

Radio

THE RADIO TECHNOLOGY LEADER

Clear Channel Seattle has all the right connections

OCTOBER 2012 | RADIOMAGONLINE.COM



PK024734
P0114

BARRY MISHKIND
OWNER
ARIZONA BROADCAST SERVICES
2033 S AUGUSTA PL
TUCSON AZ 85710-7905

RD11

#BXBZFT *****CAR-RT LOT**C-028
#0010545 2# RDM 0010545 E1206
|||||



enco.com/radio

SCALABLE
AUTOMATION
ENCO
DOES
RADIO
LIVE ASSIST
AUDIO PLAYOUT
INTEGRATION



VORSIS

ULTRA HIGH RESOLUTION PROCESSING

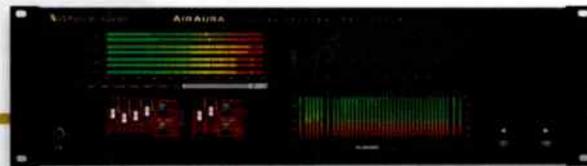
boom



Yeah, AirAura's Bass Tools™ give you THAT kind of bass

AirAura gives you a bunch of other groundbreaking tools, too, that you won't find in other processors. All designed to make YOUR station sound the best in your market. You may not blow the doors off a car, but you'll definitely be equipped to blow the doors off your competition.

 *Wheatstone*



AIRAUURA 2.0
DIGITAL ON-AIR AUDIO PROCESSOR

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

World Radio History



more solid-state power for powerful FM stations



NV Series

FM Digital/Analog  Radio

3.5 kW – 88 kW

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

more control

No matter where you are, you're only moments away from ensuring your NV Series transmitter is operating optimally. Open a web browser, enter your transmitter's IP address and password and you're connected. 100% of the local NV Series display functionality is available via the web. That helps save trips, time and money.

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



Advanced User Interface and Control
SAVE TRIPS, SAVE TIME & SAVE MONEY



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

TABLE OF CONTENTS



14

COLUMNS

FEATURES

- 14 Trends in Technology**
Unique features in the world of air-chain audio processing
- 22 Facility Showcase**
Clear Channel Seattle's new facility features a million crosspoints

- 8 Viewpoint**
Did the Radio Show experience new life this year?
- 10 Managing Technology**
New tips on making money with HD Radio
- 12 FCC Update**
News from the Radio Show: FM chips in smartphones and royalty deals
- 32 Tech Tips**
The importance of a good tool case and remote site security



34

DEPARTMENTS

- 34 Field Report**
Digigram Cancun 222
- 36 Side By Side**
Nearfield monitors
- 38 New Products**
- 54 Sign Off**
Jim Higgs celebrates 50 years in radio





THIS ELECTION The Choice is Clear



TIELINE'S CODEC BUNDLE

INCLUDES
REPORT-IT 25
PACK
VALUED AT
US \$599
FOR 1 YEAR
(NOT AVAILABLE
SEPARATELY)



THE MUST HAVE REPORTER KIT FOR MOBILE JOURNALISTS

REPORT-IT ENTERPRISE 25 PACK (iPhone* and Android**),
TIELINE'S MIC ADAPTER (iPhone only) AND BRIDGE-IT BASIC

SIMPLY ADD YOUR FAVORITE DYNAMIC MICROPHONE, PHONE AND HEADSET

Tieline[®] 
The Codec Company

CONTACT YOUR DEALER OR JOHN LACKNESS TODAY AT 317-845-8000 EXT:118 LACKNESS@TIELINE.COM

317-845-8000

WWW.TIELINE.COM

*iPhone and App Store are trademarks and/or registered trademarks of Apple Inc., registered in the U.S. and other countries

** Android is a trademark of Google Inc

Note: Microphone, headset and iPhone are not included in this offer

World Radio History

Telos Founder Steve Church Dies

Steve Church was an engineer, entrepreneur, talk show host and founder of Telos Systems and the Telos Alliance. Over the past 30 years he created many products that ushered broadcasting into the digital age.

Church was born in 1955 in San Diego, CA. He began his broadcast engineering career in 1975 at WFMK in Lansing, MI. He later worked at WWWW Detroit and WFBQ/WDNE Indianapolis and later became chief engineer at WFBQ/WNDE. He was also the chief engineer at WMMS/WHK Cleveland.

Church's first innovation addressed the poor sound of analog telephone adapters, which led to the creation of the Telos 10 telephone hybrid. Telos Systems was launched in 1985 as a part-time project.

Church's other breakthroughs combined MP3 audio with ISDN in the Telos Zephyr, and packet switching and Ethernet to the routing of audio signals around the broadcast facility. The result was Livewire IP-Audio.

Church died Sept. 28 after a three-year battle with brain cancer.



Armstrong Buys Sine Systems

On Aug. 3 *Radio* magazine reported that Sine Systems had closed its doors.

At the 2012 Radio Show, *Radio* magazine learned that Armstrong Transmitter purchased Sine Systems and will take on the company's support and manufacturing operations.

2,406

The NAB and RAB announced the total number of registered attendees for the 2012 Radio Show held in Dallas. The final number represents an increase of 200 attendees over 2011.

The 2013 Radio Show will be held Sept. 18-20, 2013, at Rosen Shingle Creek resort in Orlando, FL.

NRSC Adopts New RDS Usage Guidelines, Updates AM Standards

The National Radio Systems Committee (NRSC) adopted a new NRSC guideline focusing on recommendations for broadcasters and receiver manufacturers in the use of the Radio Data System (RDS) data broadcasting technology. NRSC-G300, RDS Usage Guideline was adopted by the Radio Broadcasting Data System (RBDS) Subcommittee, chaired by Dan Mansergh, director of engineering, KQED Public Radio, San Francisco. Approximately 60 pages in length, G300 includes sections focusing on select features of RDS, using RDS for program associated data, and an Annex listing providers of RDS-based data services. Service providers may request inclusion in this Annex by submitting a form, which is also included in the new guideline.

In addition, based on NRSC procedures that require that all standards and guidelines to undergo a review every five years, three documents were reviewed and revised slightly by the AM and FM Analog Broadcasting (AFAB) Subcommittee, co-chaired by Stan Salek, senior engineer, Hammett and Edison, and Gary Kline, SVP corporate director of engineering and IT, Cumulus Broadcasting:

- > NRSC-1-B, NRSC AM Preemphasis/deemphasis and Broadcast Audio Transmission Bandwidth Specifications
- > NRSC-2-B, Emission Limitation for AM Broadcast Transmission
- > NRSC-G100-A, Bandwidth Options for Analog AM Broadcasters

These documents will be available free-of-charge on the NRSC website, following a final procedural review.

Bill Could Revise Streaming Royalties

Reps. Jason Chaffetz (R-UT) and Rep. Jared Polis (D-CO) and Sen. Ron Wyden (D-OR) proposed a bill to reform music streaming rates called the Internet Radio Fairness Act of 2012. The purpose is to adopt fair standards and procedures by which determinations of Copyright Royalty Judges are made with respect to webcasting, and to stipulate the methods of determining royalty rates for streaming music online, noting that fees should follow competitive market circumstances as agreed to by most copyright users. Fees would also take into account the promotional value and benefit of streaming the music.



SBE Names Scholarship in Honor of John Battison

The founder of the Society of Broadcast Engineers, John H. Battison, PE, CPBE, who passed away on Aug. 28, 2012, at the age of 96, is being memorialized with the creation of a scholarship in his name. The John H. Battison SBE Founder's Scholarship will be presented to an applicant who seeks to enter or advance in the field of broadcast engineering. This decision comes today, on what would have been Battison's 97th birthday.



Radio experienced another quarter of growth across spot, digital and off-air sectors—up 1

percent for 2Q2012 and the first half of 2012. Digital continues to be radio's fastest growing sector—up 3 percent for the second quarter and 7 percent for the half.

Beasley Broadcast Group announced the winners of its annual Company Operating Awards. Lamar Smith was named Engineer of the Year; he handles five stations in Las Vegas.

FIND THE MIC AND WIN!

Tell us where you think the mic icon is placed on this issue's cover and you could win Hosa HDC-800 headphones. Send your entry to radio@RadioMagOnline.com by Nov. 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





Finally.

Finally—Sound Forge Pro, the standard-setting, industry-defining audio editor, is available for the Mac. Built from the ground up, it reboots the legacy with a contemporary working environment designed exclusively for OS X. This dynamic lightning-fast production tool provides a fresh outlook on Mac audio editing while delivering the elegant power and functionality you've been waiting for. Sound Forge Pro Mac has everything needed to prepare, process, and render finished audio master files. It further enhances the legendary Sound Forge quality with iZotope™ Mastering Effects Bundle, a suite of essential high-end processing plug-ins, taking your experience farther than you thought possible. Sound Forge Pro Mac redefines your editing experience.

The long wait is over. Sound Forge Pro Mac is finally here.

Learn more about Sound Forge Pro Mac or download a free trial at: sonycreativesoftware.com/sfpm



Scan to see a full list of Sound Forge Pro Mac features.

New Life for the Radio Show?



The 2012 Radio Show in Dallas wrapped up a few weeks ago, and what do we do after a convention? We look back and reflect on how it went, what worked and what might need some improvement. The NAB and RAB have worked together on several Radio Shows now, and they have polished the process. Registered attendance was up from last year, which is always a good sign, but there's more to a successful convention than attendance stats.

I talked to exhibitors during the convention, and for the most part I heard positive comments. Most of them were pleased with the attendees they saw at the convention. The exhibitors want booth visitors, of course, but it's not just about quantity. They like seeing existing customers of course, but they also want to see new customers and get new business leads. At the spring NAB Show, the large number of attendees helps to ensure there are some quality leads in the group. At the Radio Show, it's a smaller pool, so the exhibitors are very focused on seeing a return for their effort. In most cases, it seems they were happy.

The convention offers several conference tracks. We follow the technical track mostly, although there are sessions in other tracks worth attending. FCC Commissioner Pai's talk shed some light on his goals for broadcasting at the FCC. The EAS topic in the management track was a great idea to allow the managers to see EAS and CAP as more than just an engineering task. There were plenty of sessions to get new ideas. As an engineer and technology manager, I think it's a good for those of us on the tech side to get a management, programming or sales session in our schedule. It helps the engineer become a more active part of the station team.

The HD Radio sessions were also well attended. The development of HD Radio continues, although many seem to think it has slowed. Seeing sessions with standing room only shows there is still an active interest in the technology.

The Radio Show (as the NAB Radio Show then) was last in Dallas in 2006, and also held at the Hilton Anatole. Next year, the convention returns to Orlando after many years away. I talked to exhibitors and attendees about the Dallas and Orlando locations, and heard a common theme in their comments. Both locations are great cities, and the convention facilities are wonderful, but there's more to a convention than the convention itself.

Those to whom I spoke noted that cities like Philadelphia, San Francisco, Austin, Chicago, New Orleans and Washington, DC, all have an advantage over Dallas and Orlando: These other cities provide something to do outside the convention location and don't require a car. Walk out of your hotel in San Francisco or Washington, DC, and you're surrounded by restaurants in an easy walking area. And if you need to go farther, it's easy to do so with public transportation. Dallas and Orlando are great cities, but not so pedestrian friendly. At the convention, I heard several mention that Boston would be a good stop for the Radio Show.

Planning a convention is no easy task. I credit the NAB and RAB for their efforts in putting together the convention as well as they do. And while the fall convention has had some rough spots, it still seems to offer some benefit to radio. **Q**

EDITORIAL

Editor: Chriss Scherer, CPBE CBNT
cscherer@radiomagonline.com
Senior Associate Editor: Erin Shipps
eshipps@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, IBOS

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 Coordinators:
Karen Lee, Carolina Schierholz
Advertising Coordinator: Caroline Freeland

CIRCULATION

Associate Circulation Director,
Audience Development: Tracey Dwyer
Circulation Manager: Kwentin Keenan
Circulation Coordinator: Michele Fonville

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
callems@world.odn.ne.jp | +81 3 3327 5759
Asia-Pacific: Wengong Wang
wvw@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.

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 18, Number 10, (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.

Copyright 2012, NewBay Media LLC. All Rights Reserved.

FOLLOW RADIO MAGAZINE

Email | cscherer@RadioMagOnline.com
Facebook | RadioMagazine
Twitter | @RadioMagazine
LinkedIn | /groups?gid=3210911

Chris Scherer

Chriss Scherer | Editor



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



Making Money With Multicast

by Kevin McNamara

A few months ago I wrote about some different ideas that could provide a good revenue stream using the HD2 and/or HD3 channels. The main point of that article was that it is not enough to just provide some programming out there and wait for the listeners to flock all over this new gem, rather there needs to be programming that will make a listener want to listen, or more importantly, want to purchase an HD Radio receiver.

I come from a slightly different perspective than many others who write in this industry trade. My first 25 years of employed bliss was working in radio and television in an engineering capacity, mainly director of engineering positions at the local and corporate levels, primarily in the top markets. I left that to form my own business that focuses on building wireless communications systems for a variety of private and municipal clients. That now makes me a listener in terms of having an outsider's viewpoint and as such, perhaps can provide a different spin to this particular subject.

THE DILEMMA OF HD RADIO

To understand the money-making opportunities of HD Radio, let's look at the problems that need to be defused.

Problem 1: In researching this article about making money with multicast, I see a lot of buzz words that describe the phenomena of HD Radio like "revolutionary." While that may be true, there are a whole bunch of revolutionary technologies out there competing with it. They may also be able to compete with HD Radio more creatively, since:

> Many are not a slave to qualitative audience measurements. Most broadband services can get real-time data of how many people are

listening, what they are listening to, and generally a much broader knowledge of the listener/subscriber.

> Many services are not constrained by a service area or interference from atmospheric noise, etc.

> Services like Pandora can also tailor content to the listener level and get real-time feedback about their preferences.

Problem 2: Getting enough radios in the market is another challenge. The most recent numbers suggest about 20 percent of new car

use the FM receiver are at the gym listening to the rebroadcast TV audio feeds. Another issue to consider is that new car radio receivers are not traditional receivers; you know the kind with buttons? They are now simply command consoles that offer everything from entertainment to control and monitoring of the automobile systems. People are going to need a reason to choose the terrestrial station over the broadband or satellite provider. The radio is essentially going to be buried inside of this console.

Problem 3: The programming must be compelling. Since the 1920s broadcasters have been good at figuring out what programming appeals to the most amount of listeners within their service area. This usually came in the form of rotations of the same 30 or 40 songs repeated throughout the day combined with a local personality. That worked well until the advent of alternative program delivery platforms that are able to provide greater choices and with fewer interruptions. Providing an alternative format that utilizes the same fundamental programming formulas used in

radio for the past 80 years, will not draw new listeners to your multicast channel.

MULTICAST REVENUE OPPORTUNITIES

As I pointed out in my previous article, the real opportunities with HD Radio and multicasting are those that can exploit specific types of content, which a terrestrial station can implement, that would not be practical on other platforms. In my mind, the greatest opportunity for multicasting is with highly focused local content. This is what radio does, and has done, better than any other platform in history yet economics has caused the industry to move away from serving the local market in favor of using programming originating from a central



models (under \$35K) coming out in 2012 offer HD Radio standard. I've also seen numbers that place total HD Radio receiver penetration well under 5 percent. The last I checked, keeping up with the demand of HD Radio receivers has not been an issue with any manufacturer.

There is a push to make it mandatory that mobile phone manufacturers include FM receivers inside of each phone. While this would certainly increase the count of deployed receivers, it is unlikely that most people would use it, if for no other reason, than phones that do offer FM receivers require the use of earphones, since they use the earphone wires as the antenna. In my personal observations, the only people I have seen (myself included)



Texas has just built a \$60 million stadium for its high school football program. There is a great deal of passion and local interest in high school sports throughout the country,

contour. Partner with the small local newspaper in order to get content.

> Run audio podcasts and blogs: It's not hard to find interesting content provided by the residents in particular areas. Use topics that would have appeal to people in that area. This is along the lines of public access programming, but not limited to specific issues or topics.

> Local entertainment channel: An audio version of the content seen in monthly entertainment guides and newspapers. Report on all local upcoming events inside your service area, these would include local concerts, clubs, fairs, theater, restaurants, festivals, etc. You could also air live broadcasts of local musicians and other events.

I think there is still a great opportunity to generate revenue with HD Radio, but the key is to find that niche that can only be filled by you. 

location and shared among several operations.

From a listener's perspective, here are a few thoughts of what would draw me into the HD Radio multicast world, and hold me there for a while:

> Local sports broadcasts and news: I think this is a huge missed opportunity in several markets. Have you been near a high school stadium on a Friday night? The City of Allen

but few stations are seizing the opportunity. Creating a mini ESPN-like format catering to local sports would absolutely draw in listeners and advertisers not to mention something that would drive new HD Radio receiver sales.

> Local News channel: This does not mean running a syndicated format, it means creating a full-time local news presence that cater to smaller populations within your service

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

CLEAR CHANNEL SATELLITE

The One-Stop Shop for all of your Satellite Needs



Antennas

BUCs

Cables

LNBS

Satellite Receivers

Modems

Snow Shields

Non Pen Roof

Mounts

Audio Encoders

Video Encoders

Surge Protection

Phone : 800-345-8728

email: sales@clearchannelsatellite.com

website: clearchannelsatellite.com





by Lee Petro

What Went Down at The Radio Show?

The discussions at The Radio Show in Dallas last month reflected the current state of the radio industry. With one eye on the current issues, and one eye looking at possible developments in the future, attendees were able to obtain a well-rounded review of where the industry is headed.

FM chips in smartphones: One of the most talked-about subjects was the activation of FM chips in smartphones. While there are a limited number of smartphones that already have activated chips, most smartphones contain inactivated FM chips, much to the surprise of the average smartphone user.

Both Gordon Smith, the president and CEO of the NAB, and Jeff Smulyan, the president and CEO of Emmis Communications, made impassioned arguments that the activation of the FM chips already present in smartphones would save consumers money by avoiding the costly data usage fees associated with most wireless phone contracts. Since apps stream audio programming over the wireless networks, frequent listening can extinguish a consumer's monthly allowance quickly, and almost all unlimited usage plans have been eliminated by the carriers.

It was noted that none of the top 10 phones have activated FM chips, despite the fact that they have

already been installed and sold with the phone. They also noted that the lack of activation limits the reach of broadcasters during emergencies when the wireless networks are overwhelmed or lose power. Since wireless carriers have sent text messages during emergencies to their subscribers to listen to broadcasters for detailed information, one could see that the activation of the FM chips already present in smartphones would greatly serve the public.

Royalty deals: Also discussed in Dallas was the recent decisions by Clear Channel and Entercom to enter into royalty agreements with Big Machine Records, a record label representing many country music stars such as Taylor Swift. While broadcasters have traditionally avoided copyright liability to the individual artists for playing their songs on the radio, the deal struck by the broadcasters will give Big Machine Records a share of the revenues from terrestrial broadcasts of songs, in exchange for reduced liability on the streaming of those songs on the Internet.

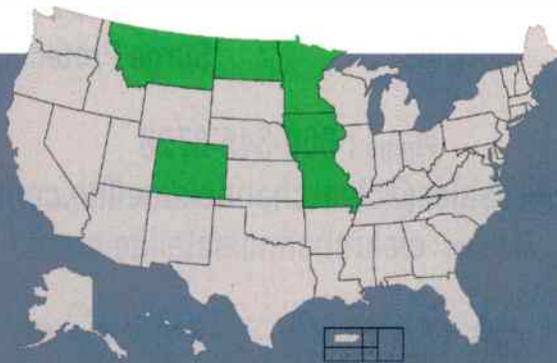
Broadcasters have fought to avoid industry-wide performance royalty liability for many years, but the decline of non-digital record sales has led artists and recording labels to look for new sources of revenue. Broadcasters who stream their signal over the Internet are required to pay royalties based on the number of subscribers

that receive the stream. The deals between the broadcasters and Big Machine lower the royalty rate for digital streaming. While this arrangement will likely lead to an increase in payments to Big Machine in the short term, the overall split between terrestrial and Internet revenue is still skewed heavily toward over-the-air service. However, in light of the overall movement toward IP delivery of audio programming, broadcasters are betting that the long-term benefits of this deal will outweigh the initial impact.

Reflecting the evolving copyright treatment of Internet-only radio websites (i.e., Pandora), in late September, legislation was introduced that would reduce the copyright liability for such services. Noting that Pandora paid copyright royalties equaling more than half its revenue in 2011, the legislation would require the recalculation of the royalty payments to bring it in line with other services.

It is likely that we will see more attention to these matters, as more audio programming goes digital, and the delivery mechanisms evolve. Until that evolution is complete, however, one can expect that further skirmishes will erupt, especially if Congress attempts to pass performance tax liability on broadcasters in the future. **Q**

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



DATELINE

- Oct. 1:** Noncommercial radio stations in Iowa and Missouri were to have filed their Biennial Ownership Report (FCC 323-E).
- Oct. 10:** Stations place their Quarterly Issues/Programs List in their public file, covering the period from July 1, 2012 through Sept. 30, 2012.
- Oct. 16:** Stations in Iowa and Missouri file License Renewal Application and EEO Program Report. Commence running License Renewal Post-Filing Announcements, continuing on Nov. 1 and 16.
- Oct. 16:** Stations in Colorado, Minnesota, Montana, and North Dakota begin running License Renewal Pre-Filing Announcements, continuing on Nov. 1 and 16.



Red Carpet Ready.



The best digital recorder design is the one you already know.

In a world full of digital recorders, we still love the handheld microphone's intuitive design and familiarity. The iXm's ingenious, onboard LEA engine gives you perfect audio levels every time. Our dual power system uses rechargeable lithium ion and AA batteries and lets you choose your primary power source. Removable capsules give you cardioid, super-cardioid or omnidirectional pickup patterns.

Bring an iXm to the most demanding locations in the world and get ready to be amazed.

 **YELLOWTEC**

www.yellowtec.com

World Radio History

Audio Processing Update

By Doug Irwin,
CPBE DRB
AMD

We spend a lot of time talking about the newer technologies being put to use in a radio station, but the fact of the matter is that the vast majority of our listeners still use analog radios to hear us. For that reason it's worthwhile discussing air-chain audio processing—the last device ahead of the transmitter.

Instead of rehashing all the standard features, I want to emphasize what makes the different devices from various manufacturers unique. At the end of this article I'll discuss comparison techniques that you can use to help decide which processor makes the most sense for your station. You can't base your decision on price and features alone—how the device sounds over the air should also factor into your decision.

For on-air processing, devices will have these features as standard:

- > Analog and AES inputs
- > Wideband automatic gain control (AGC)
- > Multiband AGC
- > Multiband limiting
- > Clipping
- > Analog and AES outputs
- > Processing presets developed by the equipment designers
- > Full remote access to front panel controls (and often more) via Ethernet

These are the standard features we've come to expect from this sort of device. On-air processors for FM will of course include a stereo generator and composite outputs.



Omnia.11

THE OMNIA.11

Omnia is one of the most well-known audio processing manufacturers, and the Omnia.11 is the current flagship product in a long line of OTA audio processors. In addition to the

standard features, it adds the following features (among others):

- > Livewire ins and outs in addition to AES, analog and composite outputs

- > Built-in composite low-pass filter to protect RDS/RBDS and SCA signals
- > Single rear-panel SCA input
- > Parallel processing path for HD, DAB or other lossy-codec streams; has its own final mixer and look-ahead limiting
- > Front panel 10.5" full-color touchscreen GUI
- > Embedded Web-browser for remote access
- > Up to 20 seconds of built-in diversity delay
- > 4RU

Of course probably the most interesting feature of the Omnia.11 is its single sideband suppressed-carrier stereo generator capability (SSBSC). When using this feature, only the lower sidebands (of the suppressed 38kHz carrier) are in composite output. The level of those sidebands in the composite output is increased by 6dB (versus the level of the same sidebands, were the double sideband-suppressed carrier used) so that the overall modulation level stays the same. Your station will need to send an informal letter to the Commission requesting experimental authorization regarding use of SSBSC.

If you don't want to pay for extra features, there is a non-HD version of the Omnia.11 available as well.



Orban Optimod-FM 8600

ORBAN OPTIMOD-FM 8600

The current top-of-the-line product from Orban is the Optimod-FM 8600. Among its many features are:

- > Active-matrix, color, liquid-crystal display with front-panel joystick for navigation
- > Dual processing chains for analog and HD/DAB/lossy-codec outputs
- > AGC and stereo enhancement are common, but multiband

ROC YOUR WORLD



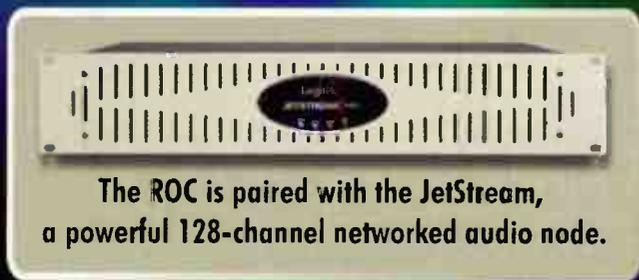
The new ROC console from Logitek

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

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

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

Call today or visit our website for more information.



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


Logitek
Networked Audio Systems

Logitek Electronic Systems, Inc.
Phone: (713) 664-4470 | Toll Free: (800) 231-5870
www.logitekaudio.com

There are two primary locations for evaluating the devices: in your vehicle, and on a monaural radio in an office environment. Your vehicle is important not only because of the in-car listening aspect that is so important to radio in general, but also because it's probably the source of sound you are most familiar with. That familiarity is important because it makes differences in sound from one device to the other easier to pick out. An office environment is also important in the grand scheme of radio; but more specifically, you'll want to hear the station in mono like so many listeners will. Radios such as these often don't have a lot of bass response, and they don't have a lot of high-frequency response, so you'll probably find the station sounds different on one of these versus a system that has three-way speakers, and good wideband audio response. (The vast majority of listeners don't hear your station that way.)

When running comparative listening tests between devices, it's important that, at the very least, you hear all the various sources that get sent out. For an FM music station, that might take a couple of hours, or a couple of days depending upon the format. For a talk station, make sure during the A vs. B evaluation period, you hear all the various voices and production sources.

RESOURCE GUIDE

BW Broadcast
bwbroadcast.com

Inovonics
inovonicsbroadcast.com

Omnia
omniaaudio.com

Orban
orban.com

Wheatstone
wheatstone-processing.com

This is an iterative process; during this A vs. B period, you may decide to do extra tweaking on one or both devices. Use your remote control to switch processors at any time; during speech, during songs, during spots. Listen to the differences between the devices on all sources and at different times (i.e., different jocks or board operators). This is also a great way to compare your stations' potential new sound to any competitors. I would also caution you not to jump to conclusions too early on. Give it a couple of days at minimum—listen a lot—

and after that amount of time it's likely the winner will have emerged.

As I said before, the decision on what to do with on-air processing should be subjective after you've determined what the practical choices are. There isn't any real point in evaluating the on-air sound that you can get from a device that, ultimately, the station can't afford. **0**

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

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



418DRM
100kW HF

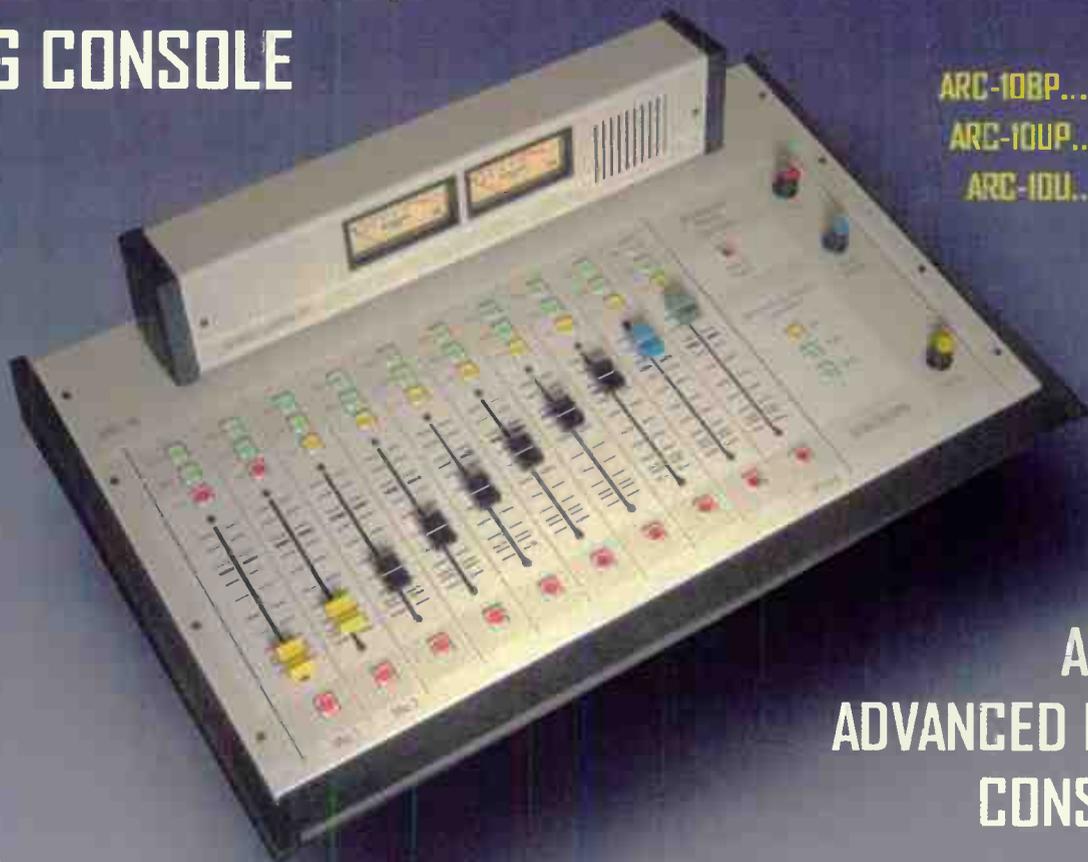


Continental Electronics

www.contelec.com (214) 381-7161

ARRAKIS SYSTEMS INC.

THE NEXT GENERATION ANALOG CONSOLE



ARC-10BP... \$2,495

ARC-10UP... \$1,999

ARC-10U... \$1,599

msrp

ARC-10 ADVANCED RADIO CONSOLES

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

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



CAT 5 cables
included on the
ARC-10BP

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

www.arrakis-systems.com

all prices are msrp

World Radio History

this simple setup runs rings around any other AoIP network
- at any price.



Meet the LX-24...Wheatstone's flagship, multi-award-winning advanced modular networkable console control surface

The design initiative behind the LX-24 was to create the world's finest control surface. The result is a console that redefines the entire genre. The LX-24 is an intelligent surface that can store and recall all your settings. Its totally modular design lets you configure it exactly as you like - you can even hot-swap modules at any time without having to reconfigure.

Assign any source of any type anywhere on your network to any fader. Each input channel can be assigned to four stereo busses, plus four pre/post-selectable aux sends, a stereo CUE bus, four mix-minuses and the panel's own bus-minus. Full Vorus EQ and Dynamics let you sculpt and control your sound with the quality of

the finest dedicated outboard processors. The visually-stunning meter bridge features up to four sets of bright, high resolution LED meters, as well as circular LED displays for auxiliary send levels and pan control. A digital count-up/count-down timer is also included.

The LX-24 is advanced in ways that can make a HUGE difference in your capabilities. But it's also immediately familiar to anyone who has ever sat behind a board at a radio station. Use it to make your programming the best it can be. Just plug it into your WheatNet-IP Intelligent Network - with it, and the BLADES across the page, you can, dare we say it, rule the world.

THE LX-24 CONSOLE CONTROL SURFACE FEATURES

Low-profile table-top design - no cutout required

Meter bridge with up to four bright, high-res LED meter sets

Control room and headphone outputs with level control and source selection

Two independent studio outputs

Stereo cue speakers and amplifier, built into meter bridge

Onboard VGA and USB-Mouse connectors

Event storage (snapshots) and recall

Each input channel features:

- Four stereo bus assigns
- Four pre/post-fader aux sends
- Four mix-minuses
- Bus-Minus
- Source name display
- A/B source selector
- 2 programmable buttons
- Vorus EQ and Dynamics including 4-band parametric EQ, High- and Low-Pass filters, Compressor and Expansion/Noise gate

it's called The WheatNet-IP Intelligent Network,
and it rules.



Our BLADES carry out your orders network-wide at Gigabit Ethernet speeds - no bottlenecks

As an integral part of the WheatNet-IP Intelligent Network, BLADES interface, move, bend, shape, route and control everything you want to do with your audio. If it's audio, a BLADE will handle it - at lightning speed.

Use them organically with our control surfaces, run them from our Glass-E software wherever you have internet access, or control them from the front panels. BLADES make your life incredibly easy and secure.

As you need more functionality, just plug in more BLADES - they come in configurations to handle whatever you need (analog, digital, a/d, mic, MADI). Each BLADE is self-configuring and has the DNA of the entire self-healing network.

With BLADES, you can do everything from a simple (or complex, if you like) snake to STL-over-IP to full-on multi-studio/facility networking - even processing. And because of Wheatstone's partnership with the top suppliers of automation and remote gear, you'll have control over your entire system right from WheatNet-IP. Ruling the world has never been easier.

And this is ALL the extra stuff you need to wire-up the Intelligent Network:

Four CAT-6 cables and a low-cost switch that handles the gigabit speed WheatNet-IP runs at. Let's do the math - plug in eight connectors, power up a console and three BLADES, add your audio and you are ready to rock, roll and rule the radio world. Brilliant, you ask? Nah - just really, really intelligent.



Want to know more?

WheatNet-IP outperforms the other AoIP systems exponentially and is, by far, the most reliable network you can get. Log onto wheatip.com. There is a world of real information there. Or, give us a call. There's nothing we like better than talking about this stuff.

EVERY BLADE FEATURES

Two 8x2 stereo virtual Utility Mixers that can be used for a wide range of applications: for example, using Wheatstone's ACI Automation Control Interface, your automation system can control the mix for satellite or local insertion switching.

Front panel bar graph meters switchable to display source input level or destination output level after gain trim.

Front panel routing control - any system source to any destination on that BLADE.

Front panel headphone jack with source select and level control - monitor any system source.

Flexible GPI logic - 12 universal logic ports, programmable as inputs or outputs, routable throughout the entire system.

Built-in web server so you can configure and control locally or remotely without having to run dedicated software.

SNMP messaging for alerts.

Silence detection on each output that can trigger alarms or make a routing change.

Silent - no fans - can safely be located in a studio with live mics.

 **Wheatstone**



Codec rack

Production

would move off the automation to IP routing access units, which promises transparent interoperability between consoles, automation and networking—and on down to microphones, recorders and other elements in the studio. Clear Channel could replace soundcards with software drivers where applicable, and replace much of the hardware I/O switching needed for connectivity previously.

BEFORE AND AFTER

The cluster had been using the SAS 64000 routing system with traditional PR&E consoles before, so IP control surfaces hanging off an AoIP network was an entirely new proposition. Given that they were dealing with a clean slate, management was optimistic that it could take full advantage of the latest routing technology to optimize space and equipment. Working with the engineering staff at Wheatstone, Clear Channel specified a network that could give full remote access and control of devices, automation and surfaces from anywhere on the audio grid. It was an elaborate plan that would let staff start/stop recorders, change levels on sources, bring up audio on a console channel, plus pot up the fader, and then turn the channel off when done. The idea was to implement a complete, intelligent network that could handle everything through one common interface, from audio



routing, metering, and leveling to mixing control, logic control and processing adjustments.

To make it happen, all these requirements were rolled into a preconfiguration plan, a 5MB Excel Bible of crosspoints, elements and every input, output, IP address and switching designation in the network.

Putting it on paper was one thing. Getting it implemented was another matter entirely—especially since Clear Channel had only 30 days to make the switchover due to leasing incentives and penalties that moved up the deadline.

Early on in the project, someone offered the sage advice to take it one day, one studio, and one crosspoint at a time. It was good advice, and this became the refrain throughout the ensuing weeks.

PUTTING IT ALL TOGETHER

A lot of equipment needed to come together to make the plan happen.

IP88a Blade access points and E-1 and E-6 control surfaces left the Wheatstone factory in New Bern, NC, labeled and preconfigured for installation. Blade IP access units have the Linux operating system built in, with GPIO, all of which needed to hook into the audio grid. Some were set up to handle all digital I/Os, others analog only I/Os, and others were a combination of digital and analog I/Os with mic inputs.

While equipment was en route, studios were networked together through CAT-6 cable. Large as this network is, gigabit edge switches were used to aggregate the Blades in each studio, and each of the 20 switches was then connected to a core switch. Four Cisco 3750G core switches are stacked together in what Cisco calls their Stackwise technology to spread redundancy over four switches. For extra protection, each switch has separate, redundant power supplies.

All furniture was custom made by Studio Technologies, which it shipped to the facility with some light assembly required. As each studio was built out, engineers dropped in control surfaces and hooked up IP88a Blades as needed. Initial testing was done before moving over equipment from the old studio prior to the final switchover.



Radio[®] Confidence you can trust.



INOmini 632 - FM/HD Radio™ Monitor/Receiver



Stays Locked

Loss of power, loss of signal, loss of audio, you name it. The 632 won't revert from HD Radio back to analog FM, or forget what HD channel it's tuned to. Ever.



Essential Alarms

Alarm closures to ground for Carrier Loss, Digital Loss and Audio Loss, so you can connect directly to your remote control system. Eliminate the guess work and know exactly what's going on.



Scalable

Buy as many or as few as you need for your multicast setup. Up to three 632's can be mounted in a single 19-inch rack space with our optional 19-inch rack adaptor*

*Optional 19" rack adaptor holds up to three units.



www.inovonicsbroadcast.com/model/632



5805 Hwy 9, Felton CA • www.inovonicsbroadcast.com
contact: sales@inovonicsbroadcast.com

Clear Channel engineers and contract engineers were brought in from all over the country to help wire the new facility and make the switchover in small steps. Some had never worked with AoIP before, and it was “learn as we go” for the most part. The deadline was pressing, the coordination of details was mind-numbing, and the hours were long. At one point the team was so dogged tired, it took hours to troubleshoot a simple error: Someone had transposed an XLR wire.

When it was all said and done, the facility ended up with more than 77 access points, each with 16 inputs and 16 outputs—or more than a million crosspoints feeding all 21 studios with soft logic I/Os comprising 4,928 elements and hardware I/O logic of 924 elements. It’s a fast operation. One gigabit/second is shuttled throughout, so there are no quality of service (QoS) issues; there’s no need to prioritize audio. Fortunately, gigabit Ethernet hardware, which offers point-to-point audio latency of less than two milliseconds, has come down significantly in price in the past five years.

If it’s on the grid, it’s as good as an arm’s reach away anywhere in the facility—and sometimes outside the facility. If the weekend jock forgets to

ENGINEERING TEAM

- > Erik Kuhlmann, senior vice president of engineering, Clear Channel Media + Entertainment
- > Dan Mettler, senior vice president of engineering, Central Region, Clear Channel Media + Entertainment
- > Steve George, regional vice president of engineering, Plains Region, Clear Channel Media + Entertainment
- > Bill Major, assistant director of engineering, Seattle Clear Channel Media + Entertainment
- > Terry Ryan, remote coordinator/engineer, Seattle Clear Channel Media + Entertainment
- > And the many other Clear Channel engineers who came to aid in the installation. Their help was greatly appreciated.

leave fader no. 6 up for the Saturday evening show, for example, all the engineer has to do is log into the station’s network through a laptop and change it with a couple of clicks of the mouse. It’s an easy way to handle all sorts of station upsets and operations from home without ruining an afternoon BBQ or letting the beer get warm.

FINAL WALKTHROUGH

It is still an adventure to walk through the 36,000-square-foot facility. Each music station has an on-air control room with new E-6 control surfaces and accompany-

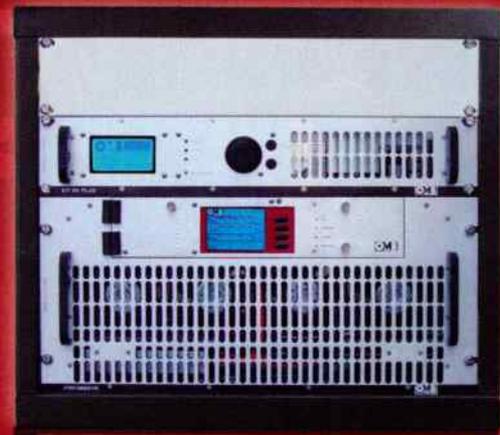
ing producer studio, some with Wheatstone SideBoard mixers for the occasional producer mix-in during a live show. The sports AM, KJR-AM, has a control room with an E-6 console along with producer studio and a talk studio with a SideBoard surrounded by microphones.

In addition, KJR-AM has a Sports Update studio with an E-1 console that can go directly to air, or to the KJR-AM control room as needed. The sports complex also has two sports edit workstations, each with SideBoards and Blade X-Y controllers, so sports updates and other audio can

new HIGH EFFICIENCY TRANSMITTERS series

NEWS:

- Efficiency up to 84%
- TFT Screen & Touch Keyboard
- Consumption optimization & noise decrease by means of the speed control of cooling fans
- Remote control & Telemetry



SERIES:

- EM 1500
- EM 3000
- EM 6000
- EM 9000
- EM 12000



3100 NW 72nd. Ave. Unit 112 · Miami, FL — 33122 USA · www.omb.com
Pol. Ind. Centrovía · C/Paraguay, 6 (La Muela) · 50198 Zaragoza (Spain)



THE WORLD LEADER
IN
**AUDIO PAYOUT
AND
AUTOMATION
SOLUTIONS**



THE AWARD WINNING
**ENCO1
AUTOMATION SYSTEM**

What Can **ENCO**
Do For You?

enco.com/radio
(800) ENCO-SYS

 [follow@encosys](https://twitter.com/follow@encosys)

 facebook.com/encosys

**SCALABLE
AUDIO PAYOUT
USER FRIENDLY
AUTOMATION**

**ENCO
DOES
FLEXIBILITY**

**RELIABILITY
INTEGRATION**

SCALABLE

SMALL MARKET

NON-COMM

PUBLIC

REDUNDANCY

LIVE ASSIST

CONTENT MANAGEMENT

REMOTE VOICE TRACKING



ENCO1

**Now You Can Afford The Best,
Contact Us For New Package Prices!**

ARRAKIS SYSTEMS INC.

MARC-15 MODULAR ANALOG CONSOLE

- 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



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



\$5,499

MARC-15-12

CAT 5
cables included

\$6,499

MARC-15-15

THE NEXT GENERATION OF ANALOG CONSOLES

\$3,495

msrp

CAT 5
cables
included



ARC-15BP ADVANCED RADIO CONSOLE

- Fifteen input channels
- Two Stereo Program outputs
- 1-5 mic, 3-12 stereo line, PC, & Phone in
- USB interface for play and record from a PC
- Mix minus in-out for an external Telephone hybrid
- Conductive plastic faders & multimillion operation switches
- Socketed ICs for ease of on site repair & LED lamps for long life

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



www.arrakis-systems.com

ARRAKIS SYSTEMS INC.

Digilink-Xtreme Automation

integrates with Arrakis
ARC consoles



- Live On Air w Hot Keys array
- Hard disk Automation
- Satellite Automation
- 16 input stereo switcher
- Phoner recorder & editor
- Voice track your shows
- Music scheduling standard

- Unattended Games mode
- Streaming services support
- RDS support

\$6,500 complete
or only
\$100 per month

NEW~WAVE and NEW~WAVE~LITE

integrates with Arrakis
ARC consoles



- over 10,000 Hot Keys
- save and reload Play Lists
- Cart rotations and Start-kill Dates
- Full Scheduled Automation (NEW~WAVE only)
- Powerful Music Scheduling (NEW~WAVE only)

NEW~WAVE only \$750
NEW~WAVE~LITE only \$299

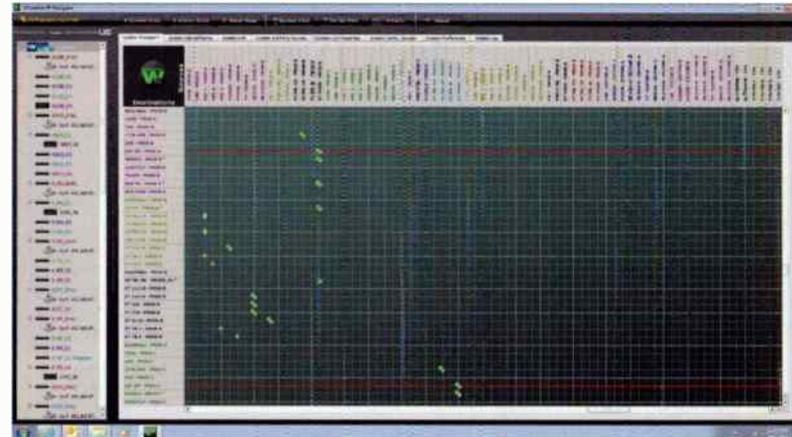
www.arrakis-systems.com

all prices are listed

World Radio History



Rack room



be routed to any one of the control rooms that want to grab them.

A dub studio is for voiceover recording and for general purpose use; it can be switched to air if need be from its E-1 control surface.

Edit 1 and Edit 2 studios are typically used for editing production or voicetracks. Another studio called the Multipurpose Studio has an E-1

console, which is used for production but is also configured as a backup should an on-air studio need to be taken offline for any reason.

Off to the far end of the building is the traffic center made up of 17 cubicles that monitor traffic in Seattle, Portland and other large cities in the region. Each cubicle is outfitted with newsroom mixers, which are networked through IP88a Blade access units to bring up audio from anywhere in the network and to route audio directly to air if needed.

A nearby bullpen for traffic news has controllers so that producers can grab audio feeds from anywhere they want, and there's another IP88a

Time is Infinite

Measure and Display it with

ESE

Broadcasters have counted on ESE precision master clocks and timing-related products for over 35 years. ESE products accurately synchronize broadcast operations using a choice of GPS, WWV, Modem, Crystal or line frequency for affordable, reliable, perfect time.

Spend a few seconds on www.ease-web.com to discover a vast universe of timing systems that are designed for easy installation, set-up and operation.

142 Sierra Street
 El Segundo, CA 90245 USA
 Tel: (310) 322-2136
 Fax: (310) 322-8127
www.ease-web.com

Blade that routes the microphone from these guests into the system so any one of the studios can pull up any one of these workstations to get a traffic report. The bullpen and traffic center are currently being retrofitted to move in the Traffic Network operation, an entity that was recently purchased by Clear Channel.

Four ProTools studios with ProTools consoles round out the studio complex. These studios have all the I/O wired up to IP88a Blade access units to bring audio in and out in the eventuality that Clear Channel retires the ProTools consoles and puts in new IP control surfaces.

Along the hallway in the center of the studio complex and separate from the rack room is what is called the Remote Broadcast Rack. All ISDN, POTS codecs, Marti RPU's, and any other remote equipment is located here for shared access by staff and stations. Staff can select any of the gear from their E-1 or E-6 consoles anywhere in the studio, allowing them to share existing gear rather than Clear Channel having to buy new equipment. Instead of buying new ISDN units, for example, the cluster has six ISDN units that staff from any of the seven stations can use on a rotating basis.

The physical and operational changes that come with an IP operation this size are significant. For starters, the control surfaces are a huge departure from the older consoles, which you couldn't possibly manage without moving from one end of the board to the other. Now, operators can stand in front of the E-1 or -6 and have full range of control—controls that can

be changed at any time by different board operators.

There's obviously a lot going on under the hood, too. It's a very dynamic environment. Devices are always talking to each other about command and control, and not just streaming audio between them. This gives the studios unbelievable flexibility. In fact, no sooner had the team finished installation when they began making changes. Two studios have changed function entirely, and currently, Clear Channel is in the process of converting another multipurpose studio into a dedicated studio for a syndicated country show.

Once the networking was laid out, though, the rest was easy because it's just a matter of changing crosspoints around and relabeling a few connections. Now changes are made as a matter of routine, which is pretty remarkable considering the size and depth of this networked operation. **Q**

Major is assistant director of engineering, Clear Channel Seattle.

EQUIPMENT LIST

- Cisco 3750G Stackwise switches
- Comrex Access, Matrix
- Fostex CR500, RM-1
- PreSonus ACP88
- ProTools consoles
- RCS NexGen automation
- Studio Technologies furniture
- Telos Zephyr Xstream, 2101
- Wheatstone E-1 control surfaces, E-6 control surfaces, IP88a Blades, SideBoard mixers

FACILITY FOCUS

Wheatstone LX-24



Wheatstone's newest award-winning radio console is the LX-24. A traditional layout design, the LX-24 is a digital control surface that interfaces with the Wheatnet-IP Intelligent Network. It's hot-swappable modules can be easily configured to end-user requirements. Place any network signal on any fader. Access Vorsis-grade signal processing for every input channel. Included GUI software allows extensive programming to station requirements; the console then runs day-to-day operations standalone, no PC required. Features include event storage, programmable buttons, four output busses, aux sends and mix-minuses, A/B source select, CR, headphone and studio 1&2 outputs plus a host of additional functions.

wheatstone.com | 252-638-7000

THE TECHNOLOGY BEHIND CLEAR CHANNEL SEATTLE

Studio Technology Studio Furniture



Studio Technology designs, constructs, delivers and installs studio furniture for the broadcast industry nationwide. Broad-based design and construction expertise enables our company to provide a range of standard and custom furniture to our customers. Studio Technology can provide a simple custom configuration that is priced competitively with modular furniture, as well as higher-end furniture using solid surface or other alternative materials. We have provided furniture for one-room studio renovations as well as participated in major projects on both coasts and in Hawaii. Our company will work with any systems integrator or your local staff. We can provide complete delivery and installation of the furniture we manufacture. Please visit our newly updated website for design ideas and more information.

studiototechnology.com | 610-925-2785

Advertisement



by Doug Irwin
CPBE AMD

Tool cases and Site Security

Each neighborhood has its own gearhead who has a wall in the garage with the outlines of tools drawn on it, and hooks to hang them on. I suppose “shadow-boarding” is a good name for this technique. The trouble is that not every tool really has its place there, and besides, you may not have a whole free wall that you can use that way. Kaizen Foam is a product designed to provide a different way to organize your tools.

Kaizen Foam is basically a sheet of foam with a sticky backing on one side. You do make the outline of the particular tool then you cut it out. If you need additional depth (the foam comes in different thicknesses) you then cut an additional piece exactly the same as the last, and you stick them together. The entire sheet (along with multiple cut-outs) then goes in a drawer.

If you carry tools out into the field (like so many broadcasters do) then a different means of keeping organized is needed. When I was in junior high, I made the classic tool box in woodshop (A frame on either end and handle between the two). When I got into the business I needed a tool case—it had pallets inside to hold the tools in place. Of course those wore out in short order. What is available today? DeWalt has a couple of products that look good. For big projects—ones that are going to have you on-site for a substantial period—think about the DeWalt DWST20800. For every day running around, the DeWalt DWST08203 might be more appropriate.

If you combine the tool case and Kaizen Foam ideas, then you could make a solid carrying case, inside of which could live delicate items such as condenser microphones.

Another means of carrying tools around while keeping them organized is the Husky Tool Tote. I see these frequently now. Instead of carrying everything, they roll—giving your arm and shoulder a break.

Husky Tool Tote



Pelican 1085cc laptop case



DeWalt DWST08203

Nowadays, though, one of the most important tools to carry around is a laptop or a tablet of some sort. If you need a protective case for a device such as this, you should look at Pelican. The company has a page dedicated to its protective cases for tablets and laptops: pelican.com/hardback/fit_guide.php.

REMOTE SITE SECURITY

Clearly site security has always been important, and due to copper thefts, it may be more important now than ever. With typical Internet access at a transmitter site, it's easier than ever to know what's going on when you're not there. For example, DB Power has a Wi-fi/IP camera that can be used outdoors. It has night vision out to 20 meters, with motion detection; it has a built-in Web server, and can send alarms via e-mail. It can also upload images to an FTP site, which could be handy later on for prosecution ... But how well does it work in an RF environment? That would be a question I would put to any users. Have you developed a remote site security system that you'd like to share with other *Radio* magazine readers? **0**

Irwin is transmission systems supervisor for Clear Channel NYC and chief engineer of WKTU, New York. 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.

Last
chance
to win!



WIN A DSPX* FM Audio Processor

worth
\$2,395



bw broadcast

Smart Gear. Priced Right.



The DSPX will give your station punch and clarity, making you stand out from the competition on the airways. The dual processing paths make your web-stream sound great too!

Last chance to enter our prize draw at www.bwb.fm/dspx

Available from



www.scmsinc.com

1-800-438-6040

sales@scmsinc.com

MidSouth: 1-877-391-2650 SouthAtlantic: 1-770-632-1295
NorthEast: 1-315-623-7655 Central: 1-731-695-1714
NorthCentral: 1-513-376-8600 SouthWest: 1-210-775-2725
MidWest: 1-513-899-3036 West Coast: 1-866-673-9267
Pro Audio: 1-877-640-8205 Latin America: 1-760-650-1427
Bradley Div.: 1-800-732-7665

Nearfield Monitors

Our main studios often have a large pair of speakers. The announcers can turn it up and get into what they are playing. In production, producers can get a feel for how something sounds at low and higher levels. But for voice-over booths, news workstations and production workstations, something smaller is often needed.

In these cases, a pair of nearfield monitors works well. Typically placed around the console meter bridge, these smaller monitors still provide an accurate listening environment, but at more

modest levels. Their placement is important, and the center of the speaker axis should face the listener, either by raising the speaker if it's mounted flat, or by tilting the speaker if it's on the counter top. Each speaker should be placed at a 30 degree angle from the listener (60 degrees total for the pair) in an equilateral triangle.

For our comparison, we chose models that are self-powered. This saves mounting a power amp in a rack, which helps when rack space is at a premium in smaller studios. We also picked bi-amped models with 5" woofers that also had

tweeters about 1" in size.

All but one model use medium-density fiberboard (MDF) for the enclosure. Two of the models have threaded inserts to aid in mounting. All the models are magnetically shielded, which is important when the speaker is placed near a video monitor to reduce interference to the video. All the models also offer some audio adjustment controls to adjust for placement near a wall and other variations in equalization.

As always, the suggested retail price is shown, but street prices are often substantially less. **0**



Model	Genelec 8030A	JBL LSR2325P	KRK Rokit 5 G2	Mackie MR5mk2	Yamaha HS50M
Inputs	1x XLR	1x XLR, 1x 1/4" TRS, 1x RCA	1x XLR, 1x 1/4" TRS, 1x RCA	1x XLR, 1x 1/4" TRS, 1x RCA	1x XLR, 1x 1/4" TRS
Outputs	1x XLR	-	-	-	-
Woofer	5"	5"	5"	5.25"	5"
Tweeter	0.75"	1"	1"	1"	0.75"
Enclosure	Reflex port	Waveguide	Waveguide	Bass reflex	Bass reflex
Material	aluminum	MDF	MDF	MDF	MDF
Frequency Response	58Hz - 20kHz	43Hz - 20kHz	53Hz - 20kHz	50Hz - 20kHz	55Hz - 20kHz
SPL	108dB	101dB	106dB	104dB	N/A
Amplifiers	2	2	2	2	2
Amp Power	40W LF 40W HF 80W total	55W LF 35W HF 90W total	30W LF 15W HF 45W total	55W LF 30W HF 85W total	45W LF 25W HF 70W total
Input Level Control	-	✓	✓	✓	✓
EQ	HF Tilt: -2dB LF Tilt: -2/-4/-6dB Bass Roll-off: -6dB	HF: -2.5/0/+2.5dB LF: -3/0/+2dB	HF: -2/-1/0/+1dB	HF: -2/0/+2dB LF: 0/+2/+4dB	Mid: ±2dB @2kHz; High: ±2dB; Room Control: 0/-2/-4dB <500Hz; Low Cut: Flat/80Hz/100Hz
Power	120Vac	115 or 230Vac	110-120 or 220-240Vac	115Vac	120Vac
Shielded	✓	✓	✓	✓	✓
Mounting	back and base threads	4-point threads	-	-	-
Size (HxWxD)	11.25" x 7.44" x 7.06"	11.9" x 7.4" x 10"	11.1" x 7.28" x 9.06"	11.5" x 7.8" x 10.6"	10.5" x 8.74" x 6.5"
Weight (lb.)	12.3	16	14	14.3	12.8
MSRP	\$895	\$250	\$250	\$200	\$250
URL	genelecusa.com	jblpro.com	krksys.com	mackie.com	yamaha.com

You are here.

Z/IP ONE IP Codec with ACT (Agile Connection Technology)
Consistent, drop-free connection for all live remotes through intelligent
internet bandwidth management. Now anywhere sounds right here.



Zephyr.com/zip-one

Telos
A TEOB ALLIANCE COMPANY

NEWPRODUCTS



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 analog 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.

broadcast.harris.com

Sonifex | IP extender

Redbox RB-IPE: The

RB-IPE has 16x general purpose inputs on eight RJ-45 connectors, consisting of eight isolated current sink inputs and eight pull to ground protected inputs; and 16 general purpose outputs on eight RJ-45 connectors using eight isolated relay change-over contacts and eight opto-isolated contacts. These rear-panel RJ45 connectors have an LED for each GPIO, which shows its state. On another set of eight RJ-45 connectors there are also eight 0 to 3.3V/5V/12V input signals and eight output signals nominally at 0 to 3.3V output, with other output voltage configurations possible. The outputs can all be controlled from the inputs of another RB-IPE, or from Ethernet commands, allowing any tallies and control signals, together with analog potentiometer movements, to be sent across a network. When two units are connected at different sites, if a general-purpose-input state changes at one site the unit sends the new state to the other site and the appropriate opto-isolator output changes on that unit. Similarly input voltage controls are monitored and the changing voltage is sent to the remote unit where an output voltage changes accordingly.

sonifex.co.uk



Harris | Audio codec

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.

International Tower Lighting (ITL) | SNMP-enabled monitoring system

MON-950: The MON-950 SNMP-enabled monitoring system can utilize direct-wired Ethernet or wireless cellular communication technology to provide monitoring of tower lighting systems. The MON-950 works with SNMP manager software to provide real-time and historical reporting on tower lighting systems. It supports virtually all existing medium intensity lighting systems and is easily adaptable to new systems.

itt-llc.com

Enco Systems | DAD library access tool

Weblib2: An option for DAD Presenter, Weblib2 offers a set of browser-based tools for library preview, management and sharing along with playlist preview and manipulation.

enco.com

It Stays Locked.



M4.2S AM/FM HD Radio Receiver

- Robust 24/7 performance - *No More Lockups!*
- Complete Remote Control - Webserver compatible with all browsers
- Alarm tallies on rear panel for loss of audio, carrier and HD Radio lock
- Sends alarm emails to your phone; plus wireless remote control from your Android™ or iPhone

Save \$\$\$ - Upgrade your old M4 and get a new one-year Warranty

\$550
FACTORY-DIRECT
UPGRADE



DaySequerra

www.daysequerra.com

©2012 DaySequerra Corp. All Rights Reserved. DaySequerra is a registered trademark of DaySequerra Corporation; all other trademarks remain the property of their respective owners.



**Now Available
in FM-Only and
FM+HD Versions**

www.AcousticsFirst.com



Let us help keep your channel crystal clear!

Toll Free **1-888-765-2900**



It's DigiMatch 2X6!

DigiMatch 2X6 converts between SPDIF and AES/EBU formats with absolutely no latency. It also gives you six outputs – 3 AES/EBU and 3 SPDIF.

Keep a DigiMatch 2X6 on hand to strike down those last-minute emergencies! In stock at all Henry Engineering dealers.

WE BUILD SOLUTIONS.

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



Visit www.henryeng.com for all of Henry's solutions!
T: 626.355.3656 • email: Info@henryeng.com



NEWPRODUCTS

Digigram | Audio IP codec

IQOYA *CALL/LE: IQOYA * CALL/LE is designed for any real-time audio contribution application over IP networks that requires end-to-end, full-duplex audio quality with a high level of reliability. Providing 24-bit audio quality with input THD greater than -90dB and low power consumption of under 11W, the codec offers quick and easy phone-like connection to remote talent. At the core of IQOYA *CALL/LE is the same audio transport technology found on all the IQOYA family of IP audio solutions by Digigram: The FluidIP audio transport technology ensures a robust connection with efficient management of jitter, loss, drift, QoS and FEC, and the unit's low latency and Fraunhofer error concealment deliver exceptional quality. Symmetrical RTP mode with auto-answer makes it particularly suitable for simple infrastructures without SIP, and the unit supports easy creation and use of profiles for both audio and network formats. digigram.com

acouStaCorp | Portable acoustic absorber

acouPoP: This portable acoustic absorber is designed with two folding side arms that straighten to support a 4' x 6' section of acouStac. Built with 26oz DFR wool, the panel easily expands/collapses from/to its travel bag to provide sound absorption for location-based performances/recording. Designed completely using customer wishlists/feedback, the acouPoP allows increased focus and effectiveness for performance/recording on or offsite. Backed by independent sound lab testing, the coefficient properties are certified. One person can set the acouPoP into position and setup/break down in less than three minutes. Use one or multiple units depending on performance space requirements. acoustacorp.com



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

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

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



Get It NOW!
2012 NOW! Product Catalog
telosalliance.com/now



www.AxiaAudio.com/Partners



Axia Audio, a member of The Telos Alliance™ ©TLS Corp. 2012
Livewire is a trademark of TLS Corp. All other trademarks are property of their respective owners.

DB44 - Compact FM Radio Monitoring Receiver



INCREDIBLE MONITORING TOOL

FEATURES ■ Fully DSP based core ■ Adjustable alarms for RF Level, Deviation, Pilot and RDS Injection Levels ■ Alarm dispatch via E-mail or SMS ■ FM Band 87-108 MHz Basic Spectrum Analyzer ■ Remote Listening via Mobile Phone ■ Channel status reporting via SMS ■ SNMP Remote Management ■ Real Time Audio Program Streaming ■ MPX Spectrum Analyzer ■ Up to 90dBµV direct RF Antenna Input ■ MPX Power Measurement ■ Built-in Oscilloscope allowing Left, Right and MPX display ■ RF Spectrum analyzer allowing to check the RF Carrier parameters ■ MPX, PILOT & RDS deviation meters ■ Built-in Stereo Decoder ■ RF and RDS Measurements ■ Selectable De-emphasis ■ LAN port for full TCP/IP remote control and monitoring ■ LEFT and RIGHT demodulated audio level meters ■ Headphones audio output ■ RDS / RBDS decoder with BER meter ■ Intuitive Application Interface ■ Very Intuitive Embedded WEB server for interactive supervision ■ Proved and reliable hardware for 24/7/365 operating ■ Easy Installation and Setup ■ Compact and Robust Aluminum Case for high RF immunity ■ Remote Firmware Update

PRICE: \$1295.00



Phone: +359 56 820027
sales@devabroadcast.com
www.devabroadcast.com

DPS-100D True RMS Digital RF Power Meter

The DPS-100D raises the bar for broadcast RF power meters with accurate, reliable TRUE RMS detection and industry leading features and performance. Capable of measuring analog or digital signals in transmission lines from Type N to 9" EIA the DPS-100D also provides state of the art 3-strike VSWR protection and a flexible set of user configurable alarms. Setup and monitor the DPS-100D using the easy browser based interface. Monitor RF power, temperature, line pressure and user defined general purpose inputs with a web browser or via SNMP.



www.broadcast-devices.com Broadcast Devices, Inc

Phone: 914-737-5032 sales@broadcast-devices.com



DYNAMAX MX SERIES

- 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



MODEL 340



MX12LW



MX12E



MODEL 343

215-547-2570
www.sandiesusa.com



MODEL 343

NEWPRODUCTS

Line 6 | 3-way speaker system

StageSource L3t: StageSource L3t combines multi-function design, powerful DSP and precision components to deliver a blend of high-powered performance and true scalability. A compact, three-way speaker system with integrated multi-channel mixer, the StageSource L3t features a tri-amped design that delivers 1,400W of balanced, clean and articulate audio. With embedded Smart Speaker technology and L6 LINK digital networking, StageSource systems use six DSP-based Smart Speaker modes. Loudspeakers will automatically self-configure for vertical or horizontal use, pan stereo signals, adjust Smart Speaker modes and perform system-wide optimization. Add StageSource L3s subwoofers to the mix and the system automatically sends them the summed signals and sets the crossovers.

line6.com



FIND THE MIC WINNER AUGUST ISSUE

Congratulations to

David Noble

Sun Sounds of Arizona
Tempe, AZ



He has won a Hosa Technology USX-100 mic-to-USB interface.

www.hosatech.com

The mic icon was on the wall in right field.



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

NEWPRODUCTS

NewTek | Desktop video production

TriCaster 40: TriCaster 40 creates a new entry point for broadcasters and producers who need full-resolution, HD, multi-camera live production and streaming capabilities. TriCaster 40 is a turnkey, desktop video production studio that makes it possible for virtually anyone to create live television for delivery to broadcast, Web and projectors. TriCaster 40 simplifies live multi-camera video production and streaming by eliminating complicated setup and cabling between production components, while integrating video switching, graphics, titles, effects, media playback, virtual sets, keying, recording and streaming in one compact, professional solution.
newtek.com

Acoustics First | Acoustic baffles

Cloudscape Finish Additions: These acoustical baffles reduce reverberation in larger spaces and can be suspended from open truss and pre-engineered suspension systems or mounted directly to a roof deck or wall. A 2" thick option in sizes up to 4' x 10' is now available. The 2" thick version uses environmentally friendly Ecosse glass fiber. The standard 4' x 2' x 1.5" PVC-encapsulated Echo-nomical baffle is now joined by three alternate finishes. New finishes include a durable rip-stop nylon sailcloth (CSBF2S) with nine color choices, a fabric-encapsulated Cloudscape Baffle (CSBF2F) sewn with Guilford of Maine FR701, and an exterior grade fabric for outdoor applications.
acousticsfirst.com

broadcast gear from people you trust

BSW

Lowest Prices and
Largest Inventory on
EVERYTHING For Broadcast



BSW Has The Greatest Selection Of On-Air Microphones

We've tried them all and stock only the best. Call or visit our website to find the perfect mic for you!

Contact BSW For Lowest Prices

Wow, who sold you that wimpy mic? If you want your audio to sound its best, call BSW!



BSWUSA.COM 800-426-8434

Myat | N+1 switching matrix

SS201XWA2-1, SS301XWA2-1: Myat coaxial transfer switches offer a high-quality motor and an engineered drive movement to provide consistent operation. Electrical performance provides high isolation and low VSWR across all the broadcast frequency bands. Precision fit silver-plated and beryllium copper current paths ensure maximum power handling capacity, low loss and long service life. The switch drive can be configured for either 120 or 240Vac and the control can be either 12 or 24Vdc. In the case of power loss, the switch will remain in position when power is restored. Manual override can be performed when ac power is disconnected.
myat.com

Burk Technology | Remote control meter interface

PlusConnect BDI DPS-100D: This interface allows the Burk ARC Plus to connect directly to the Broadcast Devices DPS-100D power meter. The unit links up to four BDI power meters to an ARC Plus using an existing network connection. By eliminating the need for parallel wiring, the PlusConnect allows broadcasters to better leverage their investment in remote control and power monitoring equipment.
burk.com



Another Crown Jewel

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

FM1000T List \$15,995.00

Contact BSW For Lowest Prices

CROWN



Networkable Digital Console

This console gives small to mid-sized stations an easy, effective way to enter the world of networked audio.

- 12-fader control surface, 4 stereo program busses
- I/O mix engine BLADE included (\$3,995 value)
- WheatNet-IP compatible for smooth networking

IP-12 List \$7,995.00

Contact BSW For Lowest Prices

AUDIOARTS

BSWUSA.COM
800-426-8434

A New Era in Transmitter Technology



Elenos ETG 5000 5kW

Elenos: 35+ years of relentless focus on FM transmitter innovation. Over 40,000 FM transmitters installed.

- Energy Efficient. Our 75% AC to RF efficiency saves you money on electricity
- Compact design saves you money on rack space
- Absolute transmitter reliability saves you money on service
- Our Icefet Technology saves you money on air conditioning
- Our Planar Technology increases the lifespan of your equipment

When you buy Elenos, you're buying the company with a passionate commitment to reliability, technological innovation, and cost savings.



EUROPE HEADQUARTERS
ELENOS SRL
Via G. Amendola 9
Poggio Renatico
44028 Ferrara (Italy)
T: +30 053 282 9865
sales@elenos.com

NORTH AMERICA HEADQUARTERS
ELENOS USA LLC
1315 NW 98th Ct. Suite 9
Miami, FL 33172-2774
T: +1 (855) 3538870
usa@elenos.com

LATIN AMERICAN HEADQUARTERS
305 BROADCAST LLC
1315 NW 98th Ct. Suite 10
Miami, FL 33172-2774
T: +1 (305) 408 3560
sales@305broadcast.com

NEW PRODUCTS



Wheatstone | Wheatnet-IP bridge

MADI Blade: The MADI Blade bridges the gap between any MADI-capable audio gear/network and the WheatNet-IP Intelligent Network. Users will be able to add on to their existing infrastructure with inexpensive WheatNet-IP equipment. The blade will make it possible for WheatNet-TDM Bridge users to add WheatNet-IP control surfaces and Blades to their existing networks. In fact, any system that utilizes MADI can now install WheatNet-IP gear and have the full functionality that MADI permits.

wheatstone.com

Davicom | AES/EBU detector switcher

AEDS: This digital audio detector and switcher has the capability of sensing errors and silences in the digital audio input stream and of automatically switching to a second AES signal or to a third analog source. Besides operating automatically, the AEDS can also be operated manually, either locally or remotely, through its rear panel parallel I/Os or through a USB connection. The AEDS has three inputs and one output: The first two inputs are digital audio inputs with automatic sensing of the data sampling rates. The third input can accept an analog audio source, which is internally sampled at 48kHz. The AES output sampling rate follows the input sampling rate.

davicom.com

Altinex | Tabletop interconnect packages

Cable-Nook, Cable-Nook Jr.: These interconnect packages are designed for installation into a table and provide a means of connecting audio, video, and other multimedia sources into a presentation system.

The Cable-Nook Jr. includes the CNK261, CNK271, and CNK361 packages as well as the larger CNK260 Cable-Nook interconnect box. Each Cable-Nook Jr. or Cable-Nook interconnect package installs into a table's surface and includes a dual ac power plate and a set of retaining grommets (two holes in Cable-Nook Jr. models, six holes in standard Cable-Nook CNK260). The retaining grommet sets contain the plates, nylon bushings, and cover caps to securely position the various cables.

altinex.com



Auralex Acoustics | Acoustic panels

SonoFlat Grid: Each SonoFlat Grid measures 2' x 2' x 2" and is composed of nine 8" x 8" beveled squares. Made from Auralex's Studiofoam, these panels offer mid- and high-frequency absorption as well as an elegant look. The panels are available in charcoal coloring and are made from Auralex's melamine-free formula, which won't crumble with age.

auralex.com



ARRAKIS SYSTEMS INC.

ARC-8X COMPACT RADIO CONSOLE

\$799



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

All ARC consoles have conductive plastic faders and long life switches for reliability & Socketed ICs for fast on-site repair.

ARC-10 ADVANCED RADIO CONSOLES

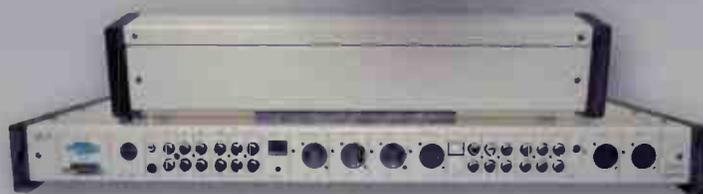
Ten mixing channels
Two Stereo Program outputs
2 mic, & stereo line, PC, & Phone in
USB PC sound card on ARC-10UP & ARC-10BP
Mix minus in-out for an external Telephone hybrid
Multimillion operation switches with long life LED lamps

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



ARC-10U... \$1,599
ARC-10UP... \$1,999
ARC-10BP... \$2,495

CAT 5 cables included on the ARC-10BP



www.arrakis-systems.com

World Radio History

NEWPRODUCTS

Society of Broadcast Engineers | SNMP course

Use of SNMP in Broadcast Monitoring and Control Systems: The SBE is offering a new course on SBE University, "Use of the Simple Network Management Protocol in Broadcast Monitoring and Control Systems." This course provides an introduction and overview of the Simple Network Management Protocol (SNMP). The course describes how SNMP works, including the structure and types of SNMP messages, how they are transported over the network, and how they can be used to monitor and control remote equipment. Students will learn about the data distant equipment might return, and how best to integrate it into an overall facility control plan. Also covered are the types of equipment that support SNMP communications, as well as using the protocol for site-to-site communications. Tony Peterle, CSRE, of WorldCast Systems, is the author of the course. To register, visit [sbe.org](http://sbe.org/sections/SNMP.php)

GlenSound Electronics | Twin commentator unit

Express Box: Two identical full commentary positions each have their own mic inputs with selectable 48V phantom power and compressor/limiter. There are two common talkback circuits available to each commentator along with four common inputs and a sidetone control for headphone monitoring. Each commentator can then make his own desired monitor mix from these five inputs. A mixed program output is provided along with direct outputs of both mic inputs. A seven-LED PPM meter completes the specification. glenSound.co.uk



UPGRADES AND UPDATES

The **Inovonics** David IV (Model 719) now has rev. 2 firmware and corresponding updates for the controlling PC software, which provides additional features and improved performance. (inovonicsbroadcast.com)... **WorldCast Systems** APT has added SureStream technology to the entry-level Stream-In and Stream-OutSilver audio-over-IP units. (aptcodecs.com ... **Broadcast Software International** (BSI) has released Simian Pro 2.2 that supports Simian Gateway and a Simian Remote application that will enable users to remotely access their on-air or production Simian Pro radio automation. (bsiusa.com) ... **V-Soft Communications** has released a new geographic census database update for Probe 4, the TV and FM communications coverage and interference mapping program, and FM Commander, the FM allocations analysis and mapping program. (v-soft.com) ■

APHEX®



LEGENDARY MIC PRES, COMPRESSORS & EXCITERS
MAKE EVERY INTERVIEW AND BROADCAST CLEAR, RICH AND EASY TO UNDERSTAND.



MADE IN THE USA  a DWV ENTERTAINMENT company

APHEX.COM

Array Solutions Your Source for Outstanding Radio Products

PowerAIM 120

Vector Impedance Analyzer for Broadcast Engineers

- Patented, unique technology offers the broadcast engineer the full capabilities of a single port network analyzer
- Small, lightweight, software-driven instrument
- Easy to carry on airlines and in the field.
- Very simple to set up and use.
- Safe measurements in RF-dense broadcast environments.
- Time Domain Reflectometer (TDR) Functions.



Bird 43 Digital Readout Kits

AS-43A and AS43AP

- Peak and Average Digital reading kits for Bird 43 wattmeters
- Replace the broken analog movement with a digital readout



VNA 2180

Vector Network Analyzer

- Measures impedance magnitude, phase, RL, component values, etc and transmission parameters for antennas, filters, and discrete components - using one or two ports.



PowerMaster II

- New Larger, Sharp & Fast LCD Display
- Reduced Energy consumption
- USB and RS-232 interface built-in
- New - Both 3kW and 10kW couplers on one display - switched
- Hi / Lo Power Level Monitoring
- Supports 2 like couplers simultaneously (3kW & 3kW, 3kW & V/UHF, 10kW & 10kW)
- SWR Threshold Protection (with amp PTT bypass)



www.arraySolutions.com

Phone 214-954-7140 ■ Fax 214-954-7142 ■ sales@arraysolutions.com



OP-XAUTOMATION

SIMPLE • POWERFUL • REDUNDANT



"A fast paced station needs a system that can keep up and is easy to use. Op-X gives us the tools we need to deliver the sound Houstonians have come to expect from KRBE."

Leslie Whittle, PD
KRBE, Houston, TX



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



RADIO AUTOMATION SOFTWARE

World Radio History



**Broadcasters
General Store**
352-622-7700
www.bgs.cc

Stretch and Squeeze Doesn't Have to Sound Bad



With our new Livewire IP-Audio driver incorporating 25-Seven Systems timescaling, you can stretch or squeeze your audio up to 20%, and it will still sound sweet. It's another great feature of our industry-leading IP-Audio products.

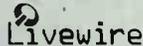
25-Seven IP Audio

- 32 stereo streams using Wave/DirectSound/WDM API
- 64 channels using ASIO
- 32bit and 64bit versions
- Windows XP, 7 and Server 2008



25-Seven Time Scaling

- Expand or compress audio in real-time by up to 20%
- Preserve pitch and clarity
- Allows more content per hour to increase station revenue



Make beautiful audio. Contact us at +1-302-324-5333 or salesasi@audioscience.com.

www.audioscience.com



NEW PRODUCTS

Mackie | Powered loudspeakers

DLM Series: DLM speakers each feature 2,000W of power, proprietary Mackie TruSource technology and a full-featured integrated digital mixer/processor. This potent technological combination not only allows for the small form factor of DLM, but also delivers a high level of performance and fidelity. The powerful DLM system includes two full-range models (DLM8, DLM12) along with a high-output compact subwoofer (DLM12S). The full-range DLM8 and DLM12 are equipped with Mackie's TruSource driver that incorporates the high-output woofer and 1.75" compression driver into an incredibly compact common-magnet design. Powerful TruSource DSP delivers clarity, consistent dispersion and fidelity. Both the DLM8 and DLM12 feature the Mackie DL2 integrated digital mixer, providing a dual-channel mixing solution for a wide array of possible connections with channel features like three-band EQ and 16 effects.

mackie.com



GALLERY

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

CLK-26
CLK-20C
NM-250 MKII USB Now in Broadcast Grey
Pro USB
Pro USB
AT-22 Tuner

Digital to Analog Converter Model AES-1-10
 LEFT OUT
 RIGHT OUT
Dixon Systems Inc.
AES-1-10

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

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

AM Ground Systems Co.

www.amgroundsystems.com

888-GROUND0

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

Physical AM Site Services



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 DPCT & 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



MOORETRONIX

BROADCAST & INDUSTRIAL ELECTRONICS

Our 12th 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: rmoorej@aol.com

**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, ±375ms
- 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!)**



- 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 75µs 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



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.



**PRICE
\$1350**

- 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
- Built-in email server to send log information

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

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



STUDIO ITEMS INCORPORATED

LOW PROFILE MICROPHONE BOOMS



AMB-23-4



HMB-14-4

- Great for radio studios that are on camera.
- Ideal for studios that require non-restricted eye contact.

WWW.STUDIOITEMS.COM

815-669-2070

Remote Control and LCD Sign for your Sage-Endec



the Ultimate Jr. Remote Control and Automation Interface

• LARGE BACKLIT LCD SCROLLING DISPLAY showing date, time, and alert details, just like an LED sign display.

• ATTENTION GETTING STROBE to catch your eye when an alert is pending or has been sent, and the color is tailored to the severity of the alert.

• An EXTRA SMALL FOOTPRINT (8.5 X 3 X 1.4) for crowded countertops. Mount it on the console or stick it up on the wall or studio window. Supplied with hook and loop fasteners so you can stick it up just about anywhere. Single Cat 5 connection, no power input required at the Remote Control end.

DEDICATED PUSHBUTTONS to initiate RWT, RELAY PENDING ALERT OR RMT, KILL PENDING ALERT, CLEAR STROBE AND CLEAR SIGN.

• An AUTOMATION INTERFACE that will allow contact closures from your automation or any normally open contact or switch to initiate an RWT.

• NO MENUS TO SORT THROUGH and completely compatible with the 3644 Digital and the Original SE1822 Endec.

and the best part is the price! Only \$329.00

For details on these and other innovative products for the broadcaster, call or visit us on the web at:

www.dmengineering.com



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

FCC Certified FM Stereo Transmitters



GET ON-THE-AIR. STAY ON-THE-AIR!

- ✓ 50W RF output continuous duty!
- ✓ Auto protect, auto soft fail, auto restore!
- ✓ Automatic battery backup!
- ✓ Digital display of all parameters!
- ✓ Simple to install!

What's the bottom line? To stay on the air! The PX50 was designed with that in mind! Auto monitoring of all parameters, with automatic power reduction and restore on VSWR and temperature errors! No more down time AND no more trips to the tower site! Plus the PX50 is FCC Certified under parts 2, 73, & 74 (PF3PX50) and Industry Canada approved (IC 4318A-PX50) so you never have to worry about non compliance! Make your life easy with the PX50 from Ramsey!



THE ORIGINAL... "STATION-IN-A-BOX"

Since the introduction of our "Station-In-A-Box" hundreds have been put in service worldwide! From temporary locations, rapid deployment installations, to emergency broadcast facilities, there is no quicker way to get on the air!

Custom designs include full audio production and control, record and playback of CD's, CD-R's, MP3's, MD's, and cassettes. Quick deployment antennas with LMR cable make installation a breeze. When you simply have to get on the air anywhere, rely on the proven and original "Station-In-A-Box" from Ramsey!



RAMSEY ELECTRONICS, LLC
590 Fishers Station Drive, Victor, NY 14564
800-446-2235 • 585-924-4560
www.ramseybroadcast.com

From MILLIWATTS to KILOWATTS



Transmitting & Audio Tubes Semiconductors

Taylor
Eimac
Amperex
MA/Com

Immediate
Shipment
from Stock

Motorola
Toshiba
Thompson
Mitsubishi

• Se Habla Español • We Export

760-744-0700 • 800-737-2787

Fax: 760-744-1943

www.rfparts.com

E-mail:
rfp@rfparts.com



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

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

Transcom Corporation

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

Used FM Transmitters

100 W	2008	BE FM100C
500 W	2000	BE FM 500C
5 KW	2011	Harris Z5CD, solid-state, new, never used
10 KW	1993	Harris Platinum 10CD, solid-state
10 KW	1998	Harris Z10CD, solid state
20 KW	2006	BE FM20S, solid-state
30 KW	1988	Harris FM30K

Used AM Transmitters

2.5KW	1991	Nautel Ampfet ND2.5, solid-state
5 KW	1991	Nautel Ampfet ND5, solid-state
10 KW	1991	Nautel Ampfet ND10, solid-state
10 KW	1999	BE AM10A, solid-state

Please see our current listings on our website

Exciters
Used Harris Digit FM Analog Exciter
Used Misc. Equipment
Used Bird Wattmeter with Elements
Orban Optimods 8100XT
BE FC30, SCA Generator

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

Made in the U.S.A. LED Illumination Available Custom legends are available Power - 120 to 220 volt AC & 12 volt AC/DC

CBT SYSTEMS

CBT Systems' "ON-AIR" Lights can be ordered online at
www.cbtsystems.tv
or by calling **858-536-2927**
to locate a distributor near you

nott ltd 3801 La Plata Hwy
Farmington, NM 87401
Phone 505-327-5646
Fax 505-325-1142

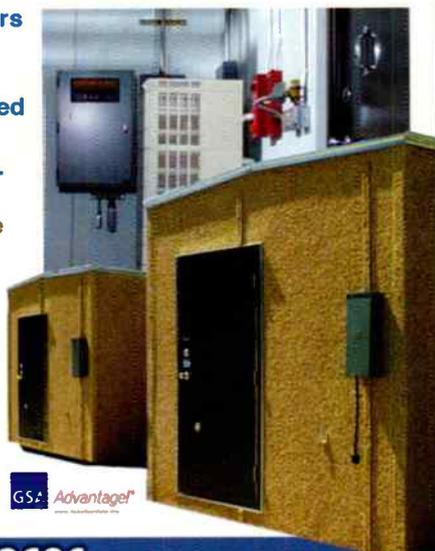
Folded Unipole
Antennas
Detuning Systems
Gilstat Lightning Dissipation Systems
Nello Towers
Radian/Rohn Towers

www.nottltd.com
info@nottltd.com

Quality, Flexibility, Value, Customization

Equipment shelters and cabinets designed, built, wired and delivered on time for your equipment needs.

- The First Choice of 32 State Governments and hundreds of Local 911 Services
- Full Equipment Integration
- Delivered on Time



GS&A *Advantagel*
www.thermobond.com

1-800-356-2686 • www.thermobond.com

THERMOBOND BUILDINGS

Fast. Friendly. Focused. Flexible.

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!

V-Soft COMMUNICATIONS
R.F. Communications Software and Engineering Consulting

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

Acoustics First

-SOUND AND NOISE CONTROL MATERIALS-

Toll-Free 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	40	888-765-2900	www.acousticsfirst.com	Logitek	15	800-231-5870	www.logitekaudio.com
AM Ground Systems Co	49	877-766-2999	www.amgroundsystems.com	Mooretronix	49	800-300-0733	www.mooretronix.com
Aphex	45	818-767-2929	www.aphex.com	Myat	23	201-767-5380	www.myat.com
Arrakis Systems	19, 28, 29, 45, 55	970-461-0730	www.arrakis-systems.com	Nautel Electronics	3	902-823-5131	www.nautel.com
Array Solutions	46	214-954-7140	www.arrayolutions.com	Noti Ltd.	52	505-327-5646	www.notitd.com
AudioScience	48	302-324-5333	www.audioscience.com	OMB Broadcast	26	305-477-0973	www.omb.com
Axia - A Telos Alliance Company	41	216-241-7225	www.axiaaudio.com	Ornia	39	216-622-0247	www.orniaaudio.com
BDI	42	914-737-5032	www.brcadcast-devices.com	Progressive Concepts	52	630-736-9822	www.progressive-concepts.com
Belar Electronics Laboratory	50	610-687-5550	www.belar.com	Ramsey Electronics	51	800-446-2295	www.ramseybroadcast.com
Broadcast Software Int'l	35, 47	888-BSI-USA-1	www.bsiusa.com	RF Parts	51	800-737-2787	www.rfparts.com
BSW	43	800-426-8434	www.bswusa.com	Sandies	42	215-547-2570	www.sandiesusa.com
BW Broadcast	33	866-376-1612	www.bwbroadcast.com	Sony Creative Software	7	800-577-6642	www.sonycreativesoftware.com
CBT Systems	52	858-536-2927	www.cbtsystems.tv	Studio Items Inc.	51	815-669-2070	www.studioitems.com
CircuitWerkes	49	352-335-6555	www.circuitwerkes.com	Studio Technology	31	610-925-2785	www.studiotechology.com
Clear Channel Satellite	11	800-345-8728	www.clearchannelsatellite.com	Telas - A Telos Alliance Company	37	216-241-7225	www.telos-systems.com
Coaxial Dynamics	48	440-243-1100	www.coaxial.com	Thermobond Buildings	53	800-356-2686	www.thermobond.com
Comrex	9	800-237-1776	www.comrex.com	Tieline	5	317-845-8000	www.tieline.com
Continental Electronics	18	800-733-5011	www.contelec.com	Transcom Corporation	52	800-441-8454	www.fmamtv.com
Day Sequerra	38	856-719-9900	www.daysequerra.com	V-Soft Communications	53	800-743-3634	www.v-soft.com
Deva Broadcast	42	+359 56 820027	www.devabroadcast.com	Wheatstone	2, 20, 21, 31, 56	252-638-7000	www.wheatstone.com
Dixon Systems	48	416-261-3773	www.dixonsystems.com	Yellowtec	13	+49 2173-967 30	www.yellowtec.com
DM Engineering	51	805-987-0487	www.dmenengineering.com				
Elenos	44	305-799-5571	www.elenos.com				
Enco	1, 27	800-ENCO-SYS	www.enco.com				
ESE	30	310-322-2136	www.es-web.com				
Gorman Redlich	50	740-593-3150	www.gorman-redlich.com				
Harris Corp. Broadcast Div.	17	800-622-0022	www.broadcast.harris.com				
Henry Engineering	40	626-355-3656	www.henryeng.com				
Inovonics	25	800-733-0552	www.inovon.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.



Photos courtesy of Jim Higgs' Facebook page.



Higgs calls himself a "way too serious" kid news reporter in 1967.



1965 in the control room at WHTC in Holland. This photo was taken by Holland radio legend, Juke Van Oss.



Award from Elektra-Asylum for breaking The Eagles "Best Of My Love," with Rip Pelli (l) and Burt Stein (r).

Jim Higgs: 50 Years

In August 1962, just two months out of high school, 18-year-old Jim Higgs went into a 12' x 60' house-trailer on the banks of the Kalamazoo River, west of Otsego, MI, for a job interview. The building was marked with the radio station call letters WDMC-AM980. The next day, he started his illustrious career as one of the most noted voices in West Michigan radio. Fifty years later, Higgs remains an integral part of the morning drive radio time for listeners throughout the greater Kalamazoo area on AM980, WAKV.

Jim's stint in Otsego was brief and by the following summer, he'd accepted an announcer position with WHTC-AM/FM in Holland. After four years in Holland, Jim made the move to WKMI in Kalamazoo, MI, serving multiple roles including news director, program director, music director and on-air personality for the morning drive.

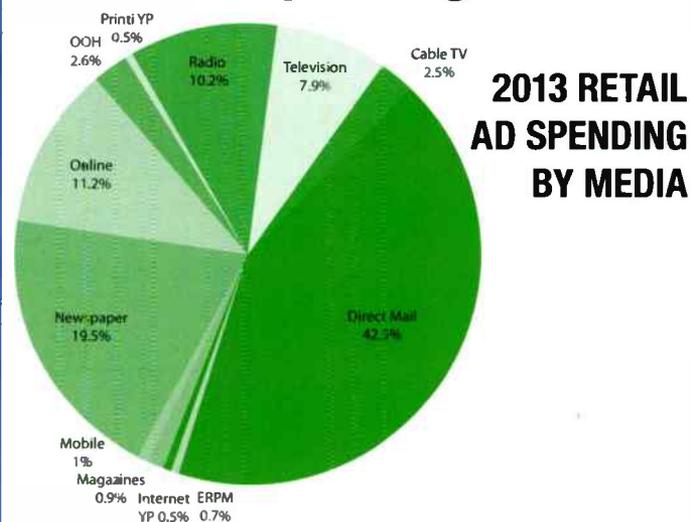
During his years at WKMI, Jim and his cast of characters, including Wolfman Jack, put Kalamazoo radio on the map—drawing a large fan base and recognition from industry leaders, both regionally and nationally.

During Jim's years at WKMI, he helped the band The Eagles land their first #1 record. In August 1974, Elektra-Asylum released the single "James Dean," from the "On the Border" album. The band, which formed in 1971, had earned a few Top 10 hits, but really wasn't a household name—yet. While the label was aggressively pushing "James Dean," Jim says he chose to play the flip side, a soft ballad written by Don Henley, Glenn Frey and J.D. Souther. The song became an instant hit in the Kalamazoo market; local record stores couldn't keep "On the Border" in stock.

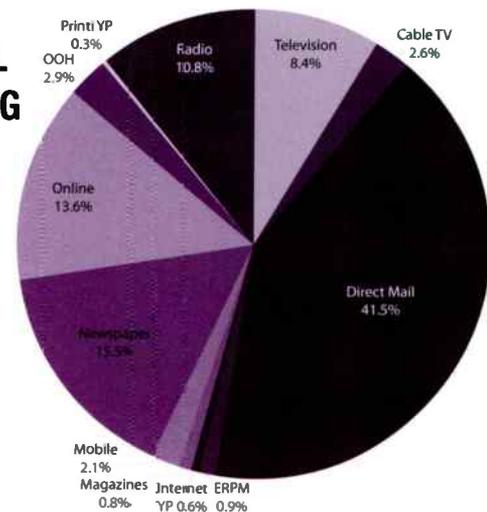
While "James Dean" struggled (it never ranked higher than #77 on the charts), Jim was trying to convince executives at Elektra-Asylum to release this flip-side as a single. They ignored his recommendation. Yet, before long, other stations in Michigan—including some in the high-powered Detroit market—started getting requests for this non-released single. It took Michigan by storm. Label execs finally took notice and in November 1974 officially released this single nationally. The song flew up the Billboard Hot 100 charts and by March 1975, The Eagles had landed their first #1 of many hits: "Best of My Love."

The album itself never went platinum, but representatives from Elektra-Asylum later that year presented Jim with an autographed copy of the cover of "On the Border"—which still hangs proudly in his office. **0**

Retail Ad Spending Forecast



2016 RETAIL AD SPENDING BY MEDIA



Source: BIA/Kelsey Media Ad View General Category National Report, Sept. 12, 2012.

ARRAKIS SYSTEMS INC.

MARC-15-15
on sale \$6,499



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

ARC-8
only \$799



2 mic, 4 stereo line,
PC, USB, and Phone input
both balanced & unbalanced I/O

XTREME
automation
only \$100
per month

Live On Air,
Hard disk & Satellite,
10 stereo input switcher
with logic

ARC-10
three modules



ARC-10U: \$1,599 unbalanced
ARC-10UP: \$1,999 unbal w USB
ARC-10BP: \$2,495 balanced w USB

2 mic inputs,
PC, USB, and Phone inputs,
both balanced & unbalanced
models.

ARC-15
only \$3,495



1-5 mic inputs,
PC, USB, and Phone inputs,
both balanced & unbalanced I/O

'ACCENT'
studio furniture



25% off

all ARC consoles
(except ARC-10U) feature built in
PC, USB sound cards and come with
'Xtreme -Studios' live on air software

'Pre-End of the World Sale'
the Mayan calendar predicts the end of
the world in 2012... so Accent Furniture
is 25% off until Dec 31st, 2011

ACCENT is a contemporary blend of brushed metals, pleasing colors, and interesting textures. The metal structure is artfully integrated into the visible design decor of the cabinetry. Cabinetry and electronic equipment complement each other to create a bold visual environment for talent, guests, and clients alike.

www.arrakis-systems.com

all prices are mfg

World Radio History



FLEXIBLE. AFFORDABLE. BUILT TO LAST.

modular design + ease-of-use + value



Audioarts IP-12 = enlightenment

The IP-12's modern, modular design moves all audio, logic and control outside the control surface and into a single rackspace audio interface/mix engine (called a BLADE). This gives you much greater mixing/processing capabilities as well as the ability to cost-effectively add on incredible functionality (more audio sources, automation feeds, STL capabilities, multi-channel processing, more consoles, etc). And, if you've already got the WheatNet-IP Intelligent Network, it fits right in,(or, if not, what better place to start?).

Speaking of modular design, the IP-12's construction is exactly that. Need to replace a channel? Two screws and a connector is all it takes. Got automation? IP-12 is hardware-ready. We offer a software driver that works seamlessly with the most popular automation platforms to give you control right from the console! And here's how easy it is to set up the new IP-12 console: Unbox it. Plug it in. You're ready to go. But don't let its simple setup fool you. It's one very powerful little console...

Ready for enlightenment? Contact your Audioarts dealer, give us a call or visit us on the web today to learn more about the power, flexibility and affordability of the IP-12.



IP-12
PLUG & PLAY POWER

MODULAR WHEATNET-IP NETWORKABLE CONSOLE

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