red dot, and an in-tolerance tower shows as a green dot. As the array is tuned, the dots will visually move in an out of tolerance. The length of the sample line can be digitally measured to account

FROM THE JUDGES

"A long overdue update to antenna monitoring."
 "No more need for equal-length monitor lines."

for variations in line length. The controller can be accessed via Wi-fi, so the display can be remotely displayed, whether it's in front of the phasor or at a tower ATU. A GPS receiver provides the frequency reference stability. Digital sample filters can be applied for diplexed antenna systems.
jim@dalke.com



CLEAR CHANNEL SATELLITE

The One-Stop Shop for all of your Satellite Needs



Antennas

Snow Shields

BUCs

Non Pen Roof

Cables

Mounts

LNBS

Audio Encoders

Satellite Receivers

Video Encoders

Modems

Surge Protection



Phone : 800-345-8728

email: sales@clearchannelsatellite.com

website: clearchannelsatellite.com



Symphony Suite

of Networked Audio Products



KDL-16 (Audio over Ethernet for Digital audio workstation ingest)

- 32 Bi-Directional Channels over EtherNet
- Utilizes Layer 3 Dante and Layer 2 AVB (IEEE 802.1) IEEE standard protocols
- Eliminates need for PC sound cards



KEL-16 (Audio over IP Codec)

- 16 Stereo Channels of AAC-LD, AAC-LC bit rate reduced encoded/decoded signals over IP (Layer 3)
- Also accommodates G.711 and G.722 for high quality communications
- Easily interconnects SAS 32KD between locations
- Can directly interconnect to any other multiple CODECs with same algorithm (AAC)



Adding to the SAS Award Winning Audio Network, Consoles and Studio Systems

SIERRA AUTOMATED SYSTEMS

www.sasaudio.com • 818.840.6749

World Radio History



Touch-screen remote control | Burk Technology

ARC Plus Touch: The new flagship of the ARC Plus remote control line, adds a touchscreen interface to simplify access to functions. Macros can be triggered in a single touch. It operates

with Auto Pilot for a convenient studio inter-

face. I/O is handled with a series of interface panels. Plus-X adapters are available to connect to ARC-16, GSE3000 and Sine RFC-1 remote control systems.

burk.com



FROM THE JUDGES

"The touch screen simplifies access to readings and setup."
"Much easier way to navigate the system."



Digital exciter | Broadcast Electronics

STXe: Built on the performance of Broadcast Electronics FM exciters

from the FX30, FX50 and FXi series, the STXe continues the outstanding audio performance with an exciter that can deliver analog FM, HD Radio and DRM outputs. It can be configured for analog only, digital only (HD Radio or DRM) or hybrid (analog and HD Radio or DRM) use. Via an IP connection, the exciter can provide a GUI to monitor various operating parameters. SNMP

connectivity is also provided.
bdcast.com

Digital composite interface | Omnia Audio

Omnia Direct: In pursuit of the fully digital transmission chain that doesn't sacrifice loudness,

Omnia is working with Nautel to introduce this fully digital composite interface. The technology is initially available in the Omnia.11 and Nautel NV series transmitters. To replace an analog composite signal and avoid the A/D conversion used to create discrete left/right inputs to a digital exciter, the Omnia Direct interface uses a single AES3 cable between the Omnia 11 and the Nautel NV transmitter to carry the baseband signal in digital form. This 100 percent digital path eliminates the noise and distortion of A/D converters and reduces potential overshoots, while ensuring full FCC mask compliance.

omniaaudio.com

FROM THE JUDGES

"Good effort on further identifying the weaker points of the processing chain."
"I like having another way to put the processing back at the studio with a digital link."

FROM THE JUDGES

"Analog, HD Radio, DRM and any combo of the three."
"Good evolution of an outstanding exciter family."

High-Power RF - Nobody Does it Better!

**816R Series
Analog and HD Ready
20kW to 44kW**



**419DRM 300kW HF
420DRM 500kW HF**



**816HD Series
Analog/HD
8kW to 28kW**

HD Radio



**418DRM
100kW HF**



Continental Electronics

www.contelec.com (214) 381-7161

MONITOR LIKE A PRO WITH INOVONICS

NEW!



INOmini 633 FM/RDS Monitor

- Receives all standard FM Broadcasts.
- Displays and exports important RDS info for logging & proof of play.
- Alarm tallies for Carrier Loss & Audio Loss.
- Analog L/R and AES digital Line outs.

NEW!



INOmini 634 AM Monitor/Receiver

- Performance AM tuner with variable bandwidth selection.
- Alarms for Carrier Loss and Audio Loss.
- Analog L/R and AES digital Line outs.

NEW!



INOmini 514 Multiplex Decoder

- Demodulates MPX to Balanced L/R Audio.
- Digital AES output.
- Alarms for Audio Loss and Pilot Loss

NEW!



610 - Internet Radio Monitor

- Uninterrupted monitoring of streaming online radio performance.
- Balanced Analog L/R and AES digital outs.
- Decodes and displays live metadata for MP3, Ogg Vorbis and AAC formats.
- Local alarm tallies plus self logging alarms for Audio Loss, Stream Loss & Internet loss.
- Remote web interface + email notifications.

You already know we make great Audio Processors and RDS Encoders, but for us this year's NAB show was all about Monitoring and Broadcast Confidence. With a total of three new **INOmini products** and our industry first **610 Internet Radio Monitor**, essential monitoring of FM, AM and Internet Radio just got a whole lot easier.

Now Shipping! Learn more at:
www.inovonicsbroadcast.com

© 2013 Inovonics Inc. All Rights Reserved.

INOVONIC
BROADCAST

24



Solid-state FM transmitters | BW Broadcast

V2: V2 transmitters include multi-band DSPX audio processing, so stations without a dedicated processor work right out of the box. Those who already have external processing benefit from unique dual-loop virtual VFO exciter and ultra-low distortion. "Gold clamp" transistors can be changed in minutes with only a screwdriver and without needing a soldering iron. Slide-in universal power supplies make replacement easy and heatsink design ensures ultra-long life thanks to ingenious airflow. Carefully chosen fans are rated with more than 10-years life at 120 degrees F. An Ethernet connection is on every V2 with smart phone apps for remote management. Features include alarms and email alerts, a real time clock, comprehensive logging, and a high resolution OLED display for metering processing. Models are available from 5W-1500W.
bwbroadcast.com



FROM THE JUDGES

"Lots of great features in a small package."
 "Built-in audio processing -- quite a plus."



Audio switcher | Infomedia

IBS 200: This audio switcher has four inputs (XLR balanced or AES3), one digital output and one analog output. The fourth input can be an external audio source the on-board audio player. The unit automatically switches to the secondary input if the primary

FROM THE JUDGES

"IP-controlled audio switch -- I'm putting this at my transmitter."
 "I like the built-in sample-rate conversion."

source fails (loss of audio or loss of digital clock or data error, etc.), then third and then fourth. The priority of source and time delay before action can be set by the user. The threshold of silence detection is also user definable. The unit can also be controlled from a PC on an IP network or from the push buttons on the front panel. Switching can also be set on a timed schedule. It has redundant power supplies. In case of power failure an internal direct relay bypass is provided between digital input and output and between analog input and output. Sources are sample-rate converted and up to 24-bit/48kHz inputs can be used. All inputs and outputs can be monitored and metered via IP and the front panel. The unit also has a GPIO and RS-232 port on the rear panel.
infomedia.com.cn

FM radio modulation analyzer | Deva Broadcast

DB4004: DB4004 is a second-generation digital FM radio modulation analyzer with an easy-to-read, high-resolution OLED graphical display and ultra-bright bar graph LED 60-segment indicators that allow reading the main signal parameters at a glance. The processing power of the device enables all measurements to be refreshed simultaneously and synchronously, thereby allowing for detailed readings of all the multiplex FM signal components. It supports USB and LAN communication interfaces, allowing flexibility of the remote connection and control of the unit. The built-in FTP system manages the files by an assigned schedule and all the collected information is centralized in a database and can be revised, played back, and sent automatically to the qualified staff if need be. The band analyzer function of the DB4004 presents an overview of all FM signals available, plus the RF signal strength of these stations.
devabroadcast.com



FROM THE JUDGES

"Tons and tons of measurement capability in 1RU."
 "It can scan multiple stations and report back."

www.studioitems.com **STUDIO ITEMS** **(815) 669-2070**
INCORPORATED

HMB-14-4 **AMB-22-4**

LOW PROFILE MIC BOOMS

AHCP-WB **OAL-101R**

HEADPHONE CONTROL PANELS
ON-AIR LIGHTS

NEW...
MEM...

ARRAKIS SYSTEMS INC.
ARRAKIS SYSTEMS INC.

ARC-10BP-Blue

ARC-15BP-Blue



'fast' hands free Cell phone interface & Stereo streaming



Bluetooth
inside

Arrakis leads the way again !!! The #1 selling ARC-10BP & ARC-15BP advanced Radio consoles have gone 'Blue'... Bluetooth enabled that is! This means that the last channel on the console can be paired to any Bluetooth enabled audio device such as your Cell phone, MP3 player, MP3 recorder-editor, and more. Just pair your cell phone to the console and answer your incoming calls with the 'Call' button and drop them with the 'Drop' button, just like a standard phone hybrid. The Caller receives the console bus mix ('minus' the caller audio) so there is no feedback. OR... you can pair any Bluetooth enabled audio device such as an iPad, Tablet device, or MP3 player and stream full bandwidth, high quality stereo (A2DP) audio to the last channel on the console. If a paired Cell phone call comes in, then the stereo stream is dropped and the call can be answered. Arrakis does all of this while still allowing an external phone hybrid to be connected to the same channel at the same time. Your imagination is the only limit !!!

ARC-10BP-Blue **\$2,795**

ARC-15BP-Blue **\$3,795**

www.arrakis-systems.com

970.461.0730



Multi-connection IP codec | Tieline Technology

Merlin Plus:

A 1RU codec for the studio, the Merlin Plus manages multiple simultaneous connections. Up to six simultaneous can be made (bidirectional, mono). The Merlin Plus will connect to all Tieline IP codecs via public WAN, private LAN, 3G and 4G wireless networks and Wi-Fi and WiMAX Networks. It has dual gigabit (10/100/1000) onboard Ethernet ports, dual redundant power supplies, audio silence detection and IP network backup to ensure reliable connections. Automated network failure detection provides switching to a backup IP LAN connection. SmartStream provides automated jitter buffer management, forward error correction (FEC) and error concealment. The Merlin Plus supports IPv4 and IPv6 protocols. It can communicate with linear PCM, Apt-x Enhanced, LC-AAC, HE-AAC v1 and v2, Opus, MPEG II, MPEG Layer-3, Tieline Music and MusicPLUS, G.722 and G.711 algorithms.



FROM THE JUDGES

"Supports up to six simultaneous connections."
 "Great value for connections vs. price."

tieline.com



Portable recorder | ATS (Nagra)

Mezzo: This handheld recorder brings the Nagra quality to a compact and affordable package. It has 8GB of internal Flash memory, built-in cardioid microphones for X-Y recording, an external microphone connection and line in and out connections. Recording quality is possible up to 24-bit, 96kHz in linear PCM or MP3 formats. An automatic gain control, voice-operated record function and low-cut filter assist in capturing the best recording. On-board editing allows for field editing. A built-in speaker and tripod thread mount round out the device.

nagraaudio.com

FROM THE JUDGES

"Another handheld recorder, yes, but it's a Nagra."
 "Plenty of good features and lots of internal storage."

Skylla = Flawless Audio Playback

Skylla = Linux = Reliability

Skylla = Smarts

Smarts = SmartsBroadcast.com



Broadcasters trust us to get it right.





The Expanded NVLT Series



EXCEPTIONAL VALUE

NOW UP TO 40 kW

**Proven NV Series Architecture
Outstanding Efficiency
Exceptional Value
Intelligent Features**

Meet the expanded NVLT Series for analog FM broadcasting. They're built tough with integrated exciters, parallel power amplifiers, power modules and switching power supplies. Unmatched Nautel control helps save time, trips and money. Add class leading efficiency and the result is unprecedented value.



AUI Control System

PUSHRADIO™



Integrated Digital Exciter



Backup Audio



Nautel
PhoneHome



SHOUTcast

Streaming Input



And **MORE**

RDS generator
Audio spectrum analyzer
Powerful presets

Scheduler
Instrumentation
Play lists

Videos, webinar
and more at
Nautel.com/NVLT



NEW...
MEM...

ARRAKIS SYSTEMS INC.
אראקיס סיסטמס אינץ

DIGILINK~HD

Single station or
Multi-station network



Scalable, high speed, easy to use, Live on Air & Automation systems for Radio



- Build your audience, and increase sales
- Single station to Multi-site Group
- On Air, HD2, or internet-only
- Encourages talent creativity
- Quick Remote Voice tracking
- Use your Music scheduler or ours
- Multi-sound card Console interface
- Live & Automated Games with Rain delay
- Share audio files across the hall or continent
- 16 stereo Input Routing switcher for Play & Record

powerful and yet **AFFORDABLE** by all !

For less than the cost of most Support programs you can have Digilink~HD.

As an example...

*** 4 On Air studio Cluster complete...**

only \$500 per month

* includes:

Digilink~HD software for 4 on air studios, 4 Bridge docking stations (each has dual stereo sound cards and a 16 stereo input routing switcher), DHD~Tools software for 4 auxiliary studios (Traffic, Production, Voice tracking, more), free telephone customer support, free training at the factory studios, free software Updates and Upgrades... just add PCs, network, and optional Server.

www.arrakis-systems.com

870.461.0730

Modular Radio Console...
WOODRIGL K9010 POU2016***

ARRAKIS SYSTEMS INC.
ARRAKIS 7121EW2 IMP*

MARC-15

- 15 channels, 30 inputs
- 3 stereo Output buses
- Control room & Studio monitors
- Cat5 cabling for today's infrastructure
- Analog & digital with USB sound card modules
- Dual conferencing Mix minus buses for telephone hybrids



the next generation of Analog-digital Radio console



speed ... power... and control



very low profile tabletop design & fast access to level adjustments and cabling

conductive plastic faders and LED lighted switches for reliability. Socketed ICs for fast on site repair.

The MARC is a next generation analog console that mixes analog and digital technologies with USB PC sound card modules (on air software included) for Windows & Apple *PCs.

For today's cable infrastructure the MARC uses CAT5 cabling and RJ45 connectors (cables included). Three stereo buses, Studio monitor modules, digital Timer, plus dual conferencing phone hybrid mix minus buses handles the big jobs.

*USB sound card supports USB HID compatible PCs

list price from **\$5,495**

www.arrakis-systems.com

World Radio History

870.48

30

JUN 2016

www.Acoustics First®.com



Let us help keep your channel crystal clear !

Toll Free 1-888-765-2900



DON'T YOU WISH DRAFT PICKS WERE THIS EASY TO CHOOSE?

NEW! Sports Pod is the ideal announcer's mic & headphone controller with Talkback and Remote Mic Control. For multiple announcers, several Sports Pods can be quickly linked with CAT5 cables. You're done in 30 seconds...no more DAs and complicated wiring! Sports Pods let each announcer control his headphone volume, mix and pan settings the way he wants it.

Quick to install and easy to use... Sports Pod does it all!

- Need to cue to the announcer? No problem! Sports Pod's TALKBACK system lets you communicate off-air via an isolated Talkback output.
- Talent forgot to turn on his mic? No problem! Sports Pod's REMOTE MIC CONTROL lets an engineer turn the mic on and off with a remote button.

DIGITAL SOLUTIONS. ANALOG SOLUTIONS. FUNCTIONAL. RELIABLE. AFFORDABLE.



Visit www.henryeng.com for all of Henry's solutions!
NEW Phone: 562.493.3589 • email: info@henryeng.com



AoIP interface card | Sierra Automated Systems

KEL v2: An AoIP interface for the 32KD marries the stability and low latency of the synchronous TDM network with WAN-based asynchronous AoIP. The interface provides 32 channels of AoIP I/O for the 32KD network. The KEL module provides AAC, G.711 and G.722 codecs and AVB connectivity along with high quality sample rate conversion.
sasaudio.com

FROM THE JUDGES

"32 channels of AoIP on a card. Amazing."
"Good transition to allow AoIP."



Internet radio monitor | Inovonics

Model 610: The 610 is the first dedicated hardware solution for uninterrupted monitoring of online radio quality and performance. It provides balanced analog and AES-digital outputs, self-logging alarms that constantly check for audio loss, stream loss and Internet loss, and an easy-to-use tuner that decodes audio and displays live metadata for MP3, Ogg Vorbis and AAC formats. Rear-panel alarm tallies provide local alarms, and online notifications alert personnel with e-mail or instant text messages when any of the three alarms occur. The front panel displays left and right audio metering, local LED alarms and an LCD screen with jog wheel for advanced control and editing of all tuning and monitoring parameters. The 610's Web interface allows complete setup and control of the unit from a PC, tablet or smartphone, and two-way connectivity is ensured with a built-in Dynamic DNS utility.
inovonicsbroadcast.com

FROM THE JUDGES

"A great way to monitor my streams."
"More reliable than the cobbled system I have now."

IP. It's the new ISDN.

Meet Z/IP ONE: The "Z" stands for Zephyr.



It's the question on everyone's lips: "What comes after ISDN?" The answer: Z/IP ONE, the Telos Zephyr for IP connections. Broadcasters fell in love with the original Zephyr for its rock-solid reliability and superb audio; Z/IP ONE brings those same qualities to IP remotes.

Is IP reliable? TV networks say so - they use it for HD video backhaul. And Z/IP ONE is packed with IP-codec "smarts" to ensure reliability, even over the public Internet. Agile Connection Technology adapts to network conditions, delivering audio quality as good or better than ISDN despite packet loss and jitter. Genuine, high-performance MPEG codecs from Fraunhofer for exceptional fidelity — no lame knock-off codecs. No latency build-up, re-negotiation or fiddly adjustments: Z/IP ONE just works.

There's more: Z/IP ONE incorporates SIP, N/ACIP, and IPv6 standards. The worldwide Z/IP Server connection service helps traverse NAT routers and tricky firewalls. And now, you can do great-sounding handheld remotes using LUCI® LIVE smartphone and tablet apps. All of which makes Z/IP ONE perfect for live remote broadcasts, whether concerts, talk show remotes, off-site talent — even full-time STL links or RPU backhauls.

Experience the convenience and flexibility of IP.
Z/IP ONE: the best way to hear from there.™

High-quality remotes are right in your pocket.
Z/IP ONE now connects to LUCI LIVE smartphone
apps for wideband audio on-the-go.





Audio codec | Harris Intraplex IP Link 200:

The new IP Link 200 adds a second bidirectional stereo input for multi-channel capability and an intelligent front panel user interface offering simple steps to change audio settings and establish IP addresses for network transport. This gives engineers and technicians the freedom to use the IP Link 200 for multiple purposes, from remote broadcast contribution to studio-to-studio or studio-to-transmitter links. The codec otherwise offers entirely analogous audio and streaming capabilities to its predecessor, including support for multiple audio formats and its unique multicoding ability. This feature enables simultaneous delivery of audio in many formats for efficiency in streaming bandwidth.

harrisbroadcast.com



FROM THE JUDGES

"Multiple connection paths ensure I'm always connected,"
Running multiple encoders for the best use of the available bandwidth is great."

Audio editor | Audion Laboratories VoxPro5:

VoxPro5's new features, a Multi-Track View (MTV) and on-screen HotKeys, provide an all-in-one broadcast production tool experience. Users now have the ability to record, edit, and add sound effects and music to a recorded bit as well as assigning it to an on-screen HotKey for replay and broadcast. An updated screen layout makes it easy to switch from Classic VoxPro view to one showing MTV and HotKey banks with the click of an icon and provide the user with the option of setting up their preferred layout when using VoxPro. Users can add multiple tracks underneath their master recordings with a drag and drop feature. Each separate multi-track has its own popup edit window for additional editing of that file as needed and includes all the features of the master recording window.

audionlabs.com



FROM THE JUDGES

"The simplicity of VoxPro with more features, like support tracks."
"The classic view is still available; good for my jocks who don't like change."

TWO CUTTING EDGE MONITORS TO HANDLE YOUR FM MONITORING NEEDS IN THE 21ST CENTURY FROM THE COMPANY YOU HAVE KNOWN AND TRUSTED FOR OVER 45 YEARS

THE AWARD WINNING, ACCLAIMED

FMHD-1

NOW WILL SIMULTANEOUSLY DECODE & DISPLAY
4 HD AUDIO STREAMS!



- Direct Sampling of the FM RF Carrier
- Digital FM Carrier Demodulation
- Frequency Agile on both Antenna & High Level RF Inputs
- RF Spectrum Analysis with FFT Power Band Calculations
- Adjustable RF Mask for High Power/Asymmetrical HD Sidebands
- Metering of Analog Total, Pilot, L, R, L+R, & L-R
- Metering of HD L/R/L+R/L-R Audio Streams
- Time Alignment Cross Correlations Analysis ± 16384 Samples, ± 375 ms
- HD Control and Status Information
- HD SIS and PAD Data
- BER (bit error rate) Measurements
- User Assignable Email, Relay & Display Alarms
- RJ-45 Ethernet Interface with Remote PC Software

THE ALL NEW FM SOLUTION

FMCS-1

All-in-One FM Modulation Monitor

Now includes Peak Weighting (with software update)



- Direct Sampling of FM RF Carrier
- Frequency Agile on both Antenna & High Level RF Inputs
- AM & Sync AM Noise Measurements
- Variable BW Digital IF Filtering
- Digital FM Demodulation with 100dB 75 μ s SNR
- Variable BW Composite Filtering
- Digital Stereo Demodulation with 100dB L/R Separations
- Full Metering of Analog Peak and RMS Values
- RDS Injection and Full Data Decoding
- Two Digital SCA Decoders
- RF, Composite and Audio FFT Spectrum Analysis
- User Assignable Email, Relay & Display Alarms
- RJ-45 Ethernet Interface with Remote PC Software



VISIT BELAR.COM FOR THE LATEST PRODUCT INFORMATION & SOFTWARE UPDATES!

"When accuracy counts, count on Belar" • 610-687-5550 • sales@belar.com • www.belar.com

WATCH THE VIDEOCASTS



Scan
this!

YouTube.com/RadioMagOnline

2013 PICK HITS JUDGES

Tom Atkins
VP of Engineering
Backyard Broadcasting
Buffalo, NY

Don Danko
VP of Engineering
Cincinnati Public Radio
Cincinnati

William Harrison
Assistant Chief Engineer
WETA-FM
Arlington, VA

Marshall Rice
Engineering Director
Hubbard Radio
St. Louis

Martin Stabbert, CPBE
Regional Engineer
Cumulus
Reno, NV

Barry Thomas,
CPBE DRB CBNT
President
Thomas Media
Systems & Design
Atlanta

Brian Williston
Chief Engineer
Cox Media Group
Orlando, FL

broadcast gear from people you trust



BROADCAST SUPPLY WORLDWIDE

Lowest Prices and
Largest Inventory on
EVERYTHING For Broadcast



Solid BRIC

This high-performance, low-cost Audio Over IP codec delivers high quality, full duplex audio transmission over IP links.

- Balanced/unbalanced analog and digital I/O
- Wide range of algorithms
- Can function as a streaming server

BRIC-LINK List \$1,500.00 **COMREX**

Contact BSW For Lowest Prices



Top Choice for Voice

The Vorsis-M1 digital mic processor offers handy presets, a 24-bit sample rate converter, networkability, easy-to-set-up parameters and a whole lot more.

- Ultra-low noise mic preamp
- Intuitive PC graphical user interface
- 4 bands of parametric EQ
- Adjustable compressor, de-esser, expander
- TCP/IP Ethernet remote control

VORSIS-M1 List \$899.00 **\$699!**

Wheatstone



More Merlin Magic

The Tieline Merlin Plus IP audio codec offers a compact and scalable solution for managing multiple simultaneous remotes.

- Manages up to six simultaneous remotes
- DSP based architecture
- 24 Bit/48kHz audio sampling
- Uncompressed audio plus many algorithms

MERLIN-PLUS List \$5,495.00

Only \$4,799!

Tieline
The Codec Company

BSWUSA.COM
800-426-8434

Aw, everybody orders that boring beer. Let's get a couple of codecs instead!

June is Codec Month at BSW!



2013 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 2013 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 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 2013 issue.

Main Control



CKUA Makes an Epic Move

By Kris Rodts | Photos by Jm Dobie Photography

We didn't set out to break any records when we moved from our 108-year-old building on Jasper Ave. in Edmonton to our new address at the restored, historical Alberta Hotel in October 2012. But after 57 years in the old building, we were bound to break something.

As it is, CKUA Radio Networks holds the record as the first educational broadcaster in Canada, dating back to 1927. We are a non-profit organization and rely on our listeners and volunteers for funding and support. The move set us up with a few firsts, including moving more than 60,000 CDs, 72,000 LPs, 11,000 78s and several hundred Edison discs that go back to 1912 — the largest vintage music library we know of in broadcasting. We estimate the entire collection consists of 1.6 million tracks, which would take about 11 years to play back to back in its entirety. We hired professionals to help us move it, and yes, we did break a few in the process. (Hint: never stack records for moving. One speed bump and the whole stack of records could crack.)

Our irreplaceable music collection was one reason why we decided to make the move — that and the Jasper building had seen better days. Through the years, we wired, rewired and patched things together as best we could, building a patchwork of studios stacked on many floors to feed 17 provincial transmitters, streaming as the public broadcaster for the Alberta province.

The old Jasper building had seen more than its share of disasters. Some years ago, a fire broke out that jeopardized the music library, the majority of which has since been digitized and now sits on 67TB of digital storage.

Part of the reason for the move was to give our music library the kind of temperature- and moisture-controlled environment it deserved. We wanted to preserve that history, and we also needed a state-of-the-art facility, not only providing good radio programming, but the ability to showcase live performances, inviting listeners to participate.

We found the perfect building that struck that balance between old and new. The Alberta Hotel is a restoration of its iconic namesake in Edmonton.

NAB Award Winner!



bw broadcast
Smart Gear. Priced Right.

V2 FM Transmitter Range.

NEW



3 great reasons to buy V2

1

SOUND BETTER. Integrated multi-band DSPX audio processing means stations without a dedicated processor sound great right out of the box. One of the industry's cleanest exciters and ultra-low distortion modulator complete a highly stable FM transmission system.

2

CONTROL EFFORTLESSLY. "Gold clamp" transistors can be changed in minutes with only a screwdriver and without needing a soldering iron. Slide-in universal power supplies make replacement a breeze and a truly innovative heatsink design ensures ultra-long life thanks to ingenious airflow.

3

TAKE CONTROL. Ethernet connection on every V2 with smart phone apps for simple remote management. Intelligent alarms and email alerts ensure busy engineers can manage their stations with minimal intervention and logging is available for those who like to see more detailed status.

www.bwb.fm/v2



www.scmsinc.com
1-800-438-6040

FACILITY SHOWCASE

The five-story building was taken apart and the original stonework was put in storage until a local architect restored the building. Our CEO Ken Regan thought it would make a great location.

We purchased the building with 50,000 square feet of open canvas, working closely with architects and consultants. We had to make some changes; for example, on the second floor we had to lower the concrete slab to accommodate the air studios.

All the while we were up against the clock. The tired, old Jasper building was crumbling around us; we had one of the oldest boilers in the province, and it wasn't a healthy building to work in, both physically and creatively.

ALL ABOUT WORKFLOW

We weren't about to compromise on the layout of our new facility, though. We didn't want to leave one layout nightmare scenario for another. In the old building, for example, our main recording Studio A was on the sixth floor, but production facilities were on the fifth. Not only did we lack visibility, but wiring throughout the facility had accumulated



Studio A

over the 50 years in the building. We just couldn't make it work without a major rebuild. No amount of modern technology could make up for a patchwork workflow. The new broadcast environment has changed and required a total rethink of how things are done.

For the new facility we took the time to lay out a working workflow.

We also needed the right technology to make this facility as plug and play as possible. The direction in the industry — the new reality — was AoIP.

We invited two major AoIP providers to our facility for product demonstrations, and based on many factors we chose Wheatstone. We already had one of their first-ever AoIP blades as part of our iMediaTouch automation integration and a mix of Vorsis audio processors at various transmitter sites.

For this move, we would become the first station to receive the new LX-24 large-format WheatNet-IP AoIP control surfaces.

As we began facility design, Wheatstone's new LX-24 was still in development. We took one look at the surface and knew we had to have one — actually, we acquired four. A large format surface with modular fader strips, it has

Your Dream Station Brought to Life.



We provide the highest quality in studio design and integration.

We'll implement today's technology with a solid foundation in analog and digital platforms.

Join Us!

Have Fun!



(815) 222 3556
www.secondopinioncomm.com

GRAHAM STUDIOS

Broadcast Furniture

(866) 481-6696
www.graham-studios.com



(304) 416-3269
www.Xenirad.com



Control 2 — backup/production and video editing suite. Looking into Main Control and Studio A

a large meter bridge with eyebrow metering making for great visibility. Our announcers — some of whom have been with the station since practically day one — preferred a traditional meter bridge over having another monitor in the mix. However, it is available for those who prefer more information at hand.

This feature was not available on other consoles we initially considered, but Wheatstone obliged us. The new LX-24 was an exact fit for our combination vintage and modern facility. My millwork contractor also loved the fact that he didn't have to cut holes in the millwork. The LX-24 is a very low-profile control surface, so it sits on the table, and your hands aren't perched way up high to operate it.

Best of all, the LX-24 is a WheatNet-IP control surface. All controls are available on the surface, with access to almost unlimited source and destination points all connected through the WheatNet-IP Intelligent Network. We also integrated the Telos NX6 call director as part of the surfaces, making for a clean installation with one less piece of equipment cluttering the desk. We would finally be able to set up the kind of workflow and GPIO control we needed. Our system list included four LX-24s, six Audioarts IP-12 surfaces, two SideBoard surfaces and 20 some WheatNet-IP Blades (IP access nodes) tying the network together using Cisco switches. A combination of M1s and M2s were used for processing our Neumann BCM104 condenser microphones, allowing changing of settings on the fly using the GUI interface.

SALE! Now only \$3995

Radius Talk

- Comfortably seats 5 people
- Includes plenty of rack space as well as a utility cabinet
- Universal headphone bracket assembly included



GRAHAM STUDIOS

Broadcast Furniture (866) 481-6696
www.graham-studios.com

EASE the COMMUNICATION

- with your audience
- between your call screener and your host

NeoScreener



Phone Call and Talk Show management software for Radio & Television



www.neogroupe.com

CONTROL — REDEFINED



WVRC-8 Plus

The new WVRC-8 Plus redefines what a cost-effective, one rack-unit remote control can do; with web-enabled control and monitoring via PC or smartphone web browser and dial-up control and monitoring with recordable voice messages.

BROADCAST
tools
PROBLEM SOLVED



Assembled in the USA,
by American Workers

www.broadcasttools.com

Six Remotes in Every Box



Merlin PLUS

- * SmartStream PLUS dual IP streaming
- * Dual Power Supplies
- * Dual Ethernet ports
- * IPv4/v6 Ready

Tieline 
The Codec Company

www.tieline.com

Get all of these fine products from...

Broadcasters General Store



www.bgs.cc

2480 SE 52nd Street • Ocala, FL 34480 • 352-622-7700

THE TOUR

When it all came together, we were amazed at the workflow built into the physical, as well as the IP layered, infrastructure. Unlike the multi-floor studio layout of the old building, the main recording studio (studio A) became the center surrounded by four primary control rooms with clear sightlines to one another (main control, backup control/video editing, and two primary production suites with sharable voice booth). A news booth finishes the core. The beauty is in the flexibility an IP system gives us. Any of these rooms can be used for any purpose without re-wiring or re-configuration.

We now not only have visibility from our four primary control rooms

into Studio A, but we also have full network access and control of elements in each. From our LX-24 IP control surfaces in any room, for example, we can pull up sounders and source feeds from all over the complex, or record an interview or instrument ensemble happening in Studio A or our auditorium. Any control room can go to air, as well. That is the true beauty of an IP-based system. There are very few limitations at this point.

That kind of networkable workflow extends throughout the facility. On the main floor, just off the lobby, is an auditorium seating approximately 120 people. It's equipped with a performance stage, acoustical clouds and vaulted ceilings. Lighting trusses have been installed integral to the

vaulted ceilings to accommodate lighting for video recordings. The auditorium has huge doors opening to a park next door, so when we do concerts or special events, we open the doors for overflow into the park. We encourage people to visit and be part of the experience.

The Wheatstone AoIP network allows us to

The all new *Audio Compass Direct Connect™* Beta is now available with increased stability, more features, and a FREE upgrade for ALL registered users!

New feature highlights include in part:

- All new Opus Codec
- Broadcast in either Mono or Stereo
- Updated GUI Interface (No Command Lines)
- Separate Send/Receive Audio Codecs
- Single EXE Application with no dependencies

Allow Audio Compass™ to transfer low-delay, crystal-clear audio over the Internet (Audio Over IP) from one location to another.

Purchase *Audio Compass Direct Connect™* TODAY through your favorite Broadcast Equipment Supplier.

Download a fully functional 30-day trial



Visit www.audiocompass.com for details.
1-800-62AUDIO

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.
- Built in web server for remote monitoring & control
- Error status alerts via email (user configurable)
- Browser friendly interface works on most popular browsers
- 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

Tel. (914) 737-5032 sales@broadcast-devices.com



DYNAMAX MX SERIES



MODEL 340

MX12LW



- 6 to 18 channel configurations
- 24 or 36 inch wide frames
- 2" or 3" wide module options
- 4 Output Buss (two Stereo and two Mono)
- Metering for all 4 Outputs
- 2 - 4X1 auxiliary inputs standard
- Mic preamp on first two channels



MX12E



MODEL 343

215-547-2570

www.sandiesusa.com



TOC showing Isilon Clusters, home of the digitized music library

EQUIPMENT LIST

- Adderlink KVM
- Adobe Audition
- Behringer X32
- Denon DN-C620
- Furman PL-8 C
- Henry Engineering Multiport
- Middle Atlantic PD-815R-PL
- Neumann BCM104, KH 120
- OMT iMediaTouch
- Stanton STR8.150
- Torpey CLK-26
- Wheatstone LX-24, IP-12, SideBoard,
- WheatNet Blades, GP16, M1, M2
- Yellowtec Mika



View of the News Booth showing Wheatstone's sidebar. Looking into Control 3 (main production) and Main Control 1.

broadcast live performances to air, or record them for later broadcast, really from anywhere in the facility. For larger performances, we use a Behringer X32 console. It also has IP based properties. Instead of the traditional bulky multi-wire snake, it uses a CAT 6 cable from console to stage. For broadcasts, a smaller IP-12 console is used. A Blade handles all interfaces between the two, including GPIO tally control.

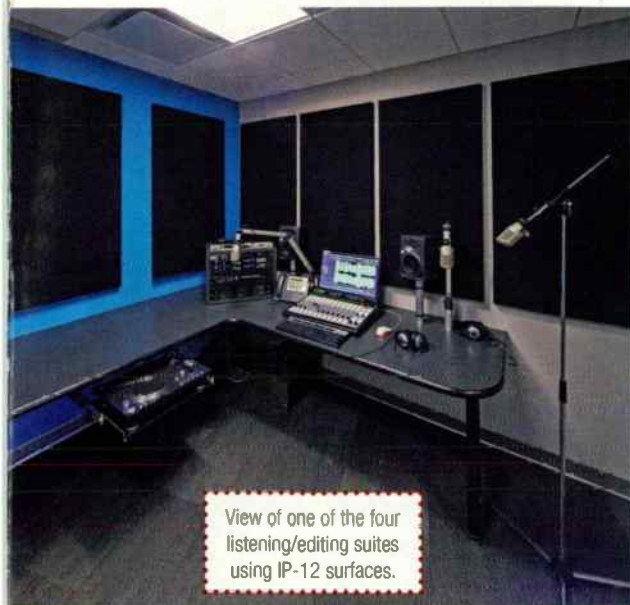
Bulkheads are installed at key locations throughout the facility, making operations plug and play. These bulkheads are CAT-6 patch panels able to not only accommodate the AoIP network but Internet and VoIP connections. These are also color coded to avoid confusion. Red is for AoIP, white for telephone, blue for Internet, and green for anything else that might be required. All these can be patched in the TOC (technical operations center).

For special events we essentially built a control room on wheels. It has all the gear required for broadcast from anywhere in the building, including our fifth floor patio terrace overlooking the North Saskatchewan River. All that is required is one CAT-6 cable plugged into the bulkhead patch-bay and we're on the air. Phone, laptop, automation control can also be patched in the same way. If we happen to be doing a remote broadcast for example, the audio codec or phone hybrid can be dialed up on the surface.

We worked closely with Kelly Parker, Wheatstone's systems engineer, to set up standardized talkbacks between all studios, so any studio or control room has talkback capability. If we record out of Control Room 3, for example, we can talk to the performance center, or if we record to air, we can also talk to the

performance center or Studio A — GPIO control just follows. It's all universal. In the old Jasper building, something like this would have been a nightmare to put together, and would have required an engineer on staff to pull off. Now if there's a Saturday performance, I no longer have to ask one of my staff to be available on his day off.

The beauty of WheatNet-IP AoIP is that announcers can dial up the equipment they need from the surface. If an announcer in a production room wants to dial up a specific microphone or other room, it's just a matter of calling it up on the LX-24 console. WheatNet-IP is not just a routing system. That control layer in WheatNet-IP gives us control of all the elements. We can route and control



View of one of the four listening/editing suites using IP-12 surfaces.

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

DB DEVA[®]
BROADCAST



Available in the US from SCMS, Inc. Call: 800-438-6040

www.scmsinc.com



FACILITY SHOWCASE

through the system any of the audio codecs we use for remotes, for example. We can route and turn on/off any of the BBC satellite feeds that we need, anywhere. We have total flexibility. The WheatNet-IP



Overall view of the TOC

has custom scripting capability, and eventually I want to use that to mirror the two primary control rooms for backup purposes. The two have GPI6 panels, and we can write scripting so that if one control room fails, the other will take over automatically.

Another important design consideration was the location of essential computers. Because of the networking, all computers critical to on-air operations are connected via Adderlink KVMs to TOC. This allows for monitors, mice, and keyboards to be extended to the appropriate control rooms. This lets us control the noise (computer fans), control the dust and more easily manage the computers should they develop problems or require patch around.

We also decided to go with Wheatstone AoIP audio drivers on all broadcast-related computers, including our automation play-out systems. There's not a soundcard in the entire facility. The sound quality is astounding even to this day; there's no A/D/A conversion, and therefore

DAB HD Radio

MORE DIGITAL. MORE RADIO. AudioScience's ASI8921/8821-5500 series tuner cards offer the most digital radio capabilities: 4 or 8 tuners for analog FM, HD-Radio FM or DAB/DAB+. Record streams in PCM, MPEG-1 layer2 and MP3, while capturing all associated PAD data.

MRX multi-rate recording allows each stream to be sampled at it's own rate. The two independent tuner modules can be custom-configured, to add TV audio or AM audio capture. Need more digital radio? Add up to 8 cards in one system.

For information, call AudioScience at +1-302-324-5333 or email us at salesasi@audioscience.com.

FEATURES

- MRX multirate recording
- Up to 8 channels of HD-Radio or DAB/DAB+
- PCM, MPEG Layer 2 and MP3
- Windows 8, 7, XP, Server 2008/2003, Linux, and OS X software drivers
- PCIe interface (ASI8821) or PCI interface (ASI8921)

www.audioscience.com

DaySequerra

M4.2S Confidence Monitor

- AM-FM HD Radio®
- Remote Webserver – 50 Presets
- Email Alerts plus Rear Panel Alarm Tallies
- Monitor Time-Alignment with Built-in Split-Mode

\$990 Complete



Now Shipping!

Upgrade your vintage M4 - sales@daysequerra.com


no buzzes and other noises resulting from soundcards. Essentially we are fully digital to the input of the station's processor.

Across the hallway is a bright open work area for announcers, traffic, copy, Web and content directors (here we don't call them program directors — it's all about the content). Each announcer has his own work space to listen to CDs and prep his show. In addition, four multi-use editing suites are available, equipped with IP-12 consoles, Adobe Audition, CD players, turntables and phone hybrids — everything needed for phone interviews, voice tracking or just listen to CDs. Even these smaller studios could go to air if needed or provide a secondary Internet program feed.

The lower floor houses our vast music library, all temperature- and humidity-controlled and indexed for safekeeping. Currently all CDs have been digitized on 67TB (and growing) of Isilon clustered storage. The database is browser-based, owned by and custom-designed for CKUA. Announcers can easily access the browser (from anywhere) for songs, sounders and taglines they need for their show. They access what they want, preview, and send the results to the automation system. This kind of access is important as we don't use music scheduling software at CKUA. Announcers select what they want to play that day. This database is crucial to our operations, as we employ many contractors who provide shows to us, making this resource a critical requirement. It also allows for announcers to perform show prep from anywhere, pre-loading their selections or remote voice-tracks.

We occupy four floors in our new building, including the third that holds senior management, administration and support offices for engineering, marketing, and sales, and several board rooms. The fourth and fifth floors of the Alberta Hotel will be leased — with the exception of the fifth floor terrace, which can be used for broadcast or live performances as well. We've even had requests for wedding ceremonies. The views are just spectacular. Part of the main floor is also leased out and restored as the original tavern of the hotel.

Unlike the old Jasper studios, we have a central TOC that is open for viewing through glass. It really makes you realize and appreciate what is required to operate a modern broadcast facility. It's the heart of all systems (not only broadcast) fully integrated and working as one. We use Cisco switches throughout the facility with adequate balance and redundancy. In the four primary control rooms we use smaller Cisco switches, allowing each to operate as its own island in case of complete network failure.

Remember your entire operation in essence now runs on a CAT-6 cable, which requires careful consideration, planning and layout. The best advice: First, have all network cables run, installed and terminated with each run certified by professionals. Second, invest in the best true on-line UPS you can afford. This will allow for clean power and prevent your system from re-booting during power bumps, which takes time and costs money in lost revenues. 

Rodts is director of engineering, IT and facilities at CKUA Radio Network, Edmonton, AB.

FACILITY FOCUS

Henry Engineering MultiPort



"Last minute" connections to temporary outboard gear usually require access to hard-to-reach studio I/O ports and wires strung from the back of a rack. Henry Engineering's MultiPort Multi-Format Audio Interface Panel allows any audio device to be connected "on the fly" to a studio or professional audio system.

MultiPort provides convenient access to a studio's digital and analog inputs and outputs. MultiPort has both analog and digital I/O, and supports both professional and consumer audio standards. MultiPort's active circuitry handles the level, impedance, and topology conversion so that proper interface is maintained, both for analog and AES/EBU and S/PDIF digital signals. Balanced and unbalanced gear can be connected via XLR, 1/4" TRS, 3.5mm TRS, and phono connectors. All line level interface is stereo; monaural mic level outputs are provided to accommodate TV crew videocams.

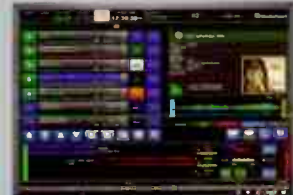
MultiPort can be mounted in studio cabinetry, or rack mounted using included rack-mount adaptors.

www.henryeng.com | 562-493-3589

THE TECHNOLOGY BEHIND CKUA

iMediaTouch Broadcast Automation

OMT Technologies iMediaTouch is a comprehensive suite of software technology that has been a trusted and reliable platform for radio broadcast automation for over 30 years. Product innovations like iMediaLogger, radio's #1 selling digital audio logger, and iMediaArchive underscore our commitment to providing innovative industry solutions.



iMediaArchive provides a unique management and archiving solution for organizations with large media libraries. Conventional media including CDs, vinyl and tape can be ingested into a permanent digital archive and retrieved through advanced metadata search functionality. iMediaArchive also enables integration to broadcast automation systems through a content gateway enabling access to extensive content libraries and rich metadata.

OMT is a world leader in providing large scale audio asset management and broadcast delivery systems. Our innovative products and technology touch millions of listeners world-wide every day through radio, satellite, cable and Internet broadcasts.

OMT is pleased to have worked with CKUA on this exciting project and congratulates them on the successful implementation.

www.imediatouch.com | 888-665-0501





by Doug Irwin
CPBE DRB AMD

Better Coaxial Cable Runs

In last month's Tech Tips I finished by mentioning that antenna installations should use a flexible jumper (pigtail) to transition between a stiffer coax and the antenna connector itself. The reason I gave was that the transition, done with coax only, usually forms some sort of a loop that has a lot of leverage on the connector itself, making it susceptible to damage from the wind over a period of time.

That's not the only problem with outdoor coax installations though, when it comes to dealing with the elements. Let's look at a couple of others.

The coax itself always seems rather robust when one rolls it off a spool and runs it up a tower or wooden pole. However, in reality, apply the right amount of wind and rain, and failure of the coax is practically a given.

Figure 1 shows a 7/8" Heliac that comes out of the transmitter building, has a horizontal run, and then makes a 90-degree bend to run up a wooden pole.



Figure 1

In this case the actual bend is run through a piece of PVC piping, which is a good idea in this case especially, because it makes for a convenient way to secure the cable to a steel messenger cable. The PVC also helped in forming a reasonable bend in the Heliac. It should be noted, however, that PVC will not last long exposed to sunlight. I will become brittle and break. ABS and other materials are better suited for outdoor use.

The messenger cable is a device used to provide support and strain relief to cables that run across from the transmitter building to the pole. I also want to note that this wooden pole has been treated with creosote, which will make it stand up to the elements for much longer than those without creosote. (The railroads learned that lesson 150 years ago.)

Figure 2 shows a run of several coaxes across from the building to a different wooden pole.



Figure 2

Aside from the fact that this pole is not treated with creosote, it's also obvious that the cables are just hanging there, ready to be damaged in the wind. (The wind turbine in the background is a clue as to how windy this site can be.)

Fortunately, riggers we hired (ComPlus of Frazier Park, CA) were able to fix the original installation after the fact by adding a messenger cable. Figure 3 shows the results.

Finally, one point I want to make about running coaxes in to a building. It seems pretty



Figure 3

obvious that you don't want water coming in on a cable run. Figure 4 shows that this wasn't considered very well.



Figure 4

This cable runs in to the building pretty much horizontally. Any water running down the cable will run right into the building. The preferred way is to provide a drip loop (still supported by the messenger cable of course) that would make the water try to run uphill to get in to the space. That's a much more logical way of keeping water out.

The finer details of coax installation are important to consider when it comes to long-term use and reliability. **0**

Irwin is RF engineer/project manager for Clear Channel Los Angeles. Contact him at doug@dougirwin.net.

WE NEED YOUR TIPS

Tech tips may be suitable to earn SBE recertification credits. Send your tips to radio@RadioMagOnline.com.



NAGRA MEZZO

- High quality compact hand-held digital recorder
- Ideal for sound effects gathering, music recording and independent journalism
- Built-in microphones
- 24 bit 96 kHz file format
- 8GB internal storage media
- 40 hours running time (2 x "AA" cells)
- Voice operated recording
- Automatic gain control
- PCM and MP3 recording formats

For more information:
800-813-1663
www.nagraaudio.com

••• AUDIO
TECHNOLOGY
SWITZERLAND



Kintronic Laboratories, Inc.

KINTRONIC OFFERS A COMPLETE LINE OF ROBUST INDOOR AND OUTDOOR AM DUMMY LOADS RATED FOR THE TRANSMITTER MAXIMUM CARRIER POWER + 125% CONTINUOUS POSITIVE PEAK MODULATION

DUMMY LOADS RATED FOR 1-20 KW + 125% MOD ARE CONVECTION COOLED AND REQUIRE NO AC POWER

DESIGNS FOR OTHER THAN 50 OHM INPUT IMPEDANCE ARE AVAILABLE

**CHECK OUT OUR NEW WEBSITE AT
WWW.KINTRONIC.COM!**

KINTRONIC LABS, INC.

P.O. Box 845, Bristol, TN 37621
(P) 1-423-878-3141 (F) 1-423-878-4224
www.kintronic.com



MODEL DL-25/50-318E1A
INDOOR DUMMY LOAD



MODEL DL-1/2
INDOOR DUMMY LOAD



MODEL DL-5/10/20
INDOOR DUMMY LOAD



MODEL DL-25/50WP-318E1A
OUTDOOR DUMMY LOAD

ONTIME

All the time.



Trust the name broadcasters have counted on for precision master clocks and timing-related products for over 40 years—ESE. Our products accurately synchronize broadcast operations using a choice of GPS, NTP, Modem, Crystal or line frequency for affordable, reliable, perfect time—all the time.

Visit www.ease-web.com to witness world-class timing systems designed for easy installation, set-up and operation.



142 Sierra Street
El Segundo, CA 90245
(310) 322-2136

www.ease-web.com

Headphones

by Chriss Scherer, editor

The most personal pieces of equipment in a studio are the announcer's or producer's headphones. I have always believed an announcer should have his own pair. It's like a musician choosing an instrument or an artist choosing a brush. They are worn for long periods, so comfort is important, but over the long-term it's the consistent sound they deliver.

Besides consistent monitoring, if an announcer owns his own pair of headphones, he's more likely to take care of them. There are better things for the engineering shop to do than repair headphones all day.

There are lots of different headphone choices available, thanks in part to club DJs and other audio users, but even consumers are choosing better headphones for personal use. For this Side by Side, we looked at closed-back designs. The closed design reduces the potential for feedback and also eliminates much of the room noise. We chose a street price of \$100 or less with the idea that this was a compromise price point between very good quality and affordability. Some of the models below can be purchased for much less. **0**

Audio-Technica ATH-M40fs

These professional headphones offer a flat, extended frequency response and can deliver a high SPL. Features include a sturdy strain-relief cable, comfortable circumaural earpieces that can be rotated 180 degrees for one-ear monitoring, 40mm drives with neodymium magnets and copper-clad aluminum wire voice coils, an 11' straight cable with a 1/4" connector. Elements, cables and earpads can be replaced in the field. 5Hz - 28kHz; 60Ω.

audio-technica.com



Hosa Technology HDC-800

Featuring an extra-wide headband, this design provides lateral pressure to maximize the ear cushion placement for best isolation. The headphones are collapsible to fold flat for convenient storage. The cable is terminated in a 3.5mm plug and includes a 1/4" adapter. The efficient drivers provide a linear frequency response. 20Hz - 20kHz; 32Ω.

hosatech.com



Koss Pro4AA

Probably the most popular headphones in the 1970s and 1980s, the Koss Pro4AA delivers full-frequency, high-fidelity performance with outstanding noise isolation. This design, retired in the late 1980s, has returned. The headband is made of steel and padded with rubber. The adjustable slide bars ensure a snug fit. The 8' coiled cord has a 1/4" stereo plug. 10Hz - 25kHz; 250Ω.

koss.com



Sennheiser HD280 PRO

These circumaural headphones are designed for professional monitoring. They are collapsible for storage and include swiveling ear cups. They attenuate 32dB of external noise, and the 10' coiled cable terminates in a 3.5mm connector. A locking 1/4" adaptor is included. 8Hz - 25kHz; 64Ω.

sennheiser.com



Shure SRH440

The enhanced frequency response delivers accurate audio across an extended range, and the closed-back, circumaural design reduces background noise. An adjustable headband and collapsible construction provide comfort and portability. A bayonet clip securely locks the cable into the replaceable ear cup. The 10' coiled detachable cable terminates in a 3.5mm connector. A 1/4" adapter and carrying bag are included. 10Hz - 22kHz; 44Ω.

shure.com



Sony MDR-7506

These headphones fold for storage and transport. The coiled cable terminates in a 3.5mm connector and includes a 1/4" adapter. The 40mm diameter drive units deliver deep bass, low distortion and wide dynamic range and are mounted with Neodymium magnets. A carrying bag is also included. 10Hz - 20kHz; 63Ω.

pro.sony.com

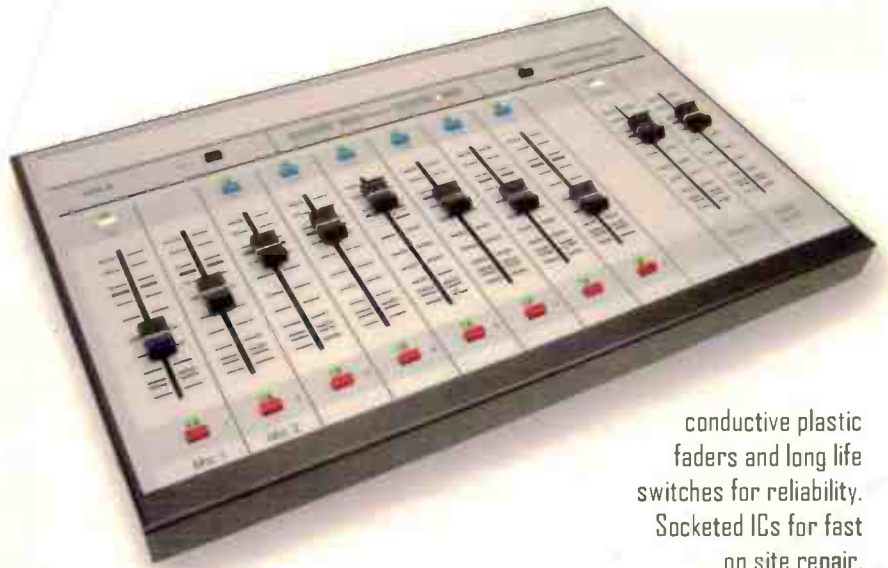


Compact Radio Console...

ARRAKIS SYSTEMS INC.
ARRAKIS SYSTEMS INC.

ARC-8

- Balanced & unbalanced in & out
- Cat5 cabling for today's infrastructure
- Analog & digital with USB sound card built in
- Ideal for professional Radio broadcast applications



conductive plastic faders and long life switches for reliability. Socketed ICs for fast on site repair,

the next generation of Analog-digital Radio console



speed ... power ... and control



fully connectorized for ease of installation:

- RCAs for unbalanced IO,
- Cat5s for balanced inputs,
- XLRs for mics & Program output

- Eight channels
- Stereo Program output
- 2 mic, 4 stereo line, PC, & Phone in
- USB interface for play and record from a PC
- Mix minus in-out for an external Telephone hybrid
- BOTH balanced and unbalanced inputs and output for flexibility

The BEST of both analog and digital, the ARC-8 features a built in USB sound card to play and record in digital directly from both Windows & Apple *PCs. With BOTH balanced and unbalanced inputs and outputs, the ARC-8 works out of the box in any Radio application.

list price **\$795**

*USB sound card supports USB HID compatible PCs

www.arrakis-systems.com

970.461.0730

Røde iXY

by Ben Weiss, CPBE

Nearly everyone carries a smart phone. That's no secret. And with so many apps available, we barely use them as phones any more. So as we condense our various appliance needs to be run on a smart phone, why not unload the handheld recorder, too? The Røde iXY is an XY mic that plugs into an iPhone 4 to make the iPhone a practical handheld recorder.

The stereo mic has two cardioid elements arranged in a coincident XY pair. It plugs directly into the socket on an iPhone 4. Yes, I know the current phone is version 5, but with the 5, Apple changed the connector. The iXY has the larger connector that fits the iPhone 4 and earlier. There are adapters available to connect 4 accessories to a 5, and that's what I did. The iPad still uses the larger connector.

The mic feels like a quality piece of equipment. It's sturdy. Out of the box I felt like this was a serious tool. When I plugged it into my iPhone, the phone immediately recognized that a stereo mic was attached and switched to stereo from mono and turned off the internal mic.

I also installed the Røde recorder app called Røde Rec. My first use of this recorder setup was at church to record a band with piano/keyboard, bass, guitar and drums. I then recorded some interviews.

Overall, the mic sounds very good. When used close for an interview, I had to use the included foam windscreen or the breath would cause obvious pops. The windscreen eliminated that. The band sounded very good; at least as good as my usual handheld recorder with its built-in XY mics.

The Røde Rec app can record and edit on the iPhone. This is handy for those limited to working in the field. Like any program, once you learn your way around it you'll be editing and tweaking fast and on the fly.

Using the iXY and Røde Rec app on my phone was very much like using a dedicated

handheld recorder. For a reporter on the go, it would be easy to learn and use, and the quality would be about the same as the handheld recorders. A benefit would be that most reporters will not lose their phones. We can't always say that about a handheld recorder.

In addition to the windscreen, the mic includes a padded and sturdy carrying case.

I noted that the mic has a connector for an iPhone 4 earlier and that I used an adapter to connect it to my iPhone 5. While this works, it puts some weight on the phone connector. Directly attached to a 4 it would be a sturdy connection. I'm skeptical about the long-term use of the adapter on the 5. Røde says it will

release a version with a connector for the 5.

With the adapter on my iPhone 5 I also have to remove the phone's case to make a solid connection. I can connect the mic to my iPhone 4 without removing the case. And since Apple decided to move the headphone jack on the 5 to the bottom, I can't connect a pair of headphones with the adapter connected.

Overall, I'm impressed with the iXY and its performance. It captures recordings equal in quality to dedicated handheld recorders. If the goal is to reduce what you have to carry, the iXY eliminates one more device from your kit. **0**

Weiss is a contract engineer in Kansas City.

20Hz - 20kHz frequency response

Cardioid mics in XY pattern

Weighs 40 grams

Handles up to 120dB SPL

Includes carrying case and windscreen



Find the frequency response and polar pattern for the iXY at RadioMagOnline.com

RØDE
 805-566-7777
 rodemic.com
 usasupport@rodemic.com

Coaxial Dynamics

A CDI INDUSTRIES, INC. COMPANY
Specialists in RF Test
Equipment & Components



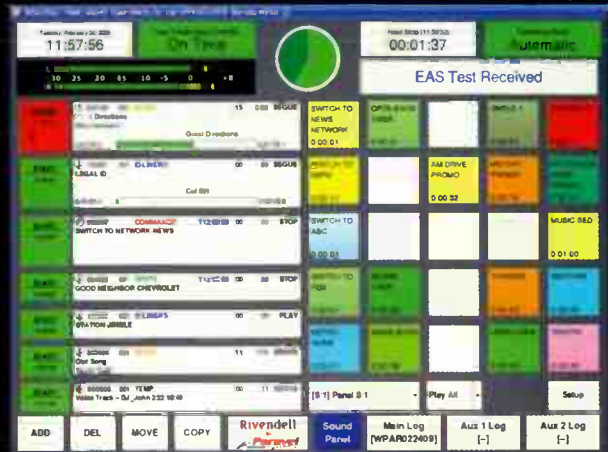
- Digital Broadcast
- Directional Wattmeters
- Line Sections
- Plug-In Elements
- Loads and Attenuators
- Signal Samplers
- Meters
- Accessories
- Low Pass Filters
- Power Sensors
- Custom OEM

Coaxial Dynamics (a CDI Industries, Inc. Company)
6800 Lake Abram Drive - Middleburg Hts, OH 44130
Phone: 440-243-1100 Toll Free: 800-COAXIAL Fax: 440-243-1101
sales@coaxial.com • www.coaxial.com

Rivendell

RADIO AUTOMATION

Don't Sacrifice Performance to Meet Your Budget



Full Software Package and Hardware from \$4,995 per studio
Includes Rivendell Software, Workstation with ASI card and 1 year of Technical Support



www.paravelsystems.com • (877) 44-PARAVEL • (877) 447-2728



FLEXIBLE
INTUITIVE
**ENCO
DOES
RADIO**

WORLD LEADING
**AUDIO PLAYOUT
& AUTOMATION
SOLUTIONS**

enco.com
(800) ENCO-SYS



- AUTOMATION
- MUSIC SCHEDULING
- TRAFFIC
- VIRTUALIZATION
- AUDIO PLAYOUT
- REMOTE VOICE TRACKING
- INTEGRATION
- SCALABLE
- LIVE ASSIST
- HIGH AVAILABILITY



THE WORLD'S MOST POWERFUL RADIO AUTOMATION.



ENCO





iZotope Insight

by Chris Wygal, CBRE

During a busy NAB Show this year, I attended a session on loudness specific to TV engineers concerned about the CALM act. So what was I, a radio engineer doing there? It's simple: I don't trust machines. In this case, machines being the needles or LED lights that bounce up and down on our audio consoles. Over the years I've learned the difference between electrical amplitude measurement and perceived loudness. Granted, the radio industry has long had a better grip on loudness control and processing than our TV counterparts. But, in the production studio, especially in critical scenarios where music mastering is of concern, are VU and PPM meters really showing us how loud our mixdowns are? You can decide for yourself, after a brief introduction to iZotope's brand new Insight plugin.

Sadly, tried-and-true metering lacks the ability to show us the nuances of audio mixing. Much more is involved in audio mastering than amplitude levels. iZotope Insight has a complete lineup of mind-blowing meters that have changed the metering game. Insight works as a Direct-X, VST or VST3 plugin on most DAWs and non-linear editing software. It has endless presets that allow the user to see metering

scenarios for different environments. I'll start with a description of each meter.

NOT YOUR MOTHER'S METER BRIDGE

Out of the box, Insight is loaded with metering settings divided into three categories: audio analysis, loudness metering and music production. Within these default settings are numerous metering layouts that display user-customizable windows for displaying each of the meters. Insight works as a real-time plugin and floats on top of current workspace. Increased multiple-screen desktop space is encouraged. Each default preset includes momentary, short term and integrated level meters that appear as garden variety LEDs. The difference, however, lies in each meter's behavior.

The momentary meter measures levels over a period of 400ms. The short-term meter measures over a period of three seconds and the integrated meter uses complex algorithms enforced by loudness standards (legislated by the United States, EU or Japan, depending on the setting used) to calculate loudness over an indefinite period of time. Insight provides presets for television broadcast and production found in the Loudness Metering section, and for radio, those may be somewhat irrelevant. They are, however, usable to establish a perceived loudness measurement that supersedes the measuring abilities of standard VU and PPM meters. The Audio Analysis and Music Production default settings provide the same

forementioned metering and will be more at home in a radio production environment.

From an audio analysis perspective, Insight features a 3D Spectrogram crawl or waterfall. This psychedelic display shows audio response on a colorful three-dimensional real-time plane that shows sound as it happens with what harmonics are present and their amplitude. The spectrogram essentially draws a picture between 100Hz and 20kHz, or a selectable range. As the audio file is played, the display begins to appear as a mountainous Martian landscape. Brightly colored peaks indicate a higher response than a darker, cooler color. The 3D Spectrogram draws the history of frequency and amplitude response as it happens. If it looks too psychedelic, a familiar spectrum analyzer is also available that shows RMS and peak frequency response.

The Averaging Spectrum Analyzer holds the response curve over the frequency range, and shows the constant state of the audio as it is played out. In a situation where an individual track from a mixing session needs analysis, Meter Taps allow the user to route specified audio tracks to Insight. This is useful when isolating one source track for analysis is necessary instead of listening to the entire mix.

Insight also draws a Wall of Sound that looks very akin to spectrum displays found in many editing platforms. As opposed to a waveform, the Wall of Sound shows the audio response in

IZOTOPE
 izotope.com
 support@izotope.com

OP-X AUTOMATION

SIMPLE • POWERFUL • REDUNDANT



"Op X is easy to look at, simple to use, and really keeps the station moving. New York is the #1 market in the country and Op X makes us sound like it!"

-John Foxx
Program Director

SCOTT & TODD
MORNING

95.5WPLJ



Ask us about
our iPad
app!

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

iPad app Features

- Live show real-time control from almost anywhere
- A powerful tool for remotes or voice tracking
- Take a show on the road
- Start, stop, copy and paste functions from the log
- Insert audio items into the log
- Initiate audio playback from hot buttons
- Run macro command from hot buttons
- Secure access to your system



FIELDREPORT

a colorful 30Hz to 20kHz scroll. Much like the 3D Spectrogram, the hotter colors represent more amplitude at a certain frequency.

INTENSE MUSIC PRODUCTION


If production suffers in any way the most, it's from inconsistency. An engineer's mood, head congestion or environment can dictate what kind of sound he or she is producing. While best efforts are made in uniform referencing standards and DAW and console presets, mixing and mastering is by nature very subjective. To ward off inconsistent production levels that may ebb and flow over time, Insight allows the user to create pre-defined parameters in which levels must remain. Alarms will alert the user when parameters have been breached.

While the integrated LUFS meter operates within confines of legislation concerning television perceived loudness, the meter is actually very helpful in music and radio production in that it shows the pattern of loudness from the

start of an audio clip to the end. For example, the first few seconds of a popular music track played with Insight monitoring real-time begins with a level of -13.2 LUFS (loudness units relative to full digital scale). The waveform seemingly indicates consistent mastering all the way through. However, by the end of the song, we're seeing -8.0 LUFS. The perceived loudness of the song increased considerably over the duration of the track. Insight will bring to light this kind of information by way of using loudness targets that allow producers to achieve consistent loudness goals over the duration of one project or several.

Stereo imaging and phase control are vital aspects of audio production for radio TV production folks alike. Insight's Sound Field uses several different display schemes on a 180-degree field to show where audio is present in relation to left and right. The sound field can also be used for 5.1 surround monitoring. If audio is out of phase, too far left or too far right, Sound Field will display it by way of real-time animated lobes

or a spray of pixels that dot the graph, giving a spectacular image of stereo placement.

Insight's metering can be toggled between dB and dB_{FS}. Buffers can be set to optimize CPU usage during real-time metering. The Loudness Overflow Automation feature can be utilized with DAWs to mark on a track when loudness parameters were exceeded. This is a major time saver and indicator of where level infractions happened per the user's loudness targets. Additionally, the Preset Manager offers several starting points for Insight's metering displays and customized user presets can also be saved and recalled. iZotope's Insight is a handy tool for any production team that is concerned with creating consistency and maximizing perceived loudness. As a plug-in that hangs out nicely with software and DAWs, Insight goes the extra mile to deliver top-quality mastered audio to listeners. 

Wygal is the programmer and engineer for Victory FM at Liberty University, Lynchburg, VA.

GALLERY

AM Ground Systems Co.

www.amgroundsystems.com
888-GROUND0

Construction
Evaluation
Repair
Sample, Feed & Control Line Location, Replacement & Repair
MOM Modeling Preparation Work

Serving the Technical and Construction Needs of AM Broadcasters for over 25 Years



AMGROUNDSYSTEMS.COM
888-476-8630
888-GROUND0

- Complete Ground System Construction, Evaluation and Repair Services.
- Fast, Efficient Full Site Construction Services.
- Firm quotes

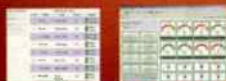
Reliable, On-time Installation • Firm Quotes • Quality Workmanship

CircuitWerkes Web Power!



SiteSentry2 - \$329 Transmitter Controller

With 2 analog meter inputs, 2 status inputs, an audio sensor & onboard temperature sensor, you can monitor your site from any Web browser, anywhere! Six relays (2 DPDT & 4 SPST) give ample control for many stations. Automatically detects meter low & meter overload conditions for metering inputs, audio monitor and temperature sensor.



Sicon-8 - Web & Dial-up Remote Control

The Sicon-8 lets you control your site via Internet with its internal Web server, via telephone, auto-answering cell phone or our free software. Setup is a breeze using the Siconcontroller software that also includes scripting, e-mail alerts, multi-site management, virtual metering & more!



Silence Sentinel - Audio Monitor w/Web

Silence Sentinel ushers in a new era of analog audio monitoring. Monitor your audio from any Web browser. When silence is detected, it can perform user-programmed, automated, sequences of relay actions & can also respond to user control via the network or via external status inputs.

Get info on these & other great remote control products at www.circuitwerkes.com

Dixon Systems Inc. Introducing the **NEW AES-1-10**
Low cost, high performance digital to analog converter!



www.dixonsystems.com

See your dealer or call TOLL FREE: 1-800-387-6141

Visit: www.torpeytime.com for our complete line of clocks & timers



MOORETRONIX
BROADCAST & INDUSTRIAL ELECTRONICS

Our 13th Year

Our client list continues to grow. Thank you for your confidence and equipment purchases.

We Re-Condition

Pacific Recorders BMX I-II-III, AMX, ABX and RMX, Stereo-Mixer and Mixer News-Mixer products.

We Have

Replacement Wind Screens and Blast Filters for the SM-5B microphone.

We Repair & Re-Crystal

STL Transmitters, STL Receivers, and RPU equipment.

See the "News-Update" page at our website.

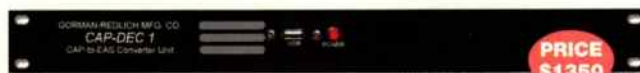
Tel: 800-300-0733 Fax: 231-924-7812

WWW.MOORETRONIX.COM

E-Mail us at: rrmoorej@aol.com



The CAP-DEC1, Gorman-Redlich is a stand-alone CAP-to-EAS converter for use with your existing emergency alerting equipment. This cost-effective device allows broadcasters to easily meet Common Alerting Protocol (CAP) compliance requirements mandated by the FCC without requiring the purchase of an additional encoder/decoder system or other costly equipment. The CAP-DEC1 is CAP 1.2 compliant and requires only one unit of rack space. Trust the experts with over 35+ years experience in the emergency alerting industry to help you meet your broadcasting needs. Visit our website or contact us today for more information about the Gorman-Redlich CAP-DEC1. We continue to support equipment we made 35 years ago.



- Compatible with any existing EAS encoder decoder made by any manufacturer
- Powerful 1.6GHz dual core processor and 1GB of memory
- Built-in text-to-speech conversion functionality
- FAST Gigabit network capability with built in firewall for security
- Options to print, store or email logs via built-in email server
- Nearly limitless storage capacity for logs and audio messages
- Five (5) USB ports for peripherals
- Automatic clock synchronization via NTP servers
- Software can be updated via LAN or USB
- Print alert reports to USB or network printer
- Polling 3 URL's currently with room for future expansion
- FEMA independent lab affirms CAP 1.2 compliance
- Printer for EAS logs no longer required

Gorman-Redlich Mfg. Co.
www.gorman-redlich.com

257 W. Union Street, Athens, OH 45701
Phone: 740-593-3150

W O R L D W I D E
L P F M
 H E A D Q U A R T E R S



www.lpfmplanet.com



Featuring the Highest Quality / Lowest Cost
 FCC Certified LPFM TRANSMITTERS on the Planet!



LPFM Planet is brought to you by the good people at:

PROGRESSIVE CONCEPTS

305 S. BARTLETT RD., STREAMWOOD, IL 60107
 EMAIL: sales@progressive-concepts.com
 PHONE: 630.736.9822 FAX: 630.736.0353

the Audio-Pods



A Microphone ON-OFF controller with an integrated high output stereo headphone amplifier featuring user selectable phase reversal, Audio-Pods are ideal for remote broadcasts and talk studio applications. The Audio-Pod Plus includes an IFB output for studio communication.



Various options are available such as a quality mic pre-amp with selectable phantom power, and top or front mounted Mic ON-OFF buttons including cough control. The Audio-Pod System consists of from 1 to 4 Audio-Pod Modules and a Power Supply which can power up to 4 Audio-Pod's.

Audio-Pod's can be table top mounted using the supplied rubber feet or Hook & Loop material, or permanently mounted using the optional table top bracket or recessed into a work surface using an optional flush mounting bezel.

There are too many features to mention in this small ad space, so please visit us on the web or contact your distributor for details and pricing for the Audio-Pod System and many other innovative products for the broadcaster.

www.dmengineering.com



2174 Chandler St.
 Camarillo, CA 93010
 805-987-7881 800-249-0487

From **MILLIWATTS to KILOWATTS™**



**Transmitting & Audio Tubes
 Semiconductors**

Taylor	Immediate Shipment from Stock	Motorola
Eimac		Toshiba
Amperex		Thompson
MA/Com		Mitsubishi

• Se Habla Español • We Export

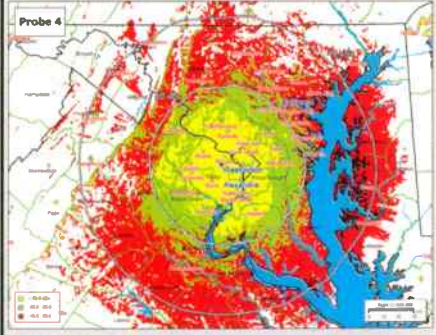
760-744-0700 • 800-737-2787
 Fax: 760-744-1943
www.rfparts.com

E-mail: rfp@rfparts.com



RF PARTS COMPANY

Engineering Software




- Create "real-world" coverage maps, interference studies, and population reports with Probe 4™
- Find STL broadcast auxiliary and Part 101 microwave frequencies and generate PCN letters with Microwave Pro™
- AM Pro 2™, used daily by FCC engineers, performs skywave and groundwave allocation studies and AM coverage mapping.
- Map FM stations and discover upgrade possibilities using FCC minimum separations and contour-to-contour methods with FMCommander™

The Leader in Broadcast Engineering Software!

VSoft COMMUNICATIONS®
 R.F. Communications Software and Engineering Consulting

www.V-Soft.com (800) 743-3684








Transcom Corporation
Fine Used AM & FM Transmitters
Authorized Representatives for all major equipment manufacturers

Used FM Transmitters

100 W	2008	BE FM100C
250 W	2006	Crown FM250T
500 W	2000	BE FM 500C
5 KW	1998	Harris Z5CD
5 KW	2006	Harris Z5CD, solid-state, unused
10 KW	1991	Harris HT10
25 KW	1998	Harris HT25CD
27.5KW		Continental 816R4, SS IPA & all factory upgrades
27.5KW	1988	Continental 816R4B, SS IPA & LP filter cooling option
30 KW	1988	Harris FM30K
35 KW		BE FM35B/T, upgraded in 2001

Used AM Transmitters
Please call or email for current listing
Please see our current listings on our website

Exciters
Please see our current listings on our website

New TV Transmitters
Visit our website for the latest sales
Special Discount Pricing On:
VHF and UHF Transmitters and
Antennas (100w to 10 kW)
TV STL

Please visit our website, www.fmamtv.com for additional listings or
CALL US FOR A QUOTE!
2655 Philmont Ave. Suite 200, Huntingdon Valley, PA 19006
800-441-8454 215-938-7304 Fax: 215-938-7361

RadioMagOnline.com



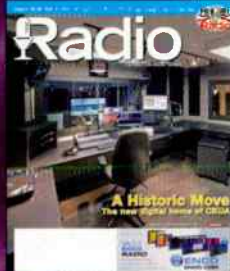


Acoustics First
-SOUND AND NOISE CONTROL MATERIALS-
Toll-Free **888-765-2900**
Number: **888-765-2900**
www.AcousticsFirst.com

GET YOUR OWN COPY!

Each month the *Radio Technology Leader* brings you the latest must-read information about radio broadcasting:

- FCC Update
- Managing Technology
- Trends in Technology
- Facility Showcase
- Field Reports
- New Products
- RF Engineering



To start your own FREE subscription go to
www.myradiomag.com
and complete the online form TODAY!

ADVERTISER	PAGE	PHONE	WEBSITE	ADVERTISER	PAGE	PHONE	WEBSITE
Acoustics First	30	888-765-2900	www.acousticsfirst.com	Logitek	17	800-231-5870	www.logitekaudio.com
AM Ground Systems Co	50	877-766-2999	www.amgroundsystems.com	Mooretronix	51	800-300-0733	www.mooretronix.com
Arrakis Systems	25, 28, 29, 45, 55	970-461-0730	www.arrakis-systems.com	Myat	24	201-767-5380	www.myat.com
Audio Compass	38	800-62AUDIO	www.audiocompass.com	Nagra	43	800-813-1663	www.nagraaudio.com
AudioScience	40	302-324-5333	www.audioscience.com	Nautel Electronics	27	902-823-5131	www.nautel.com
BDI	38	914-737-5032	www.broadcast-devices.com	Paravel Systems	47	877-447-2728	www.paravelsystems.com
Belar Electronics Laboratory	32	610-687-5550	www.belar.com	Progressive Concepts	52	630-736-9822	www.progressive-concepts.com
Broadcast Electronics	13	217-224-9600	www.bdcast.com	RF Parts	52	800-737-2787	www.rfparts.com
Broadcast Software Int'l	23, 49	888-BSI-USA-1	www.bsiusa.com	Sandies	38	215-547-2570	www.sandiesusa.com
Broadcasters General Store	37	352-622-7700	www.bgs.cc	Shively Labs	14	888-744-8359	www.shively.com
BSW	33	800-426-8434	www.bswusa.com	Sierra Automated Systems	19	818-840-6749	www.sasaudio.com
Burk	16	800-255-8090	www.burk.com	Smarts Broadcast	26	800-747-6278	www.smartsbroadcast.com
BW Broadcast	35	866-376-1612	www.bwbroadcast.com	Sony Creative Software	7	800-577-6642	www.sonycreativesoftware.com
CircuitWerkes	51	352-335-6555	www.circuitwerkes.com	Studio Items Inc.	24	815-669-2070	www.studioitems.com
Clear Channel Satellite	18	800-345-8728	www.clearchannelsatellite.com	Telos - A Telos Alliance Company	31	216-241-7225	www.telos-systems.com
Coaxial Dynamics	47	440-243-1100	www.coaxial.com	The Telos Alliance	2	216-241-7225	www.telosalliance.com
Comrex	9	800-237-1776	www.comrex.com	Tieline	5	317-845-8000	www.tieline.com
Continental Electronics	20	800-733-5011	www.contelec.com	Transcom Corporation	53	800-441-8454	www.fmamtv.com
Crown Broadcast	11	800-262-8919	www.crownbroadcast.com	V-Soft Communications	52	800-743-3684	www.v-soft.com
Day Sequerra	40	856-719-9900	www.daysequerra.com	Wheatstone	56	252-638-7000	www.wheatstone.com
Deva Broadcast	39	855-428-7272	www.devabroadcast.com	Wide Orbit	15	281-252-8891	www.wideorbit.com
Dixon Systems	51	416-261-3773	www.dixonsystems.com	Yellowtec	3	+49 2173-967 30	www.yellowtec.com
DM Engineering	52	800-249-0487	www.dmenengineering.com				
Enco	1, 47	800-ENCO-SYS	www.enco.com				
ESE	43	310 322-2136	www.esa-web.com				
Gorman Redlich	51	740-593-3150	www.gorman-redlich.com				
Graham Studios	36	866-481-6696	www.graham-studios.com				
Henry Engineering	30	626-355-3656	www.henryeng.com				
Inovonics	21	800-733-0552	www.inovon.com				
Kintronic Labs	43	423-878-3141	www.kintronic.com				



This advertiser index is a service to readers. Every effort is made to ensure accuracy, but Radio magazine cannot assume responsibility for errors or omissions.

20 years of *Radio* magazine

by Chriss Scherer, editor

The first issue of *Radio* magazine (originally titled *BE Radio*) was published in January 1994, but its roots go back much farther.

In 1959, *Broadcast Engineering* magazine was launched to cover the technology of radio and television. By 1994, it was realized that while the two services are related broadcast efforts, the needs of their specific audiences warranted splitting the content into two publications.

Radio magazine, now part of the NewBay Media group of publications, continues to cover the technology of radio broadcasting. Now in our 20th year, we'll look back at the first year of publication, which had six issues.

Features of the July 1994 issue:

- > The Electronic Industries Association (EIA) released a study revealing that while consumer awareness of RBDS was not very high (20 percent), more than 25 percent said they would listen to the radio more if their radio offered the service. 35 percent said RBDS would increase their radio listening enjoyment. More than 60 percent were interested in the program-associated data capability.
- > One column dove deeper into RBDS, which

was still a relatively new technology in the United States. It was introduced in 1993.

> Our cover story discussed the factors to consider when buying a new transmitter, which included ideas about tube or solid-state designs.

> What's right before the transmitter? The audio processor. Our second feature talked about FM audio processing and ways to get the maximum performance. We also looked at the concepts behind the (then) new digital audio processors.

> We went inside program syndicator MJJ Broadcasting in New York City.

> New products covered included Modulation Sciences RDS-X RBDS generator; Modulation Sciences PRD-3000, RBDS decoder, monitor and analyzer; Timeline Studioframe DAW-80 DAW; Digidesign Session 8 DAW; Fidelipac Dynamax DCR1000 update to play 25MB

floppy discs; and Otari B-10 on-air radio console.

> Advertisements touted new products including Pioneer CAC-V3200, a 300 CD storage and playback jukebox; Apex Systems Audiophile Air Chain, which included the Compellor 320, Aural Exciter Type III, Dominator II and Digicoder stereo generator; Nautel Ampfet ND 10 solid-state transmitter; Computer Concepts DCS; and Dolby Spectral Processor Model 740.



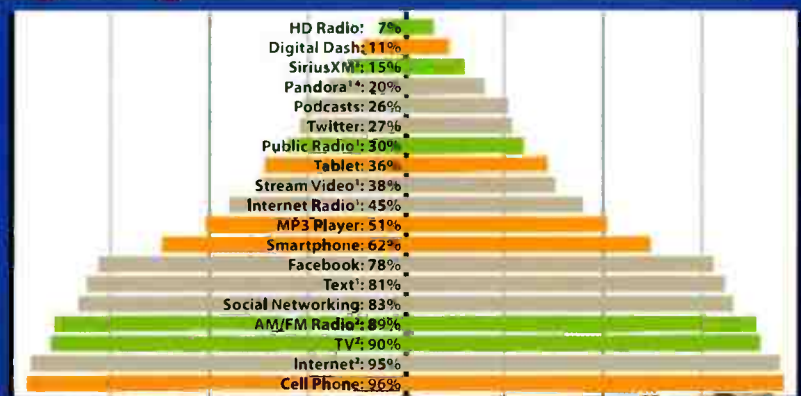
Jacobs Media Survey: Radio is Transitioning to Digital

Jacobs Media's Techsurvey 9 of core radio listeners shows that consumer listening may not only be high-tech, but also high-touch. According to Jacobs Media President Fred Jacobs, "Techsurvey 9 shows that while gadgets and new media continue to occupy the headlines, radio's ability to uniquely connect with consumers on their preferred platforms is the secret sauce for future success in the digital space."

The media usage pyramid shows how consumers are accessing media. The data includes hardware, type of service and online connection. In-car listening is still dominant, and 11 percent of respondents drive a vehicle equipped with a digital dash system such as Ford Sync.

Techsurvey 9 results were gathered online from Jan. 29 to Feb. 19, 2013. 264 broadcast stations across the U.S. and Canada participated, contributing 78,111 respondents.

Source: Jacobs Media Techsurvey 9. jacobsmedia.com



¹ Using medium weekly or more ² Using medium 1+ hours per day ³ Paid & trial users ⁴ No Canadian stations included

Radio Studio Furniture...
K9010 210010 LALU101.6'''

ARRAKIS SYSTEMS INC.
AKAKAKIA 2101012 100'

ACCENT line

- Fast delivery & often in Stock
- Hundreds of Configurations
- Fully Custom designs in days
- Low cost modular engineering
- Bold, modern, metal & laminate styling
- From the Leader in Radio furniture design



the next generation of Radio studio furniture systems



speed ... power... and control

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.



contemporary styling

strong, durable
brushed aluminum
and steel frame



Call us today at:
970-461-0730 ext 309
for a free quotation

www.arrakis-systems.com

970.461.0730

WHEATSTONE
WB
THE INTELLIGENT NETWORK



modern : classic

LX-24

gotta have it!



 *Wheatstone*

LX-24: ADVANCED MODULAR NETWORKABLE CONSOLE

phone 1.252.638-7000 | wheatstone.com | sales@wheatstone.com

World Radio History