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June 2009
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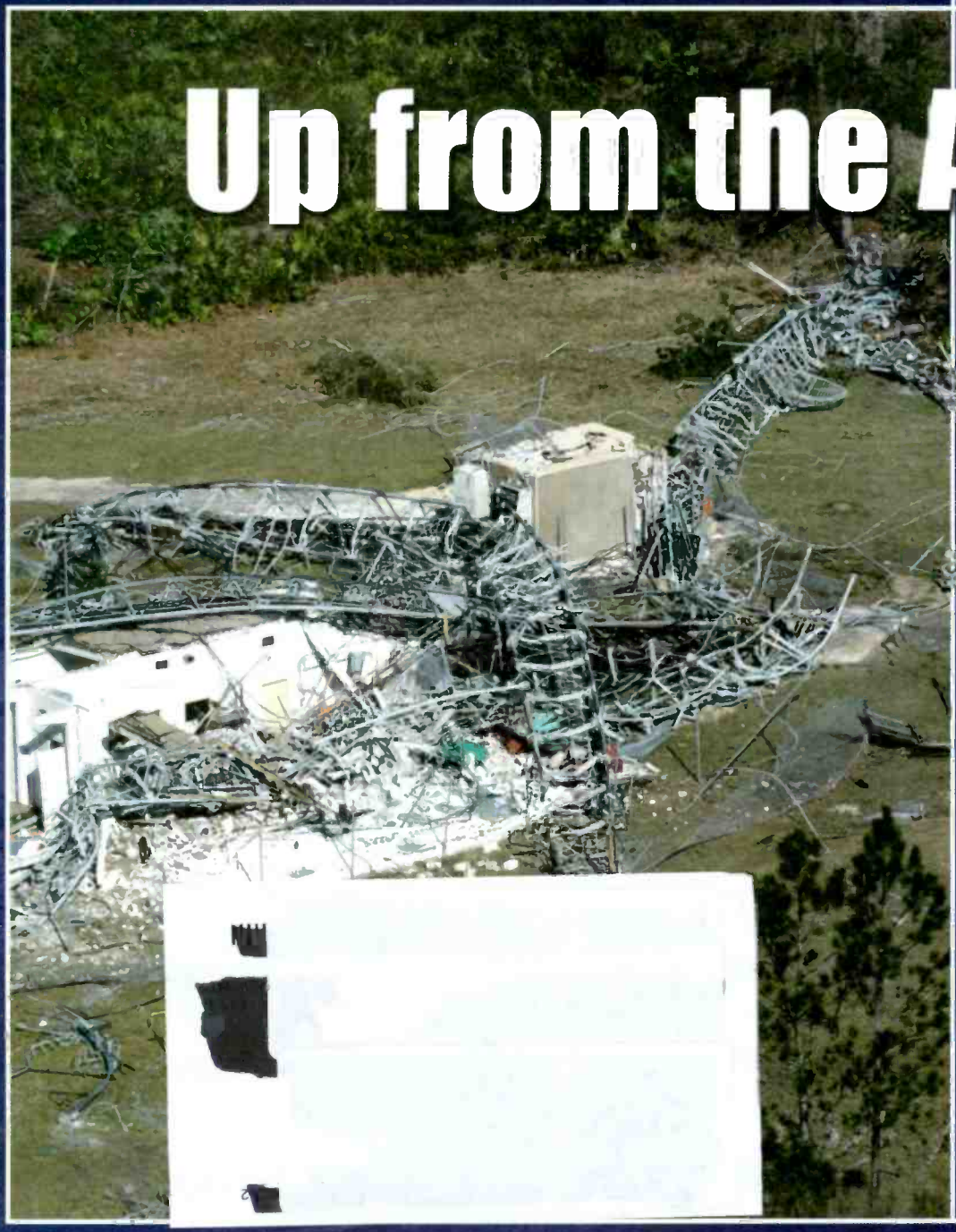
Up from the Ashes

WCFB recovers from disaster



2009 NAB REVIEW

Pick Hits, new products and more

FIELD REPORT

Burk ARC Plus and Aphex Headpod

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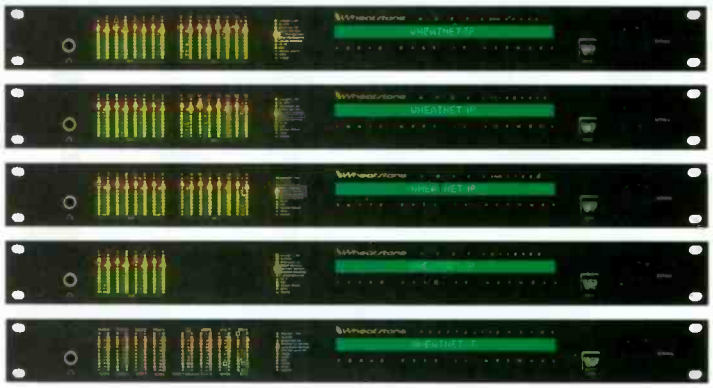


AUDIO-OVER-IP ROUTING. SOME TECHNICAL STUFF.

WHEATSTONE and WheatNet®-IP

WheatNet-IP is the new name for Wheatstone's Audio-over-IP networking, routing, and mixing system. First introduced at NAB 2008, it now accounts for the vast majority of networking systems that Wheatstone quotes and installs.

First, a quick overview, and then why WheatNet-IP has been so successful, not only in converting Wheatstone's loyal clients to AoIP, but also in convincing clients of the superiority of Wheatstone's technology over other choices.

WheatNet-IP BLADES

We call our I/O and mixing hardware and software "BLADEs"... way beyond the cutting edge, they're sharp and to the point (and yes, pun intended). Each BLADE is designed for a specific function—we don't cram unrelated tasks into one box making a central point of failure; we all know about "putting all your eggs in one basket."

BLADEs are access points in and out of the network. They interface seamlessly with Wheatstone's Evolution Series Console Control Surfaces, the Glass-E Virtual Console Control Surface, most of the popular automation systems, and streaming audio.

Three BLADES are line level I/O interfaces, one all analog, one all digital, and one half of each. Our newest BLADE provides mic level inputs. A fifth hardware BLADE mixes the audio for a Wheatstone console control surface. Each of the BLADEs and each Wheatstone console control surface connects to the network with a single CAT5E/6 cable.

BLADES are loaded with lots more sharp features: Each includes two 8x2 virtual utility mixers that can be used for a wide range of applications, a front panel headphone jack with source select and level control to monitor any system source, SNMP messaging for alerts, and silence detection on each output that can trigger alarms or make a routing change.

There's also WheatNet-PC, a software BLADE that you install on automation system computers, news workstations, or even the PD and GM's desk computers—to control, play and record audio on and off the network. It eliminates the expensive sound card, and replaces tons of audio and control wiring with a single CAT5E/6 cable.

EASE OF INSTALLATION

The relatively small channel count of each I/O BLADE allows you to conveniently locate it close to your equipment. In TOC/Master Control, there's no need for a back wall full of punch blocks, a BLADE (or occasionally two) in each rack keeps audio and control wiring entirely within the rack, allowing for a fast and clean build-out. In the studio, usually just one line-level BLADE is required; they're silent, so you can locate them with live mics.

FAST AND SIMPLE SETUP

Wheatstone's goal was a system that's extraordinarily easy to implement without the need for super-complicated network engineering, and where you don't need to be concerned about setting priorities to assure that those signals that are most critical are available.

WheatNet-IP setup is easy, intuitive, and takes only a few minutes until you're on the air. The front panel setup wizard in each BLADE gets you up and running in moments. Extensive front panel metering and status indicators provide quick confirmation that all is well. WheatNet-IP's web interface and WheatNet-IP Navigator software let you further customize your system, locally or remotely, with input and output names, logic associations, routing and much more.

RELIABILITY

Audio everywhere all the time, and keeping you on the air, were foremost in the design of WheatNet-IP.

Wheatstone chose Gigabit Ethernet (1000BASE-T) because 100BASE-T just can't simultaneously handle the large number of audio channels prevalent today in large broadcast plants without the very real risk of audio not being available when you need it. Gigabit protocol means all audio everywhere with extremely low latency.

WheatNet-IP is completely self-contained—no PC is required to perform any of the system functions, including routing, mixing, salvos, and logic control. The PC is needed only for configuration changes.

Each BLADE carries a complete map of the entire connected network in its onboard CPU flash RAM. Talk about redundancy, a system with 36 BLADEs has 35 backups! Need to replace a BLADE? Assign its ID number and connect it to the network—it will query the other connected BLADEs and import all the necessary configuration settings!

BLADES

ip88m ANALOG MIC I/O BLADE: 8 fully balanced reference-grade mic preamps with phantom power, 8 analog outputs, 12 universal logic (GPIO) ports programmable as inputs or outputs, routable throughout the system.

LINE LEVEL I/O BLADEs: 16 input channels, 16 output channels (switchable 8 stereo, 16 mono, or any combination), and 12 universal logic (GPIO) ports.

ip88a ANALOG I/O BLADE: 16 analog in/out.

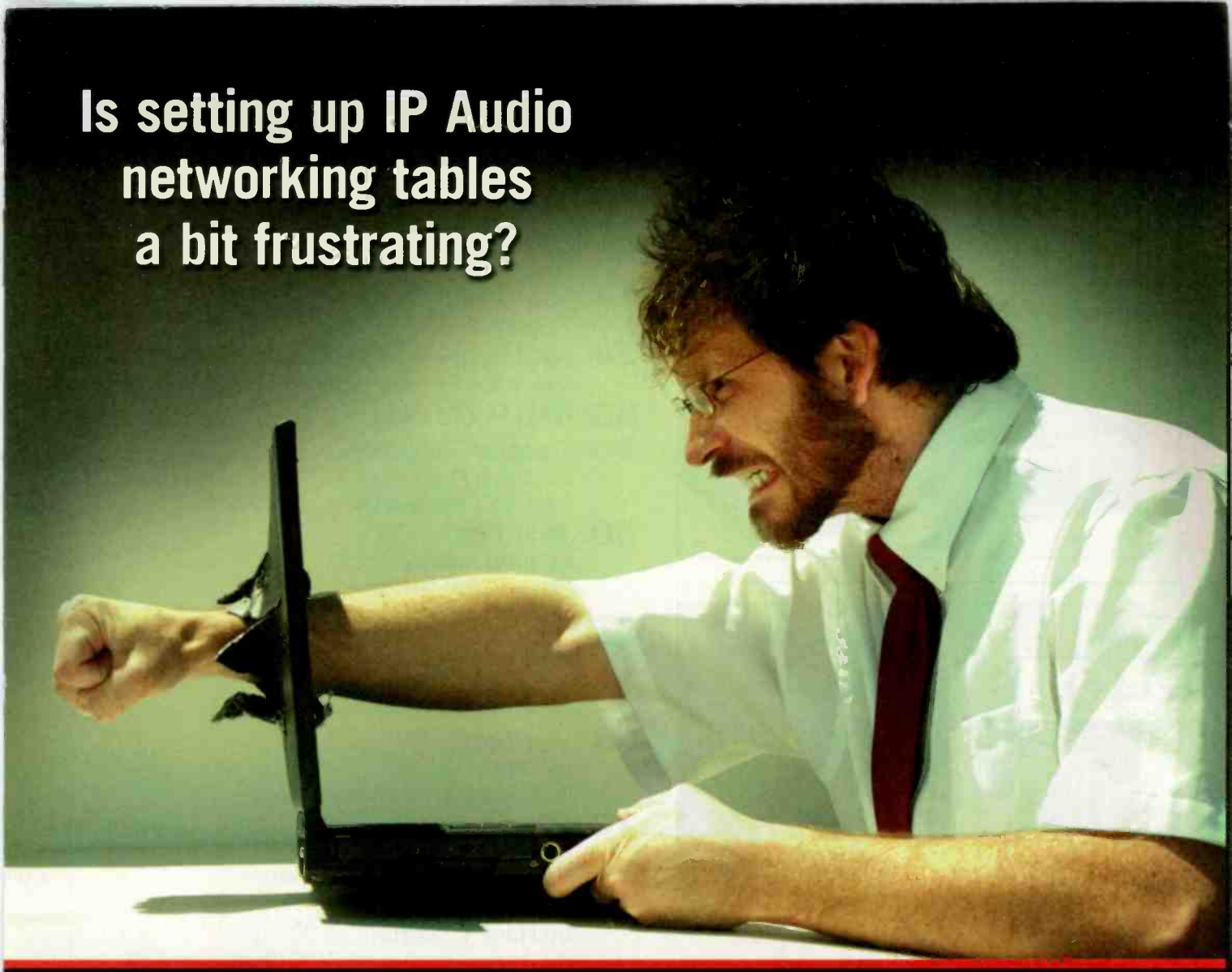
ip88d AES DIGITAL I/O BLADE: 8 AES (16 channels) in/out.

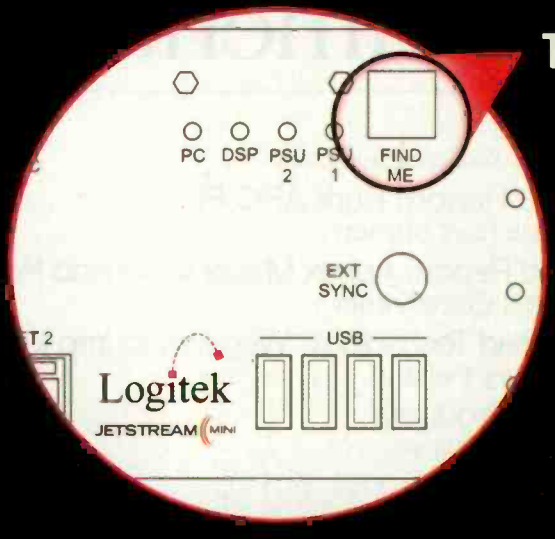
ip88ad ANALOG & DIGITAL I/O BLADE: 8 analog in/out, 4 AES (8 channels) in/out.

ip88e WheatNet-IP MIX ENGINE BLADE: Handles all of the mixes from Wheatstone Evolution Series Console Control Surfaces and the Wheatstone Glass-E Virtual Console Control Surface, distributing the four stereo PGM, four stereo AUX SEND, per-channel MIX-MINUS, monitor outputs and other bus signals to the network. Once on the network, they are available as sources and outputs anywhere. This creates an extremely flexible system, where program outputs from one surface can be a source on any other surface; for example a news mixer's program bus as a source on the air studio surface. While the ip88e doesn't house audio I/O, it does include 12 universal logic (GPIO) ports.

WheatNet-PC BLADE: Installs on Windows PCs to replace the sound card; interfaces eight stereo audio signals in/out, plus automation control data (start, stop, etc.).

Is setting up IP Audio networking tables a bit frustrating?





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Next Generation IP Audio

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CONTENTS

14

40

54

ON THE COVER

When the skies went dark, so did WCFB's transmission. But it was back on the air in about 10 hours and totally rebuilt in 21 months. Check out the story on page 40. Cover design by Michael J. Knust.

Features

14 2009 Pick Hits Award Winners
15 outstanding products from the 2009 NAB Show

24 NAB Post-show Products
Products from the show, highlighted by category

35 NAB Photo Blog

40 Disaster Recovery
by Steve Fluker
A tornado, the cleanup and rebuild of WCFB

50 Tech Tips
by John Landry
Tips, tricks, hints and more

Columns

8 Viewpoint
by Chriss Scherer
Being there is half the experience

10 Managing Technology
by Kevin McNamara
Honing skills to be ready for business

12 FCC Update
by Harry C. Martin
FCC proposes overhaul of AM/FM allocation standards

Departments

6 Online
at www.RadioMagOnline.com

52 Field Report: Burk ARC Plus
by Michael Kernen

54 Field Report: Aphex Model 454 Head Pod
by Bill Eisenhamer

56 Applied Technology: Wegener Ipump 6420
by Gary Pelkey

58 New Products
by Erin Shipps

72 Classifieds

73 Contributor Pro-File
Meet Steve Fluker

74 Sign Off
by Erin Shipps
Who has received the most Pick Hits through the years?

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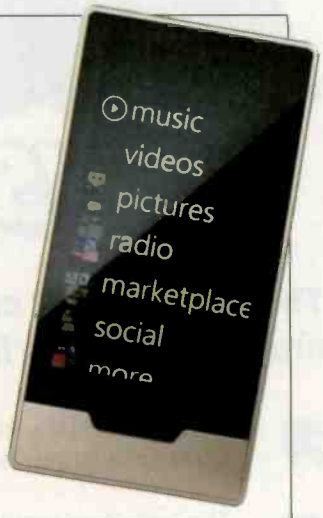
Currents Online

Selected headlines from the past month.



Microsoft to Add HD Radio to Zune

The device is due to be in stores in September 2009.

Aircorp Closes Shop

Jim Loupas, president of Aircorp, is ceasing production of its mic processors.

John Lyons Elected Into the Broadcasters Hall of Fame

Lyons played an important part in the return to the air of many New York broadcasters after 9/11.

New Support Option for SS32 Systems

Dave Scott, former CEO of Scott Studios, and Enco Systems are teaming to service and support SS32 stations. The venture is called Scott-Enco.

CT School of Broadcasting Gets Second Life

Dick Robinson, the original founder of the Connecticut School of Broadcasting, has been granted approval to buy back the bankrupt business and campuses in seven states for about $1 million.

NAB Launches "Don't Tax That Dial" Radio Competition

The winning entry will be awarded $2,500 and be recognized at the 2009 NAB Radio Show in Philadelphia.

Panama Adopts HD Radio as Digital Radio Standard

On May 12, 2009, the Republic of Panama chose HD Radio as its official digital radio standard.

Find the mic and win!

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FCC's Copps Considers Shorter Broadcast License Terms

During comments made at the Free Press Summit, FCC Acting Chairman Michael Copps suggested his idea to shorten the broadcast station license renewal term from the current eight years to three years.

Site Features

2009 NAB Show Photo Blog

See what happened at the convention through the camera lenses of the *Radio* magazine floor reporters.

- *RadioMagOnline.com/nab/photoblog2009*

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Being there
is half the experience

How was your NAB convention experience? If you didn't attend, don't worry, I'll get to that. If you were there, you noted the lighter crowd, which I mentioned last month. Attendance aside, it seemed like a good show. For me it seemed to go by faster than previous conventions. Granted, I was in Las Vegas for six days instead of eight this year, but each day seemed to go quicker. Perhaps I was packing more into each day. Perhaps I was less focused on cramming everything in and going with a more natural flow.

So how was the show? The session topics looked good, although I admit I did not make it to as many sessions as I would have liked. The usual course of legacy and new technology were in the mix. Workflow and IP were the leading topics from what I saw. As usual, most topics were timely.

The exhibit floor was more relaxed, which I already have attributed to the lighter attendance. The exhibitors certainly want to get the maximum result while there, and with a 20 percent reduction in floor traffic, they had their work cut out for them.

There were some interesting product and technology introductions. The focus on data was certainly obvious. We seem to have fully embraced the idea that we work with data carrying audio, rather than audio converted to data.

But what if you weren't there? Did you really miss out? You can find the product information online and in webinars. You can purchase the proceedings from the sessions and watch them in the comfort of your home or office. You don't have to deal with the travel and you easily saved several hundred dollars. It makes one wonder: Is it worth attending a convention in person anymore?

The general mood this year was more focused, thanks to the suffering economy, staff cuts and slashed budgets setting the tone. But the experience of interacting with other people in a common environment is the intangible element to any conference gathering. You can do so much online, but I still believe there is no substitute for the in-person experience. This doesn't only apply to the NAB Show, but any national, regional or local conference with a focus on informing attendees.

If you didn't make it to the NAB Show this year, I hope you are considering other events closer to home. (We have a current list of national and regional conventions and conferences at RadioMagOnline.com/calendar.) There are some very good conferences hosted by state broadcast associations and SBE chapters. I have attended the fall conferences in Madison, WI, Syracuse, NY, and Pittsburgh over the past few years, and there is always something worthwhile to be gained at these events, even if it's talking to someone new during lunch or chatting with a fellow attendee after a session.

I also know of some road shows that tout themselves as being purely educational despite their pay-to-participate models. I don't hold a high regard for the content of these efforts, but I will say they at least provide a common gathering point for the attendees. Ignore the obvious sales pitches and take advantage of the professional networking opportunity.

So is it worth attending the 2010 NAB Show? I think so. And right now is the right time to begin planning to attend.

Chris Scherer

What's your opinion? Send it to radio@RadioMagOnline.com

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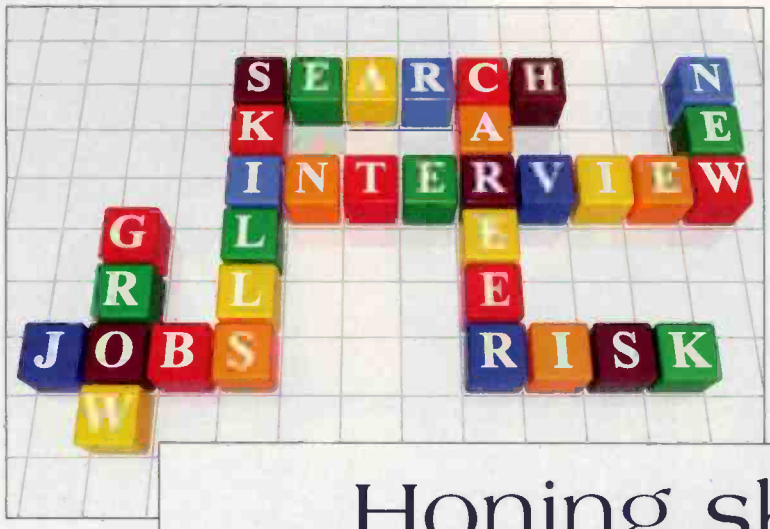

Honing skills to be ready for business

By Kevin McNamara

The issues with the global economy are taking a toll on most of us. Long before the economy started to tank, broadcasters saw decreased revenues due to the growth of the many new media options available to the public. The combination of these events is proving particularly devastating to many owners who have seen not only a decrease in their revenue, but a substantial decrease in the market value of stations. Some reports place station values down as much as 80 percent of the purchase price. In addition, the stock prices for publicly held media companies are down to record levels.

The fact is that every business is being affected by the economy, but history also indicates that sharp down-turns are followed by a solid period of growth. In my opinion, this is the perfect time for one to really evaluate his or her goals, priorities, needs and desires.

Did you know that 16 of the 30 companies listed on the Dow Jones Industrial Average were started during a period of bad economic times? In our parents' generation, there was a great deal of value in the concept of job security. I think most people still see this as comforting, but in reality that security doesn't exist. Even government positions are not guaranteed for life any longer. When I decided to leave the business establishment and start my own business (more years ago than I can remember) people would ask, "How do you deal with having no job security?" and I would answer, The only difference between my situation and that of someone in the role of an employee is that I know when my assignment is over. Jack Welsh, the former head of General Electric coined the familiar phrase "If you don't control your destiny, someone else will." Now is the time to start honing your skills!

Taking control

Most stress is caused by being in a situation you feel is out of control; whether it relates to money, pressure of completing something on time, public speaking, staying in a job you hate, etc. We have all experienced stressful situations, but consider that what makes stress diminish is the resolution of the particular concern – the presentation is over, the bills are paid, project is complete.

It is harder to resolve things where you feel fully vested such as a relationship or a career. Most people prefer to stay in their comfort zone. This is particularly true in a job – you know the players, you know how the company operates, you know how to get things done, you know your relationship with upper management, you know the company culture and they know you. Although less apparent, the company likes to have known commodities for its employees, it makes management feel more secure in knowing something can be carried out by the resources in place, or in this case, *you*! The company may offer training to its employees, but this is typically limited to that which relates to the particular employees position. Any of this sounding familiar?

If you are indeed comfortable in your current situation you are likely not feeling threatened that the economy will have any effect on your job, but I suspect the majority of employees have serious concerns for the direction of their futures.

The first step to taking control of your future is to evaluate what it is you really want to do. This may not be easy, because the majority of us entered the broadcast engineering field because it is fundamentally rooted in something we started as a hobby, namely electronics tinkering and problem solving. It is however possible to take that acquired knowledge and experience to other opportunities. Unlike many engineering disciplines, broadcast

engineers deal with a broad variety of situations that can range from day-to-day maintenance to managing the construction of entire facilities. You probably already possess a wide range of skills. Have you thought about which part of your job you enjoy more than others? This is the starting point for making that decision as to what path you might pursue.

Start researching opportunities on the Web, not necessarily to find a new job, but rather to see what positions might exist and the particular demand for a position. Most importantly look at the specific requirements, skill sets, certifications and/or degrees employers are seeking. This is the basis for your next step: Acquire the needed skills to achieve your plan.

Getting the skills

Obviously many employers like to see a resume full of academic achievements, which is great if you already have it, but over the past 10 years or so, there has been a trend in organizations offering specific certifications in various disciplines. In essence, the intent of these certifications is to distinguish a person from his non-certified counterparts. In some cases a company may require select employees to obtain a certification for the business to meet certain qualifications to do business with other entities. A good listing of professional certifications can be found at en.wikipedia.org/wiki/Professional_qualification.

One example is the Project Management Professional (www.pmi.org) which requires a combination of academic education, project management training and about 4,500 hours of documented project management experience. In addition there are a wide range of certifications in other disciplines such as computer software, networking, hardware, cabling, installation, construction, etc. If you decide to obtain a certification, you may also find the cost for training has come down significantly, one of the few benefits of a bad economy.

You can be sure the economy will recover and you want to be in a position to take advantage of the inevitable opportunities. This is a great time to prioritize goals, make a plan, start the process of learning new skills or increasing the marketability of the skills you already have.

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

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FCC proposes overhaul of AM/FM allocation standards

By Harry Martin

The FCC is proposing major changes in the way it allocates new AM and FM stations, as well as new rules governing metropolitan area move-ins. The core changes deal with the priorities applied under Section 307(b) of the Communications Act when proposals for new stations or community changes are being considered. Here are some of the highlights of the FCC's proposal:

- Except in extraordinary circumstances, no first local service priority would be awarded to proposed AM or FM facilities which would (or could) place a principal community signal over the majority of an Urbanized Area.
- Generally, no dispositive Section 307(b) preference would be awarded to new or major change AM applications on the basis of superior population coverage.
- A new "underserved listeners" priority would be created for any AM auction and FM allotment proposal that would provide a third, fourth or fifth aural reception service to a "substantial portion" of the proposed service population. A substantial portion could be 15, 25, 35 or 50 percent of the proposed service population depending how the Commission ultimately decides this issue.

Dateline

August 1 is the deadline for submission of biennial ownership reports by radio stations in California, North Carolina and South Carolina.

August 1 is the deadline for radio stations in California with more than 10 full-time employees to electronically file their Broadcast EEO Mid-Term Reports (Form 397) with the FCC.

August 1 is the deadline for radio stations licensed in the following states to place their annual EEO Reports in their public files: California, Illinois, North Carolina, South Carolina and Wisconsin.

- A prohibition on city-of-license changes that create white or gray areas (i.e., areas with zero or one reception service, respectively).
- Any move-in application proposing a first local service to a community would be treated as if it were proposing service to the entire Urbanized Area if the proposed facility would or could place a daytime principal community signal over 50 percent or more of the Urbanized Area.
- A new 307(b) allotment priority for Native American tribes.
- A four-year prohibition on modifications to AM facilities awarded pursuant to a dispositive 307(b) preference if the proposed change would result in a loss of service to the originally-proposed service area and population.

Auction Changes

The FCC's rule making also proposes the following changes to its auction procedures:

- Applicants in AM auctions would have to, at the time of filing, meet basic technical eligibility criteria, including community of license coverage (day and night), and protection of co- and adjacent-channel stations and prior-filed applications (day and night). Amendments to correct such basic defects would not be entertained.
- To head off speculative applications, the FCC is proposing to put caps on AM auction applications – perhaps a maximum limit of five applications per applicant per window. (This would not apply to commercial FM auction applications because FM applicants cannot avoid an auction by winning a threshold 307(b) preference.)
- The FCC is proposing to formalize the Bureau's practice of permitting non-universal technical amendments and settlements provided the amendment or settlement creates at least one grantable application.
- In light of the difficulty some applicants have had in securing suitable sites after an auction win, the FCC is proposing to relax its current 30-day filing deadline for post-auction long-form applications.
- For purposes of awarding new entrant bidding credits, the FCC wants to make it clear that the contour of a proposed new FM broadcast facility will be defined by the maximum class facilities at the allotment site, as opposed to the tech box facility, and that any new interests acquired prior to CP grant will be considered in calculating the credit.

Martin is a member of Fletcher, Heald & Hildreth, PLC, Arlington, Virginia. E-mail: martin@fhhlaw.com

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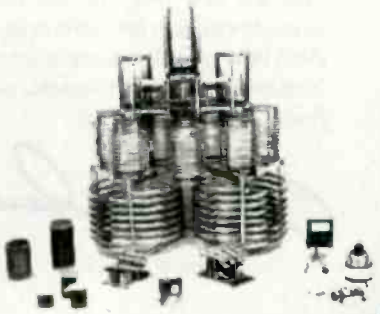

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The 2009 NAB SHOW™

Pick Hits, new products and more

The NAB Show is all about broadcast technology. Whether it's in the sessions or on the exhibit floor, the convention is an ideal place to discover the latest technology and learn how to make it work for your situation. This year, the exhibit space had shrunk, but there was still plenty to see.

From the mic to the transmitter and Web server, everything is covered at the show, and in our review. The Pick Hits – a *Radio* magazine tradition since 1985 – offer a unique look at the best of the show as viewed by the Pick Hits judges. These are products chosen by fellow broadcast engineers who have an eye on a product's practical use and technical innovation. Now in their 25th year, the Pick Hits are the original and by far the longest-running technology distinction of the NAB Show.

But the convention had many more new product introductions than the Pick Hits. We already highlighted many new products in the March and April preview issues, as well as in the weekly NAB Insider e-mail newsletter.

Being at the convention is half the experience. The *Radio* magazine contributors captured many of the sights from the show and posted them in our daily Photo Blog. We have pulled a sample of those images as part of this review.

But the Pick Hits and the accompanying new products rundown are just a taste of what was there. We'll have more in upcoming issues and in the New Products Extra! e-mail newsletter, as well as the annual Product Source in August.

Chriss Scherer

— Chriss Scherer, editor

Radio magazine Pick Hits 14
NAB Show New Products 24
Highlights of the *Radio* magazine Photo Blog 35

2009 Pick Hits

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PPM Assurance: The PPM Assurance protects ratings and reduces overhead by constantly monitoring all PPM encoders and providing automatic encoder toggling. E-mail alerts and exception reporting keep stakeholders up to date. It is a complete automatic recovery system. In addition to providing reliable backup encoder activation, the PPM Assurance monitor establishes direct data connectivity to the Arbitron equipment to verify code accuracy. And because loss of audio means lost PPM credit, built-in silence sensing enables swift program recovery.

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2009 PICK HIT

What the Judges had to say

Burk PPM Assurance

There's nothing else like it.

It's cheap insurance for PPM encoding.

Your Studio – Wherever YOU Are

Take BluePack On The Road – Keep BlueKeeper At Your Desk

Conducting interviews from your desktop or in the field is now easier than ever. With JK Audio's new BlueKeeper and BluePack, it's as simple as making a phone call. Using your Bluetooth™-equipped cell phone, you just pair and go (or stay). Effortlessly capture your voice and the caller on separate channels of your flash recorder or computer. Perfect for broadcast production.

BluePack

Bluetooth

The versatile BluePack (with a convenient beltpack clip) gives you a balanced mic input with a high-performance microphone preamp, stereo line-out, and an aux send. Together with your Bluetooth-equipped cell phone and a compact portable recorder or computer, it provides an incredibly compact production solution for interviews from wherever you happen to be. OR use it to send live man-on-the-street interviews back to your facility FROM your cell phone.

BlueKeeper gives you the power to mix mic and line level signals with calls from your wireless right at your desktop. It gives you a balanced XLR input with a professional mic preamp for superior sound quality and an XLR output. Mini jacks provide stereo lines in and out, a mono mic-out and a stereo headphone out. As with BluePack, use it to capture an interview or call in a story from Your Studio, wherever that might be.

Whether your interviews are in the field or at your desk, JK Audio's BlueKeeper and BluePack are an integral part of your studio.

BlueKeeper

Bluetooth

JK Audio

TOOLS FOR SUCCESSFUL RADIO

www.jkaudio.com

JK Audio, Inc. Sandwich, IL 60548 USA • Tel: +1-815-786-2929 • Fax: +1-815-786-8502 • www.jkaudio.com • info@jkaudio.com

Pick Hits

USB audio interface
Henry Engineering

USB Matchbox II: The USB Matchbox II is a USB audio interface used instead of common PC sound cards. It eliminates typical PC interface problems of buzz, noise, insufficient headroom and incorrect levels. It also includes the most useful features of the USB Matchbox products, providing both analog and digital interfaces. There is stereo analog I/O on XLRs at professional levels, as well as an AES/EBU digital output, plus a headphone output for critical monitoring. The USB Matchbox II features Burr-Brown's new generation phase coherent ADC/DAC, in addition to advanced audio circuitry. The unit supports 32, 44.1, and 48kHz sample rates and is plug-and-play compatible with Windows, Mac and Linux operating systems. It also features a built-in ac power supply to ensure operation at professional audio levels with available headroom.

626-355-3656; www.henryeng.com
info@henryeng.com

Spectrum analyzer
Bird Technologies Group

Signal Hawk SH-36S-PC: The Signal Hawk SH-36S-PC analyzes the radio frequency spectrum, measures intended and interfering signals, and allows setup of parameters such as frequency and amplitude markers. It displays signal amplitude versus frequency and saves traces on a PC. It is fast, accurate and sensitive (-135dBm noise floor) with the same spectrum analyzer functionality as the Signal Hawk handheld and rack-mount units. It is built in FCC compliance masks, has a waterfall display and a sophisticated spectrum analysis software package is included with the product.

866-695-4569; www.bird-technologies.com
sales@bird-technologies.com

2009 PICK HIT

What the Judges had to say

Henry Engineering USB Matchbox II

This consolidates a few devices into a single package.

It doesn't get its power from the USB connector, so it can be used for longer distances.

Axia Powerstation

This eliminates many separate boxes and puts them into a single package.

It brings the Axia system into a single-studio, cohesive system.

Bird Technologies Group Signal Hawk SH-36S-PC

It's an even more portable spectrum analyzer with a long battery life.

The price is very affordable for all its functions.

Harris HPX

High power with a rather small footprint for analog and digital.

Everything inside is very accessible.

25th ANNIVERSARY

IP audio console system
Axia Audio

Powerstation: This all-in-one IP-audio console system combines analog, digital and microphone I/O, a console power supply, DSP mixing engine and network switch into one package. To set up Powerstation, connect the studio equipment with standard CAT-5 cables, connect an Element console with just one cable, name the sources with a browser, and it's ready for air. Powerstation can be the heart of a standalone studio or part of a larger Axia network. Powerstation simple networking can daisy-chain up to four Powerstations for a multi-studio installation without a separate core switch.

216-241-7225; www.axiaaudio.com
inquiry@axiaaudio.com

Radio broadcast transmitters
Harris

HPX Series: HPX transmitters are available in analog FM-only or common amplification HD Radio versions, and incorporate an advanced transmitter control system. The compact design of the HPX transmitter utilizes matching amplifier and power supply cabinets to minimize the footprint at the transmission facility. Its common architecture at all power levels simplifies the upgrade path for stations who wish to migrate from analog-only to an HD Radio common-amplification system or increase HD Radio broadcasting power to the proposed -10dB when needed.

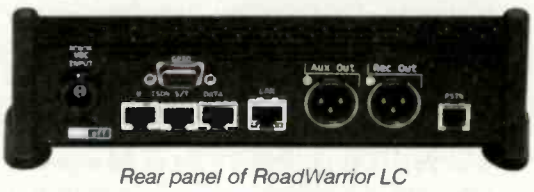
800-622-0022
www.broadcast.harris.com
broadcast@harris.com

MUSICAM USA
Versatility Redefined

RoadWarrior LC is a new full-duplex, two channel (Program & talkback) audio codec. Its new design, robust, compact and with a flat control surface, prevents accidental damage to the controls and makes it easier to use. It is a portable audio codec with all Suprima functionality built in.

RoadWarrior LC

- **IP/ISDN**
- **2-channel input mixer with line/mic levels and phantom power**
- **Lightweight & rugged design**
- **Can be controlled remotely from its web page**



Rear panel of RoadWarrior LC

Suprima

- **Includes LAN, ISDN, U & ST, and X.21 interfaces Standard**
- **Auto backup to ISDN from IP or X21**
- **Built in Web Browser for control and monitor from remote location**
- **Comes fully loaded with every available algorithm included**

CCS™

MUSICAM USA™

670 North Beers Street, Bldg. #4
Holmdel, NJ 07733 USA
732-739- 5600
732-739-1818 fax
email: sales@musicamusa.com
web: www.musicamusa.com

Pick Hits

Digital signal processor
Day Sequerra

M4DDM: This diversity delay monitor is the first Day Sequerra product to incorporate the company's newly developed Timelock DSP algorithm to automatically maintain alignment of the HD Radio main program signal (MPS) analog and HD-1 digital audio. Using its selective off-air tuner, the M4DDM measures the MPS analog and HD-1 digital audio diversity and generates a continuous stream of correction vectors to keep the analog and digital audio time and level aligned. These correction vectors can be processed internally by the M4DDM to delay the digital program audio or can be sent via Ethernet to an HD Radio Embedded Exporter to provide the necessary delay. Additionally, the unit has digital audio outputs for confidence monitoring and alarm outputs for loss of program audio and OFDM sidebands as well as HD Radio data and RBDS data payloads. The algorithm used in the M4DDM is based on a new digital audio correlation methodology developed jointly by Harris and Day Sequerra.

856-719-9900; www.daysequerra.com
info@daysequerra.com

Audio-over-IP transmission
Comrex

Bric-Link: Bric-Link transmits audio over IP networks and is suited for point-to-point "nailed up" audio links over a wide variety of data circuits including ISM band IP radios, T1/E1s, satellite data channels, WANs and LANs. Contained in a small, desktop package, two Bric-Links can be mounted in a 1RU rack space. Balanced analog 1/4" I/O, as well as switchable AES I/O, four contact closures, ancillary data and consumer level front panel I/O for monitoring are provided on BRIC-Link's compact and rugged chassis.

800-237-1776; www.comrex.com
info@comrex.com

2009 PICK HIT

What the Judges had to say

Day Sequera Timelock

It works for up to five stations/ streams. Fantastic.

I like the options to run audio through it or link it to a processor or link it to an Exporter.

Shure X2U

A mic to USB convertor is a good idea, but this adds headphone monitoring.

It's an easy way to create a production setup on the go.

Comrex Bric-Link

Offering multiple conversion formats – including AAC – is very flexible.

I like the fine-tuned GUI.

Tieline Bridge-It

The SD card slot gives extra peace of mind for audio backup.

Very flexible unit for IP audio applications, with all the necessary codecs.

25th ANNIVERSARY

XLR to USB adapter
Shure

X2U: The Shure X2U XLR-to-USB signal adapter is slim, portable and simple to connect. Making it easy to record whenever you want, anywhere you take your computer, it is useful for multi-track recording and features built-in headphone monitoring with zero latency. It also features easy controls to balance microphone and playback audio.

800-25-SHURE
www.shure.com
sales@shure.com

IP codec
Tieline Technology

Bridge-It: Bridge-It allows users to tailor the codec to suit individual requirements. Encode-only or decode-only versions or both are available. Bridge-It has an SD card slot for failover playback of prerecorded audio, and the unit's menus can be fully programmed using comprehensive front-panel hardware that includes a keypad and LCD display, or by using a Web interface. It is designed for desktop use, or two units can be installed side-by-side in a purpose-built 1RU mounting bracket. Bridge-It comes with a range of high performance broadcast algorithms plus optional AAC LC and AAC HE. Standard algorithms include 16-bit 22kHz linear audio at less than 12ms encode delay for uncompromised audio, G.711 G.722, MPEG Layer 2 and Tieline Music. The Tieline Music Plus algorithm also provides 22kHz mono, dual mono and stereo with 20ms encode delay at under 100kb/s. Bridge-It has all the expected broadcast input connectors. Simultaneous analog and digital AES/EBU audio outputs are provided on XLR connectors and it includes a 1/4" stereo headphone output.

888-211-6989; www.tieline.com
sales@tieline.com

IF ARBITRON™ CAN'T HEAR YOU, YOU'RE OFF THE AIR.

Failure is not an option. You need failsafe power!

In this business, nothing is worse than dead air. And if your Arbitron PPM™ encoder quits, you're dead in the ratings. That's why we built the PowerSwitch, our new automatic AC power controller. It will seamlessly switch between your Main and Backup PPM™ Encoders, so you get the ratings you've earned!

PowerSwitch sports two standard AC outlets to supply power to Main and Backup equipment. You can also use it to remotely re-boot PCs or turn anything on or off. PowerSwitch is remarkably easy to use.

You can operate it with its convenient front panel pushbuttons or remotely control it via external GPI contact closures. It will sound an audible alarm to alert nearby staff whenever it switches to Backup mode, while vivid LEDs indicate its status. You'll barely know it's there. Until you need it.

As long as we're talking power, check out our PowerClamp series of Transient Voltage Surge Suppression (TVSS) units.

Designed specifically for broadcast applications, these are the most advanced TVSS units in the industry.

They'll get rid of the nasty power spikes that can knock you off the air.

Nothing else out there comes close.

WE BUILD SOLUTIONS.

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

Visit www.henryeng.com for all of Henry's solutions!

HENRY ENGINEERING

Henry Engineering • 503 Key Vista Drive, • Sierra Madre, CA 91024 USA • T: 626.355.3656 • F: 626.355.0077 • email: Info@henryeng.com

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Pick Hits

USB turret panel
Sierra Automated Systems

TP-USB: This turret panel provides an easy way for talent or guests to connect a laptop to the SAS audio network. Typically, guests must feed the unbalanced line or headphone output to the audio network, which can lead to audio problems from ground loops and poor audio quality from the laptop's internal sound card. The card puts a USB B connector receptacle in easy reach to provide a bidirectional stereo connection. The panel fits in a 6" x 1.6" space. It connects to the SAS network via a CAT-5 cable. It is also available in a rack-mount version.

818-840-6749
www.sasaudio.com
sales@sasaudio.com

Solid-state FM transmitter line
Nautel

NV Series: Building on the NV40, Nautel now offers FM output power ranging from 3.5kW to 44kW with the NV3.5, NV5, NV7.5, NV10, NV15, NV20, NV30 and the flagship NV40. The NV Series of products offer several unique capabilities. An Advanced User Interface (AUI) provides more control with access from virtually anywhere, and the AUI increases station efficiency by making it easy to monitor and control. Nautel provides a control system with a 17" touch screen interface that manages the whole transmitter and multiple exciters. Real-time instrument-grade spectral analysis allows a station to quickly ensure that the signal is optimized for digital broadcast. All NV Series transmitters are digital-ready, allowing a plug-in Exgine upgrade to HD Radio broadcasting. Adaptive pre-correction provides linearity and IBOC transmission with no need for additional filters. Common modules across the product line are a plus for customers with multiple transmission sites.

207-947-8200; www.nautel.com
info@nautel.com

What the Judges had to say

SAS TP-USB

It's a pretty simple idea, but this eliminates the hassle I've had to deal with laptops being brought into the studio for playback.

Clean and straight-forward.

Harris Intraplex HD Link

The linked back-haul capability provides the missing link for the return path.

With all its features it also has a higher channel capacity and output power than other units.

Henry Engineering Powerswitch

A simpler method of switching PPM encoders in case of a failure.

An inexpensive solution, and there are applications beyond PPM.

Nautel NV Series

This completes the family with a broad power range.

It has it all: good interface, processing built-in, spectrum analyzer functions...

25th ANNIVERSARY

950MHz STL
Harris

Intraplex HD Link: This 950MHz STL was built around an integrated IP gateway. HD Link supports multiple channels of audio along with IP transport for HD Radio, and can take advantage of any available IP return path for TCP support with plug-and-play operation. The integrated IP channel for HD Radio program transport provides a link from Importer-to-Exporter or Exporter-to-Exciter for both audio and data carriage, with a separate low-priority Ethernet port included for other LAN and control traffic. Advanced coding and error correction mechanisms provide resistance to bit errors that can cause glitches in HD Radio performance. The unit also offers powerful, reliable RF performance (up to 5W), high-quality multichannel audio performance, plus convenient set-up and reliable operation including full metering, monitoring, and command and control capabilities.

800-622-0022; www.broadcast.harris.com
broadcast@harris.com

Automatic AC power controller
Henry Engineering

Powerswitch: Powerswitch is an automatic failsafe ac power controller that switches ac power to backup equipment if main equipment fails. Powerswitch was developed for use with Arbitron PPM encoders. If a PPM Monitor is used, the Powerswitch will automatically switch to the backup PPM encoder if the main encoder fails. This redundancy with automatic backup ensures that radio stations never lose ratings data in the event of a fault with their main PPM encoder. Powerswitch can also be used as a remote rebooter, to reboot a PC at a transmitter site or other remote location. It can also be used in any application where ac power needs to be remotely turned on or off.

626-355-3656; www.henryeng.com
info@henryeng.com

more PEACE OF MIND

more support. **more** reliability. **more** warranty.

It's Nautel's 40th anniversary and we're celebrating by offering you more protection on the world's most reliable transmitters. Buy a new NV or NX transmitter in 2009 and receive a **five-year warranty**. Expect more. More warranty, more support through our new Quincy office and Memphis quick-ship parts depot. Plus more peace of mind.

See what more looks like at
nautel.com/expectmore/

nautel

Making Digital Radio **Work.**

902.823.5131

Pick Hits

Lighting
Litepanels

1x1 Low-Profile: The Litepanels 1x1 Low-Profile fixtures protrude three inches from the ceiling or wall surface where they are mounted. This results in practically no loss of headroom or room space. Because the LED lamps on the Low-Profile are tilted at 40 degrees off axis, light is projected forward from the fixture to softly light the subject. Like all Litepanels LED lighting fixtures, the Low-Profile draws little power, and can be operated from 12Vdc. The fixtures are cool to the touch, even when operating, so they add no heat to a cramped space. And like other Litepanels 1x1 fixtures, it is dimmable via DMX or a control on the fixture itself, with no noticeable shift in color temperature.

818-752-7009; www.litepanels.com
info@litepanels.com

What the Judges had to say

Litepanels 1x1 Low Profile

More stations are streaming video from the control room; this is ideal for low ceilings.

The LED lighting stays cool, and they are very bright.

Burk Plus-X 300

It's much easier to connect this variation of the relay panel to the remote control.

Communications via Ethernet simplifies installation.

I/O interface
Burk Technology

Plus-X 300: The Plus-X 300 I/O interface simplifies distribution of monitoring and control to all areas of a facility by using Ethernet-based connectivity to the ARC Plus or ARC Plus SL. In addition to traditional transmitter site applications, the Plus-X 300 is well suited for use in studios, control rooms, IT spaces because wiring paths back to the remote control rack are no longer required. Each of eight input channels can be configured as either metering or status, allowing users to adapt the Plus-X 300 to the monitoring requirements of each installation. Relay outputs may be used in any combination of individual relays (momentary or latching) or in mutually exclusive raise/lower pairs.

800-255-8090; www.burk.com
sales@burk.com

Pick Hits Judges

Bud Aiello, CBNT
Director of Engineering Technology
NPR
Washington, DC

Tom Atkins
VP, Director of Engineering
Backyard Broadcasting
Buffalo, NY

Mike Cooney, CBRE
VP and CTO
Beasley Broadcast Group
Naples, FL

Bill Croghan, CPBE
Chief Engineer
Lotus, Las Vegas
Las Vegas, NV

Steve Fluker
Director of Engineering
Cox Radio
Orlando, FL

Scott Mason, CPBE
Director of Engineering, West Coast
CBS
Los Angeles, CA

Marshall Rice
Engineering Director
Bonneville International
St. Louis, MO

Jeff Smith, CEA CBNT
Supervisor Studio Engineer
Clear Channel - NYC
New York, NY

Martin Stabbert, CPBE
Director of Engineering
Citadel Broadcasting
Reno, NV

2009 NAB Show Pick Hits Rules

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

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

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

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

5. The products must be available for purchase within the 2009 calendar year. Equipment must be on display on the show floor, currently (or imminently) in production, and some type of product literature must be available. Judges take the exhibitor's word on availability dates. Products demonstrated in private showings do not qualify.

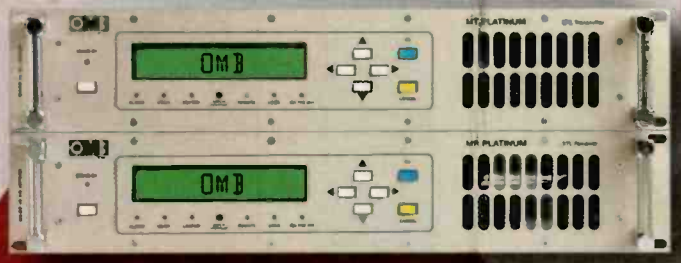
6. The Pick Hits Judges operate independently from one another and remain anonymous to everyone including other judges until the selection meeting. This ensures that the products chosen are truly representative of the industry, that the judges were not persuaded in any way, and that the entire selection process is as fair as possible. The judge's identities are published in the June 2009 issue.

7. The editorial staff of Radio magazine serves only as a moderator during the final selection process and has no influence or decision in determining the winners.

OMB
BROADCAST

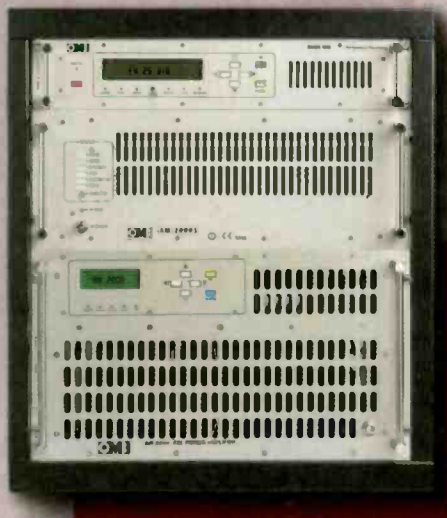
FM TRANSMITTERS

All transmitter powers with the best quality price ratio



MT/MR PLATINUM >1GHz

is a high-performance Studio-to-Transmitter Link. It is made up of the SW MT transmitter externally synthesized in 10MHz sub-bands with a step of 100KHz, and the MR double conversion receiver, that is externally synthesized, too. The MT is microprocessor controlled, and includes LCD display for the visualization of the most relevant transmission parameters (frequency (6-digit), forward and reflected power, modulation level), balanced Mono, Stereo (MPX). The MR receiver has the same visualization system as the transmitter. It includes balanced Mono and Stereo (MPX) outputs. Furthermore, the MT/MR Platinum STL includes a jumper in order to get a proper operation with digital signals.



EM 2000

is a 2000W FM transmitter made up of the EM 25 DIG exciter (or EM 22/30 exciter) and the AM 2000 FM amplifier. AM 2000 includes eight 300W high-efficiency MOSFET technology amplifying modules, fed by 2 independent switching power supplies, which are made to withstand the working conditions. The amplifiying modules work independently thanks to a power combining structure that provides high isolation between them.

EM 10000

is a 10000W FM transmitter made up of the EM 250 COMPACT DIG exciter and three control units which combine the power of six AM 2000 FM amplifiers. AM 2000 includes eight 300W high-efficiency MOSFET technology amplifying modules, fed by 2 independent switching power supplies, which are made to withstand the working conditions. The amplifiying modules works independently thanks to a power combining structure that provides high isolation between them.

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3100 NW 72nd. Ave. Unit 112
MIAMI, Florida 33122 USA

OMB EUROPA

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fax. 902-187878
Avda. San Antonio, 41
CUARTE DE HUERVA
50410 Zaragoza, ESPAÑA

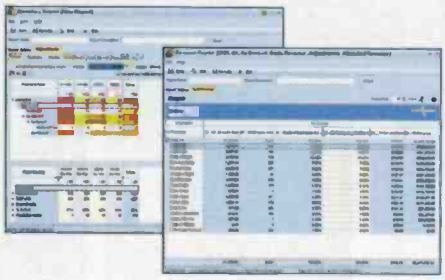
fábrica y laboratorio
teléfono. 902-187878
fax. 902-187878
Pol. Ind. Centrovía C/Paraguay, 6
LA MUELA
50196 Zaragoza, ESPAÑA

Condenser mic
AKG

C 3000: The C 3000 features a 20Hz to 20kHz frequency response, low-noise electronics, high-SPL capability and an internal shock mount, which drastically reduces handling noise from mic stands or cables. The switchable 10dB pre-attenuation increase in SPL capability by 10dB and accommodates loud instruments and amplifiers with ease. The switchable first-order 500Hz low frequency filter eliminates the proximity effect for close-miking. The standard accessories are a metal carrying case and a spider-type shock mount.

818-920-3212; www.akg.com
akgusa@harman.com

Sales, traffic and billing software
Wideorbit



WO Traffic 5.0: With the new 5.0 release, WO Traffic adds significant new functionality, including enhanced, dynamic inventory management with an Inventory Heat Map and Inventory Adjustments, as well as new, innovative support for Alternate Logs. Additionally, WO Traffic 5.0 reveals a new user interface with a fresh, improved look and feel – unified across all Wideorbit products, including the newly launched WO Sales. WO Traffic is consistently ranked the most recommended sales, traffic and billing software in the industry, based on the Traffic Directors Guild of America (TDGA) independent survey of software satisfaction.

415-675-6700; www.wideorbit.com
mzinsmeister@wideorbit.com

PC-board audio processor/sound card
Orban

Optimod-PC 1101: Optimod-PC 1101 has broadcast-quality digital signal processing on-board that's suitable for both live streaming and on-demand programming. Its three on-board Freescale DSP56367 DSP chips provide a loud, consistent sound to the consumer by performing stereo enhancement, automatic gain control (AGC), equalization, multiband gain control, peak-level control and subjective loudness control. Moreover, Optimod-PC is equipped with balanced analog inputs and outputs that can operate at professional +4dBu reference levels while resisting pickup of hum and noise. It is available in two versions-the 1101 is for PCI bus systems and the 1101e is for PCIe (PCI Express). Optimod-PC's audio driver allows it to appear as two standard sound devices to the computer's operating system. This allows netcasters who need to replace selected content (such as commercials in a program originally created for radio broadcast) to do so with only one sound card.

480-403-8300; www.orban.com
sales@orban.com

Portable codec
AETA Audio Systems

Scoopy+: Scoopy+ features three mic/line inputs, two headphones, two line outputs, an SD card/SIM card/USB/Express card, is wired for Ethernet, ISDN and POTS, and its mobile features include GSM/UMTS/3G+, Wimax and the forthcoming NGN. It provides simplicity, comfortable operation and autonomy (more than 5 hours from batteries). It also records for high quality transmissions and transmits from everywhere. All network interfaces are integrated.

+33 1 41 36 12 00
www.aeta-audio.com

Technology Spotlight:

IP Codecs

Audio-over-IP was easily the most frequently talked about technology at the convention. In-studio is one use of the technology (covered elsewhere in our wrap-up), but transmitting audio from the field to the studio or between facilities is the job for an IP codec. The evolution of IP codecs starts with ISDN and T-1 hardware, but the distinction between the two has almost been completely lost. As long as an IP connection can be made, these highly versatile performers can bridge the distance.

Musican Road Warrior LC

New systems shown this year include the Aeta Audio Scoopy+, AEQ Phoenix, APT Worldcast Equinox, Musicam Road Warrior LC, Tieline G5 and Bridge-It, and the Telos Zephyr Z/IP. All of these perform the classic codec functions via almost any path. Tieline, AEQ and Musicam have enhanced their mixer functions. The Aeta and Tieline also sport SD slots.

Worldcast Equinox

Expanding their roles beyond broadcast remotes, IP codecs are also finding practical use as STL systems, and the units from APT, Telos and Tieline are targeted at that application, as are the Barix Exstreamer 1000 and Comrex BRIC-Link.

PowerStation™: the new console system from Axia.

Because there's no such thing as too much uptime.

All stops removed • Twenty years from now, you'll have forgotten this ad. But you'll still have your PowerStation, the full-featured one-box IP-Audio console/router system hardened with **industrial-grade components** and redundant power capabilities. Tough enough to take a football to the groin and keep on going. PowerStation **minimizes setup** and **maximizes "bang for the buck."** Engineered without compromise for broadcasting without interruption.

E-I-E I/O • Finding space in the equipment racks is like living in a barnyard: too many chickens, never enough coops. So our team of obsessive designers fit **an entire studio's worth of inputs, outputs, logic and network connections** – plus an advanced DSP mixing engine and a massive console power supply – into just 4 RU. There's inputs for 2 mics, 4 analog inputs and 2 AES/EBU inputs, with 6 analog and 2 AES outputs. 4 GPI/O logic ports round things out. Want even more? Just connect the PowerStation Expander to instantly *double* the I/O — or plug some Axia Audio Nodes into its **built-in Ethernet switch.**

Everything's included • Yeah, we said *everything*: PowerStation combines half-a-dozen essential tools into one compact unit. No hidden extras to buy, no "gotchas" after purchase. Inside that muscular chassis you'll find a **bulletproof mixing engine** capable of handling consoles up to 40 faders, a beefy power supply (with optional **redundant power**), machine control ports, and **audio I/O**, all in one box. And of course, since it's from Axia, the IP-Audio experts, a studio built with PowerStation can stand alone — or it can become a part of a large network quite easily. Thanks to **PowerStation Simple Networking**, you can daisy-chain up to 4 PowerStations directly for easy multi-studio installation without the need for a separate core switch. Just another way Axia makes IP-Audio easy.

Element 2.0 • With more than 1,000 consoles already on the air, Element is a huge hit. And now, thanks to suggestions from our clients, it's better than ever. Element 2.0 has cool features like Omnia™ **headphone processing** presets to give talent that "air sound", **super-accurate metering** with both peak and average displays, **one-touch phone recording** with automatic split-channel feed, **automatic mix-minus** for every fader, an eight-channel **Virtual Mixer** that lets you combine multiple audio streams and control them with a single fader, and metallic bronze or silver module overlays. And we haven't even begun to tell you about Element's **Show Profiles** that instantly recall talent's favorite settings, its **built-in Telco controls**, fully-integrated **talkback/IFB** and **Mic processing** by Omnia. And durable? Element is nearly indestructible, ready to take whatever pounding ham-fisted jocks dish out and keep going. You want examples? Element's **avionics-grade switches** are rated for more than two million operations. What look like ordinary rotary controls are, in reality, **bullet-proof optical encoders** — no wipers to wear out or get noisy. The silky-smooth **conductive-plastic faders** actuate from the side, not the top, so dirt and grunge stay out. The **high-impact Lexan** module overlays have their color and printing applied on the back, where it **can't wear or chip off.** The frame is made from **thick aluminum extrusions** that are stronger than truck-stop coffee. To find out even more about Element, visit **AxiaAudio.com/Element/** . Grab some coffee and prep for a good, long read — remember, our marketers get paid by the word.

Easy as π • PowerStation combines a console DSP engine with audio and logic and a network switch, **all in one box.** As its name implies, there's a whole lot of muscle inside that burly frame, but that doesn't mean it's complicated. In fact, setting up PowerStation **couldn't be easier:** connect your studio gear with standard CAT-5 cables, connect your console with just one cable, name your sources and set preferences with a browser, and you're ready to rock. PowerStation makes building studios about 3.14 times easier than ever.

Redundant power redundancy • The power supply is the heart of any broadcast equipment, right? That's why PowerStation is **hardened against failure** with a **super-duty power supply** that sports enough amps to power an arc welder. And for those of you who like to wear a belt *and* suspenders, there's even a connection for **redundant auxiliary backup power** – with automatic switchover, naturally – that kicks in if it's ever needed.

Fan free • PowerStation is **silent and fanless.** Because studios today are already full of PCs, laptops and playout servers clicking, whirring and generating heat — who needs more of that? Not only is there no in-studio noise with PowerStation, those **big extruded heat sinks** are just plain cool. No pun intended (or maybe it was. We're like that, you know).

Built like a tank • Remember when consoles were built to last? We do. At Axia, we're all about the long haul. **There are no compromises:** PowerStation uses only best-of-the-best components. Like studio-grade Mic preamps and A/D converters. A rigid, steel-framed, EM-tight chassis that shrugs off RF like Walter Payton brushing off tackles. An industrial CPU designed for high reliability in harsh environments. Beefy extruded heat sinks. Big, brawny handles to make rack-mounting easy. (And it looks cool, too.)

You're covered • Axia has the most comprehensive warranty in the industry — **5 years parts and service.** And (not that you'll need it), **free 24/7 technical support**, 365-days-a-year. We've got your back, my friend.

24 / 7 SUPPORT

+1-216-822-0247

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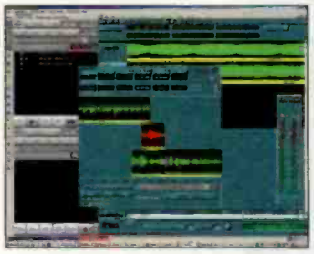
Radio and TV automation system
AEQ



Mar4 Suite Pro: AEQ launched its first automation system in 1994 and has recently completed the development of its third generation. The new architecture has been built around the Microsoft SQL Server database engine, and incorporates other complementary functions to maximize broadcast and data security. Moreover, many new features have been included, some of which were requested by users, such as a Mix-Editor that lets its users graphically mix sound on the playlist itself, and a multitrack editor.

800-728-0536
www.aeqbroadcast.com
sales@aeqbroadcast.com

AC voltage regulators
Superior Electric

Stabiline BVR Series: With a new, solid-state step regulating design that eliminates full load carrying transformers and servo-motor control schemes, the BVR is up to 40 percent lighter than other solutions. BVR models are offered in two standard ranges – narrow and wide to accommodate various installation needs (source stability and critical load requirements) – as well as site location. The power that must be corrected is greater for wide range units than narrow range units. All models offer individual phase control, NEMA 1 enclosures allow for easy wiring access, it has low audible noise and low added harmonic distortion.

800-787-3532
www.superiorelectric.com
info@superiorelectric.com

Fiberoptic acoustical ceiling tiles
Acoustical Solutions

Acoustilight: Acoustilight ceiling tiles are a revolutionary LED plug 'n play acoustical ceiling tile system that is simple to use and adds magic to any high-end ceiling. With both a drop tile ceiling and direct mount systems, the Acoustilight offers premium acoustics, LED technology, labor savings technology, and sheer beauty to name a few of the benefits you will experience. Features include 1.0 NRC rating, low-voltage light source, and patent pending solid-state Star Engine embedded in every panel.

800-782-5742
www.acousticalsolutions.com
info@acousticalsolutions.com

New products

Digital recorder
Samson Technologies

Zoom R16: This recorder is a digital multi-track recorder, an audio interface and a control surface. With the ability to record up to eight tracks simultaneously, it's easy to capture a live band or even a complete drum kit. The R16 features built-in stereo condenser microphones. It also provides eight balanced combination XLR 1/4" inputs. Use the R16 to control each function of your DAW software. Incorporate any of the 100+ built-in studio effects to enhance your recording and use the pro-quality mastering effects to complete that studio sound. You can even connect two R16s via USB for synchronized operation and 16 tracks of simultaneous recording.

631-784-2200; www.samsontech.com
info@samsontech.com

Veneer and laminate acoustical doors
Overly Door

Studio doors: Overly's acoustical wood doors have STC ratings from 41 to 49. Wood doors are provided with metal framing systems and are intended for interior use only. Unique manufacturing methods and patent pending designs make for a light weight and higher STC rating. The doors are available in a wide array of finishes. Choose from a variety of cuts and wood species, such as rift cut red oak or plain sliced maple. There are many combinations available. Contact the factory for selection sheets or veneer samples.

800-979-7300
www.overly.com
overly@overly.com

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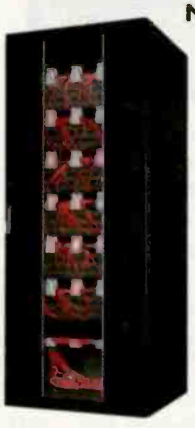
Automation system
Arrakis

Xtreme-Complete: Xtreme-Complete is a radio station in a box. On air, production, scheduling and logging can be performed at the same time on this workstation. No additional hardware or software is required. An Xtreme-Complete workstation is used for each on air channel in a facility. As an example, an AM-FM requires two workstations. For the other studios in the station such as traffic, production, and news, Arrakis can supply a preconfigured Dell PC or the customer can supply their own PC. Xtreme fully supports all types of on air operation: live, live assist, hard disk automation and satellite automation. The Xtreme automation system features dual audio outputs for program and cue. Up to four audio streams can be mixed to program while cueing.

970-461-0730
www.arrakis-systems.com
sales@arrakis-systems.com

Equipment rack
APW Mayville (Stantron)



Nexnet: The Nexnet cabling cabinet is stylish, robust and specifically designed to save installation and maintenance time in the datacenter. Its unique double wish-bone design allows cables to be laid into the cabinet rather than pulled in. With wide radius cable management accessories, 10G and Cat-6 cables are protected during patching to preserve your systems performance. Currently available with 42U spaces in 24" and 32" widths and 24", 32", and 40" depths, it is uniquely designed for the datacenter.

800-558-7297
www.apwmayville.com

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Technology Spotlight:

IP Audio Systems

We used to call them audio consoles and routers. Today there are more audio-over-IP routing and mixing systems than ever before. This in-studio application has become the new backbone for an audio network, and several manufacturers have found a unique way to enter the field. Most of them are focusing on providing flexible systems with a lower cost of investment.

Wheatstone has rebranded its system as the Wheatnet-IP (previously called the E²). While the basic functions are the same, the system has added several new modules – called Blades – including the Mic Blade.

Wheatstone Mic Blade

Logitek has begun shipping the Jetstream Mini, its IP-based engine. To complement this system, the new Pilot mixing surface provides many key features to create an economical audio system. Axia has also introduced a more economical system called Powerstation (see the *Radio* magazine Pick Hits on page 16.)

Logitek Pilot

Rounding out the new surface offerings is SAS with the M-Class, which interfaces to the SAS family of routers.

The Harris Vistamax systems debuted several new features, as did AEQ with the BC 2000 D with T-1 and Ethernet support and new matrix features.

Dual microphone pre-amplifier
Musicam USA

Mic: The Musicam USA MIC is a professional solution for all applications in which a microphone input is not available or is of insufficient quality. Cost and space constraints often compromise the performance of pre-amplifiers fitted to inexpensive mixing desks, portable digital recorders and PC soundcards. External microphone pre-amplification from a MIC can noticeably enhance overall performance, giving a wider range of gain and a reduction of noise levels.

732-739-5600
www.musicamusa.com
sales@musicamusa.com

Modular USB-powered sound card
Yellowtec

PUC2: PUC2 is a professional USB-powered soundcard with digital and analog audio interfaces. It combines failsafe installation with a new modular design. It still features PUC'n'Play technology while improving audio quality to deliver up to 24-bit/192kHz. AES-3 is the standard interface of every PUC2 soundcard. The modular design enables delivery of varying interfaces for the back. The analog line input/output module provides professional levels +15/+18dBu full scale. The microphone input module with 48V phantom power and up to 60dB gain dissolves the need for additional mic preamp equipment.

+49 2173-967 30
www.yellowtec.com
info@yellowtec.com

TRE add-on
Broadcast Electronics

Twitter Plug-in: The Twitter plug-in for BE's The Radio Experience (TRE) data management system takes advantage of social networking to build online communities and connect stations to listeners on a whole new level. With this plug-in and through the Twitter.com micro blog site, stations can broadcast "tweets" of contests and song and weather information to listeners on their cell phones or desktops. Listeners also can tweet their favorite station with song requests and send micro blogs of events in real time as an interactive participant in the station's social network. The Twitter application is a first in the industry, and is available as an add-on option for new as well as existing TRE systems in the field.

217-224-9600; www.bdcast.com
bdcast@bdcast.com

Portable headphone amplifier
JK Audio

Remote Amp Three: Remote Amp Three provides a listen-only connection for IFB or full bandwidth audio monitoring. The XLR line level input accepts either a balanced mono signal or a one or two channel party-line intercom feed. The XLR source switch selects between balanced input and intercom monitoring. The intercom mode allows Remote Amp Three to work with one or two channel intercom systems and provides separate volume controls for each channel. The integrated speaker is disabled when headphones or earphones are connected. The 1/2W, 1/4" headphone jack will cut through any crowd noise without distortion. Connect a mono IFB earpiece or stereo headphones to the 3.5mm earpiece jack. Remote Amp Three is powered by one 9V alkaline battery. If intercom power is available on either pin 2 or 3 of the XLR jack, this power will automatically override the battery, but will not charge the battery.

800-552-8346; www.jkaudio.com
info@jkaudio.com

Dynamic stereo monitor headphones
Audio-Technica

ATH-M35: Employing the company's latest transducer technology, the ATH-M35's offer sonic accuracy in a design engineered to provide comfort for hours of listening. Key features include a foldable design for easy storage and a rugged storage pouch, enhancing the headphones' durability and lifespan. The ATH-M35's have a low-profile, closed-back design, providing clarity and isolation in high-volume listening situations. The headphones feature a neodymium magnet structure and have a frequency response of 20-20kHz.

330-686-2600
www.audio-technica.com
sales@atus.com

On-air phone interface
Broadcast Bionics

Anywhere: You already have listeners who stream your station through their computer via the Internet. How do you ensure that your talk show still gets live contributions from those listeners? Anywhere is an amazing new Web communications platform designed especially for radio stations allowing listeners to communicate with the studio from any computer. By using the Anywhere portal on your website, one click connects them to your studio, and allows them to speak and share video using a webcam, chat with the studio using instant messaging, register opinions for a track and agree or disagree with a discussion all using a simple click of their mouse. A simple registration process captures all the listener information you need in the studio to be able to pre-screen contributions and even a photo, and using instant messaging, the studio call screener can continue to assess suitability to progress the call to air.

+44 1444 473999
www.phonebox.com
info@phonebox.com

PCI Cobranet sound cards
Audio Science

ASI54xx Series: The ASI5402, ASI5408 and ASI5416 are professional PCI sound cards designed for use in the installed sound and entertainment markets. Using Cirrus Logic's CobraNet technology for streaming audio over Ethernet, the ASI5402 provides two channels of CobraNet receive and transmit, the ASI5408 provides eight channels of CobraNet receive and transmit, and the ASI5416 provides 16 channels of CobraNet receive and transmit. These sound cards can be connected to any CobraNet compliant device.

302-324-5333; www.audioscience.com
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CONTACT: David Ripley
EMAIL: David.Ripley@cobham.com WEBSITE: www.cobham.com/patriot
PHONE: 517-630-2662 FAX: 517-630-2862

Technology Spotlight:

Portable Recorders

With the advances in digital audio, capturing high-quality audio in the field seems like child's play. But the recording interface is still an important consideration.

There has been a boom in portable recorders over the past few years. There are a plethora of handheld stereo units, and nearly as many multitrack units. Still, the need to accurately capture audio with minimal effort is the important concern. New units from Tascam, Edirol and Zoom add to the ranks of available units.

Yellowtech IXM

At this year's convention, Yellowtec introduced the IXM, a handheld recorder mic. Yellowtec has combined the best features of several recorders and packaged them into a recognizable form factor.

And since so many people carry an iphone now, you knew there was going to be an app for professional audio recording. Audiofile Engineering introduced Fire, an iphone app that presents a familiar and practical audio recording interface.

Audiofile Fire

One possibly unexpected pairing of technology adds portable recording to the familiar audio codec. The same device used to transmit high-quality audio from the field to the studio in some cases offers a way to record the audio as well. In addition, wireless mic systems, like the Zaxcom TRX900 series, have added recording capability.

Audio encoding
Omnia Audio

Omnia A/XE: The next generation of PC-based audio processing software, the A/XE can process audio for a variety of applications. It runs silently as a background service, can be fully-managed and configured remotely with a Web browser, and can process and encode multiple streams in various formats simultaneously. Minimum computer requirements are Windows XP or later, 521MB RAM, 20MB free hard-drive space and a network card. It can encode directly to MP3 or AAC as well as feed a Shoutcast-style or Windows Media Server in the MP3 format, or feed Adobe Media server an AAC stream.

216-241-3343; www.omniaaudio.com
info@omniaaudio.com

Equipment racks
Belden

XMF and XSF: Part of a series of equipment racks that also includes the XME and XMER models, these racks are engineered for flexibility in system configuration while also facilitating cable installation and management. XSF racks are designed for ganged installations, while the XMF can be used stand-alone or ganged. The welded steel frames are available in up to 26 heights and up to four depths. The Belden Quick Mount System accommodates flexible, fast and easy cable routing. Optional components include reversible doors, riser bases, side and top panels, spacing panels, EIA rail kits, drawers and front-mount work surfaces. Accessories include shelving, mounting devices, cable-tie mounts and other cable management support options. Door options include perforated, solid glass and vented doors, and a variety of top-panel options can provide passive convective cooling.

800-BELDEN1; www.belden.com
info@belden.com

High voltage detector
Hilomast

Wireless Sigalarm: This detector features a detection frequency of 50-60Hz and four working states. Alarm levels include: normal (no alarm); caution (high voltage detected at safety distance, audible visible alarm); warning (high voltage detected at dangerous distance, audible and visible alarm plus relay contact outputs); and no data (there is not connectivity between sensor and main unit, audible and visible alarm). The sensitivity is adjustable; it features a built-in buzzer and external speaker. Up to four remote sensors can be accommodated, and it has relay switched outputs for external control and alert devices.

407-688 2806; www.hilomast.com
sales@hilomast.com

Signal switcher
Whirlwind

AB-8: The AB8 is an 8-channel, balanced, bidirectional signal switcher (1 in/2 out, or 2 in/1 out). It auto-senses loss of input on its eight primary inputs and automatically switches to secondary inputs for backup in live tracking applications. The switcher can also be used manually to switch between inputs and outputs when multi-tracking in a studio. Channels can be switched individually or globally and AB8 units can be master/slaved for switching large numbers of channels.

800-733-9473
www.whirlwindusa.com
sales@whirlwindusa.com

FM transmitter
Ecreso

FM Series: This new product line has been designed to replace the existing 1KW to 10kW FM transmitter line. The new 3RU power amplifiers are more space efficient, producing 1kW instead of 500W. It is composed of easily interchangeable modules that are hot swappable. Each module is redundant and includes two MOSFETs with an independent power supply. The new Ecreso FM transmitter product line can be controlled via an RS232 local interface or via TCP/IP.

305-249 3110; www.ecreso.com
infos@ecreso.com

Original art panels
Auralex Acoustics

Sonic Print by Eric Waugh: Auralex has partnered with independent artists, such as Eric Waugh, whose artistic themes embrace the excitement and energy of urban life, romance, music, pets and still life. Sonic Print custom-printed, artistic Pro Panels are fabric-covered acoustic absorptive panels designed as artwork. Users are no longer limited to single color fabric choices, and can now outfit any space with paintings, drawings and photography of any kind. Auralex is currently negotiating several licensed properties to provide additional graphic options.

317-842-2600; www.auralex.com
auralexinfo@auralex.com

Signal analyzer
Anritsu

MS2690A: The MS2690A/MS2691A/MS2692A signal analyzer leads the industry with world-class measurement performance and speed. In the 50Hz to 6GHz-band, it offers best-of-class total level and modulation accuracy, as well as wideband analysis. At frequencies above 3GHz, it supports high-speed and high-accuracy measurements. In addition, superior RF-performance-based FFT analysis over a wide band up to 125MHz, coupled with a vector signal analysis function as well as a digitize function for high-accuracy capture of signal waveforms as digital data, support both R&D of next-generation wireless communications systems and function tests of devices and base stations requiring high performance. Moreover, fast Tx/Rx measurement for each application is made easy by installing the vector signal generator option and analysis software.

800-ANRITSU; www.us.anritsu.com
us-sales@anritsu.com

Transmitters
PTEK

Smart Series: These transmitters are small, high-power, hot-pluggable units that can be operated in HD Radio mode with the addition of an exciter and by selecting HD Radio or HD+FM mode on the front panel. Designed for the future of radio, the new Smart Series are feature-rich with tri-mode operation, and housed in a 19" chassis with an easy-to-open front panel for greater accessibility and quick installation. The touch screen control panel allows for ease of switching between main readings such as forward and reflected power, PA voltage and PA current. The built-in Web server provides complete monitoring and control of your system from any location.

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Exciter
Bext

LEX 150: The new Lex 150 offers 150W of power. Main features include: direct frequency programmability from front panel; built-in, selectable, very-high separation internal stereo generator and fast audio clipper; USB port (front) for PC connection and two independent RS 485 ports (rear); up to seven presets allowing for back up to multiple stations; built-in, front panel programmable FSK ID keyer by software for auto-ID of translators; telemetry and remote control interface built-in; fast access to programmability, functions and all readings from front panel via user-friendly menu display; proportional auto-foldback of output power in the event of excessive VSWR; adjustable power output from 0 to 150W with soft-start; automatic power control maintaining the output at any preset level; and voltage selector for 120 or 230Vac operation.

619-239-8462; www.bext.com
sales@bext.com

Blanking panel
Electrorack

Scale-IT: Electrorack's patent-pending Scale-IT blanking panels easily block open rack units in an enclosure. Lightweight, snap-together designs allows users to stock one size panel and quickly scale it to fill rack unit openings of any size. The snap-together, living hinge design creates a seal to prevent airflow leakage between panels. The panels are reusable, so you won't have to worry about cutting panels to the wrong size. All unused rack units at the front of a rack should be filled with blanking panels to prevent unwanted hot exhaust air from re-circulating to the front air intake of the equipment. Failure to utilize blanking panels can lead to increased equipment operating temperatures, which eventually leads to premature failure.

714-776-5420; www.electrorack.com
sales@electrorack.com

Console
Studer

On-Air 2500 Modulo: This console has separate modules for fader bays and master section, along with a rack-mountable mainframe that houses the power supply and host processing. These modules can be recessed, all cables integrated within the furniture and the mainframe hidden appropriately. The fader strips include a graphical OLED screen, which contains a channel label, level and gain reduction meter and parameter readouts, adjustable via a rotary encoder and two push buttons below the display. The large TFT color touch screen uses Studer's patented Touch'n'Action system, where only the most important functions have hardware control elements in the channel strip, making the operation of the console stress-free.

818-920-3212; www.studer.ch
sales@studer.ch

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www.StreamOn.fm
US: 951-801-2309
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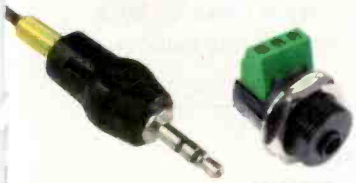
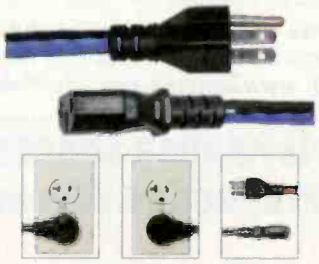


Max Blox CA-MX35M, CA-MX35: Soldering 3.5mm stereo cable mount connectors is solved with the patent-pending CA-MX35M. It is a 3.5mm stereo cable mount male connector that terminates with just a screwdriver and is ideal for use in applications where computer audio or IR control are used. The CA-MX35M consists of a 3.5mm stereo plug with an attached screw terminal block, along with a two-piece, snap-together hood. The rugged connector allows installers to terminate a 3.5mm stereo cable mount plug without the use of a soldering iron, saving both time and money.

800-666-0996; www.btx.com
info@bi-tronics.com

Multi-length power cords
Middle Atlantic Products



Signal Safe: With these cable options, installers can replace longer standard power cables to eliminate unnecessary cable slack in racks. The cords are now color-coded with a bold blue or red stripe to facilitate circuit identification. All power cords minimize ac magnetic fields, cutting field strength by more than 80 percent. The power cords are available in six lengths from 6" to 48" and sold in packs of 20. They also feature straight or right and left angled plugs to provide more options.

973-839-1011
www.middleatlantic.com
sales@middleatlantic.com

Sharp tuned IBOC mask filter
ERI-Electronics Research

FM Mask Filter: These sharp-tuned filters allow operation of simulcast analog and digital IBOC system at the higher -10dBc power level without spectral re-growth that exceeds FCC FM Mask requirements. The new filters are based on ERI's 970 and 973 Series FM Filter Cavities and are configured as constant impedance filters with the addition of non-adjacent coupling loops that allow the filters to maintain a very sharply tuned pass band. The filter sets can be configured to handle power level up to 60kW analog, plus 6kW digital. The sets are temperature compensated and can be configured for floor mounting or installed in vertical racks.

812-925-6000; www.ERIinc.com
sales@ERIinc.com

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Photo Blog

❶ Welcome to the 2009 NAB Show.

❷ Joe Klinger (left) shows the new Bluetooth-capable devices from JK Audio.

❸ The Association of Public Radio Engineers presented the Engineering Achievement Award to Don Danko of Cincinnati Public Radio and John Kean of National Public Radio. *Photo by Dan Mansergh*

❹ Bob Orban takes time to discuss audio processing ideas.

❺ A reception was held following the Broadcast Engineering Conference sessions on Sunday and Monday.

❻ John Hartzell of AEQ discusses audio codec options.

❼ Logitek's Frank Grundstein walks through IP audio routing and control surfaces.

❽ Tom Scott of Cox Radio Birmingham accepts the *Radio* magazine Excellence Awards trophy from Erin Shipps and Chriss Scherer. Paul Barzizza of Harris worked on the studio project.

❾ Art Constantine greets a long-time ATI user.

❿ It's a portable HD Radio receiver. This prototype was on display in the Ibiquity booth.

Photo Blog

❶ In the Arrakis booth, a small, stand-alone console is all that's needed for this attendee's project.

❷ The SBE booth outside the South Hall was busy answering questions about the SBE and selling reference books.

❸ Killer Tracks had some unique listening stations set up.

❹ The NAB Engineering Achievement Award Winners: Sterling Davis of Cox for TV, and Jack Sellmeyer, CPBE, of Sellmeyer Engineering for radio.

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Photo blog

2009 NABSHOW

⑤ Past NAB Engineering Achievement Award winner Arno Myer of Belar congratulates Jack Sellmeyer on receiving the award this year.

⑥ At the annual Ham Radio Reception, the NAB's John Marino calls the door prize winners while David Layer distributes the prizes.

⑦ Vorsis has several new additions to its audio processing line.

⑧ Discussing audio processing at the Translantech booth.

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KIQS, Four Corners Broadcasting, Durango, CO
" I love the flexibility (of Xtreme). The switching capability of the bridge is great. I've used (other automation) & Xtreme is much more user-friendly. I have recommended it for cost, capability & support. I always get an answer from your support guys!"
Ward Holmes, Regional Manager

WHFT, Avon Park, FL
" The tech support is a huge help. Nothing but good things to say, they've always been great & resolved any issues quickly."
Tony Scott, Program Director

WJQS, Jackson Mississippi
" Everything's GREAT with the Xtreme! I'm running 3 Xtremes. I love it because I can run it remotely from home. I would definitely recommend it because it's easy to work with & once you get started you can't break it!"
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Mike Glass, owner

Woodland Hills, CA Internet Radio
" You bet I'd recommend it for the ease of use & it's robust. I learned the software in about 15 mins."
John Tobin

KIKO-FM/KIKO-AM, Claypool, AZ
" I rate (Xtreme) at a 10 for ease of use. It's very simple, with limited engineering experience needed. You open the software & it's all self-explanatory."
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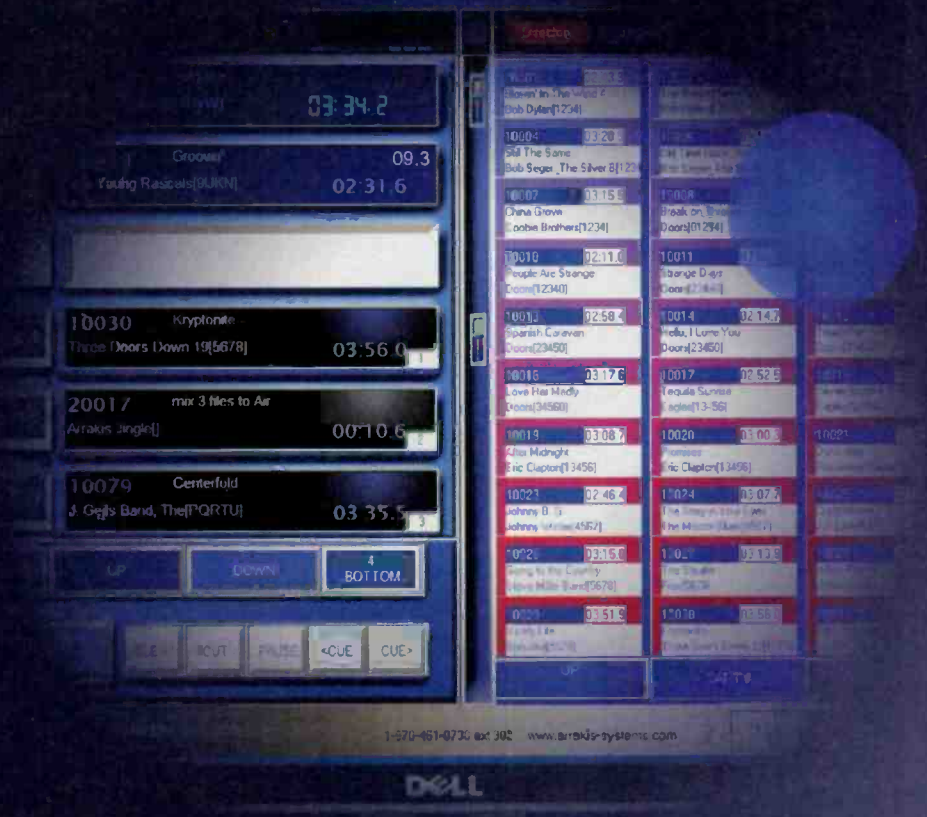

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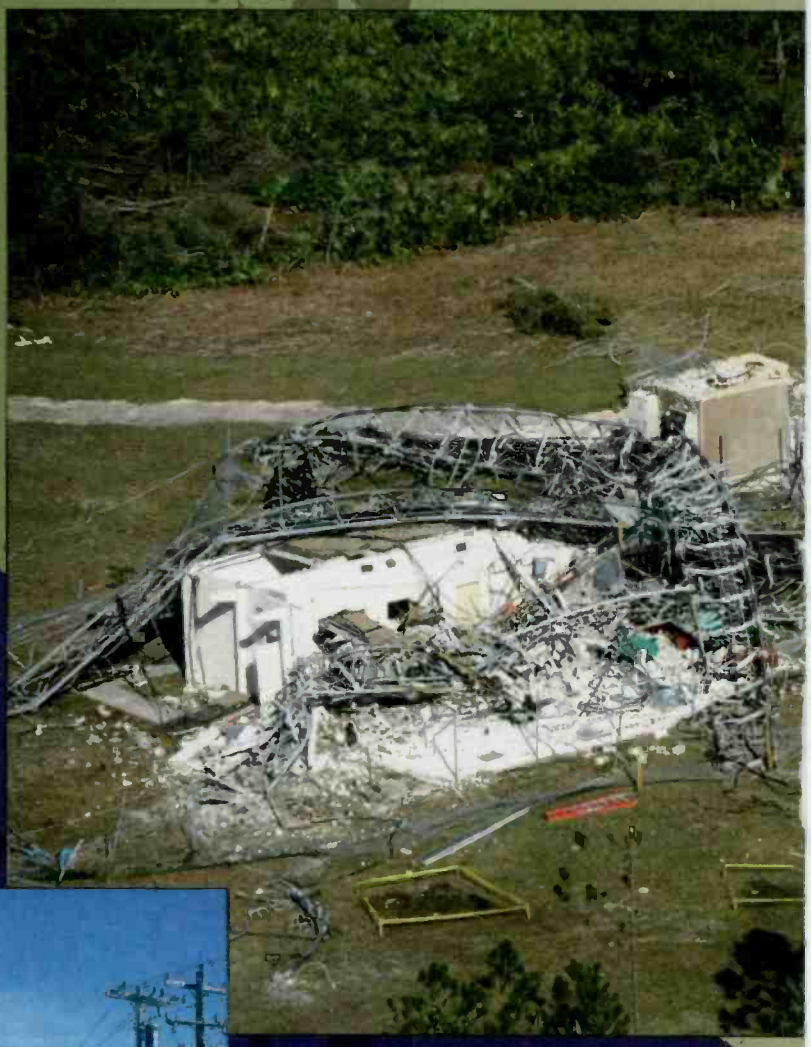
Disaster Recovery

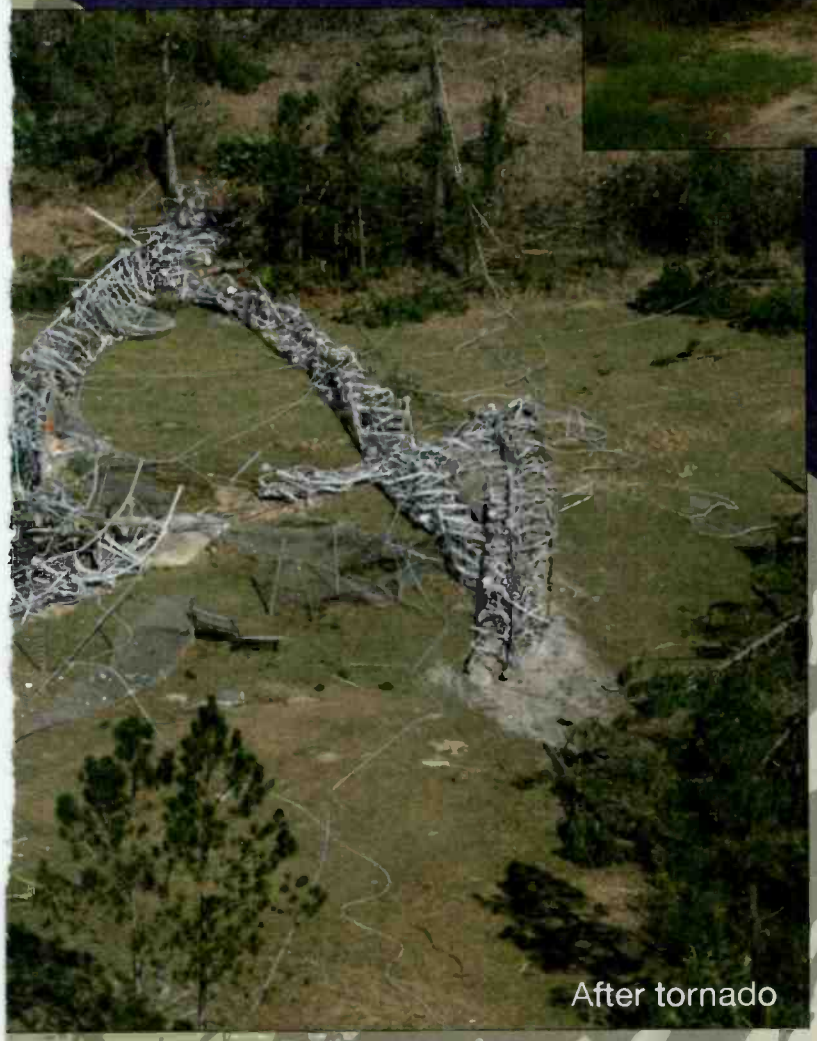
A major tornado takes WCFB off the air and sets off a nearly two-year rebuild.

By Steve Fluker



Before

New construction



After tornado

You never know when a disaster will strike. On Thursday night, Feb. 1, 2007, I went to sleep looking forward to a three-day weekend and spending a day at one of Orlando's famous theme parks. The weather forecast called for a cold front to move through during the night, then clearing and turning cooler by morning. You can't ask for anything better.

Damage to the racks

The tornado left mounds of debris in its wake

The front did move through, and around 4 a.m. the next day, I received a phone call that Star 94.5 FM was off the air. I dialed the tower site's remote control but the phone rang with no answer, so I turned on my computer and tried to connect with another wireless link, and again no luck. Doppler radar was showing a severe storm rapidly moving through with winds in excess of 70 MPH. There was also a signature of circulation right at our tower so I called another engineer and we mobilized. As we neared the site we found trees down and power lines blocking the roads and lying across deep puddles. We were not able to see the tower or its lights, but it was dark and the rains were still very heavy so we still held some hope.

The hope that this was just a generator failure faded fast as the skies brightened and it became obvious there was no longer a tower standing. Soon we were able to see enough to safely get around the power lines and walk the last half mile to the site. We were met with a scene that is permanently etched in my mind. A borderline F3/F4 tornado had cut a path across our property, directly hitting the building and our 1,500' tower, bringing it to the ground. The twister continued its path through a neighborhood less than a mile away where 13 people lost their lives. Looking through the rubble we quickly realized that the building and everything in it was a total loss and we needed to get started on the long recovery process.

Back on the air in about 10 hours

The first step was to get back on the air as quickly as possible. Cox owns another tall tower across town where I have two FM stations on a combiner system, so that was the obvious place to move to first. Our Atlanta engineer got on the phone with consultants and attorneys to work with the FCC for the necessary STAs. Our Tampa engineer hit I-4 with coaxial line pieces and transitions to get a low-power transmitter tied into the combiner's wide-band port. At 2:37 p.m. the same day, we had received FCC approval, set up the temporary transmitter and STL, and had the station back on the air, but that was just the beginning of the process.

This site worked to get us on the air, but its location restricted our power so we needed to keep working. Fortunately, we owned yet another tower right in the middle of the market and began working to build a better site capable of covering the full metro area. ERI rushed

Assembling the prefabricated transmitter building

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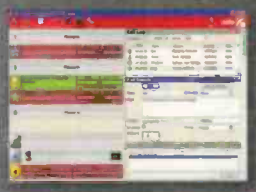

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Harris CD Link, Flexstar HDX, HT 35, HT25, HT25/Z32HD+, Z16, Z32
Intraplex STL Plus
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Oldcastle Precast building
Onan 125kW generator
Orban 8500HD
Stainless G-8
Tsunami 5.8GHz dual E-1

us a four-bay antenna, which arrived on Saturday night. A tower crew arrived from Texas on Sunday and we had a Heliax cable complete with hangers delivered on Monday. Because this tower site also houses a 50kW DA2 AM station, we had to run a partial proof before we could begin hanging the antenna. Electricians installed the power for a Z16 transmitter that Harris was working around the clock to provide. The transmitter arrived on Friday on a Fedex Custom Critical truck. All the crews were in place and knew their jobs, and 1 hour 15 minutes after the transmitter was taken off the truck's lift gate, we were on the air with an ERP of 18kW right in the middle of the market. This was still only a temporary solution because the signal did not cover Daytona Beach – the actual city of license – very well.

Even during this week of installation, we had our local and corporate offices working on a lease with American Tower and licensing with the FCC to relocate to a 1,600' tower located about 9 miles away from our original site. ERI had a tower crew available who had to remove a platform from the tower for our antenna to fit just below the 1,500' level. Dielectric provided us with an eight-bay antenna and Harris shipped a 35kW transmitter. The station was fully spaced as a C0 from this location, so the FCC allowed us to file for a new license and at the same time also granted another construction permit so that we could rebuild and return to the original site

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Disaster Recovery

The new transmitter line-up

as a full Class C station again. One month after the tornado we were back on the air at full power and height covering the entire original area. This took some of the pressure off and allowed us to focus on the new construction the right way, but we still didn't slow down.

The clean up begins

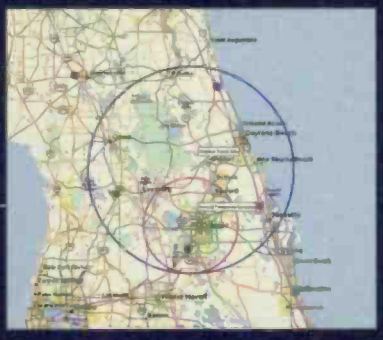
Back at the disaster site, work continued even while we were putting up the temporary sites. Twisted steel had to be removed, an environmental company was hired to clean up a spill from our diesel generator fuel tank, and the rubble from the building was removed. A salvage company was sent in by the insurance company to recover anything possible from the remains of the building. Blueprints for a new building and tower were already in the works so that the proper permits could be applied for. We also had an engineering firm conduct extensive testing complete with sonograms on the old tower and guy wire foundations to certify that they were structurally sound for a new tower. The foundations passed, however the main tower foundation had to be upgraded to meet the latest tower REV G codes.

Because we were starting from scratch, we had a unique opportunity to design the top section of the tower to perfectly match the antenna, to provide the optimum signal coverage. For this task we brought together the design teams from Stainless and Dielectric along with our consultant, Dean Sargent. An initial pattern study was completed with a scaled model and the

Three steps to improving temporary facilities

First Backup

Feeding a wide-band port of a Dielectric combiner to a CBR eight-bay, three-panel antenna at 1,500'



Second Backup

ERI SHPX four-bay mounted at 300' in Pine Hills, FL

Third Backup

American Tower in Orange City, Dielectric eight-bay DCRM side-mount antenna at just under 1,500'. This antenna was moved to the new tower to become the aux antenna mounted at 1,200' via a 3⅛" rigid Dielectric line with Ultimate Bullets. New Main antenna was the same as that destroyed, another Dielectric eight-bay DCRM antenna top-mounted on the tower at 1,485'. HAAT fed via a 4" rigic Dielectric line with Ultimate Bullets.

Optimizing the new antenna for WCFB

Rebuilding the transmitter facility for WCFB meant the project could begin with a clean slate. See how the station was able to optimize the antenna anc the tower to maximize the signal over the target listening audience. www.RadioMagOnline.com

results were used to design and construct the top tower section. The completed top section was then shipped to Dielectric for a full-scale pattern study complete with all eight bays. The steel, transmission lines and antennas arrived on property in late September, only seven months after the storm. For security reasons we stored the copper in locked trailers and hired off-duty Lake County Sheriff's deputies for protection.

We chose to replace the building with a Precast model from Oldcastle. This allowed the construction to take place offsite while the tower was being erected. The 30' × 40' building was then shipped in six sections to be set in place (see install on page 43). Unfortunately this is where we hit major delays. It was necessary to locate the new building slightly farther away from the tower than the old one. Also, to make better use of the inside area of the building, I had it rotated 90 degrees from the original building's orientation. This raised red flags with the county who then required new site plans to be developed and all the construction to be scrutinized, which created a delay in the permitting process of more than seven months.

To compensate for this delay, I had the equipment racks shipped to our studio. There we were able to mount all the equipment and complete about 80 percent of

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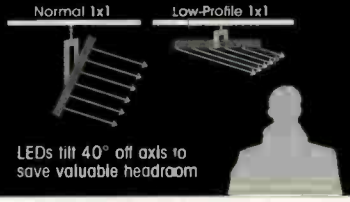

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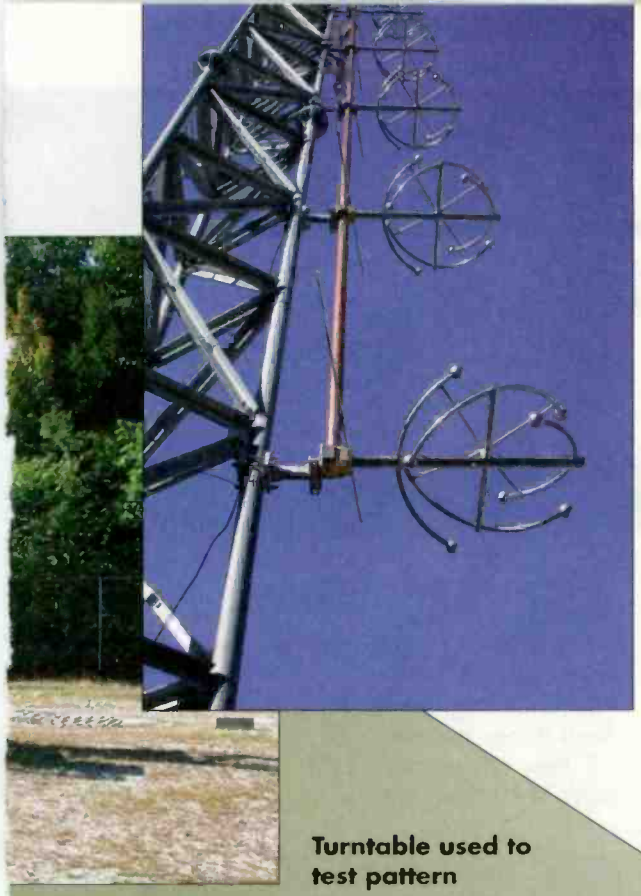


Turntable used to test pattern

the pre-wiring while waiting out the delay. Harris built the new HT25/Z32HD+ transmitters tied together with a Dielectric Dibrid combiner in a Split-Level configuration and waited for the green light to ship. The building arrived in September and was assembled. Next we installed the transmission lines and equipment. Everything came together and at 5:30 a.m. on Oct. 25, 2008, we went on the air from the new reconstructed tower site, but the work was still not over.

I operated the radio station on the new antenna for a week to ensure there were no initial problems, and then we went to work moving the transmitter and antennas from the temporary location to the new site. That transmitter is now our back-up transmitter and the eight-bay antenna was mounted on the tower at 1,200' as an aux antenna. The entire system was designed with the capability to increase the HD Radio power levels to the new -10dB standard if and when it's approved by the FCC.

During April 2009 we were finalizing the claims with the insurance company. We have also installed an emergency back-up transmitter at our studio location to eliminate the down time should we suffer another disaster in the future. It's been a long road but very rewarding in the end, and the best part, our ratings never suffered during the disaster.

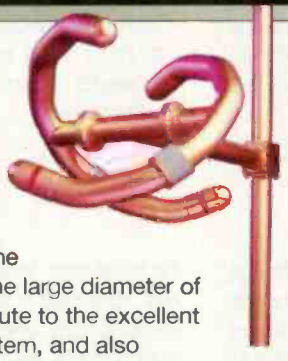
Fluker is the director of engineering for Cox Radio, Orlando.

Extensive before and after photos, floor plan, RF diagram and transmitter equipment layout at **RadioMagOnline.com**.

FACILITY FOCUS

The technology behind WCFB

ERI ROTOTILLER X Series



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TECHtips

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Tips, tricks, hints and more

By John Landry, CSRE

Power down

Recently several of the major networks have upgraded their satellite delivery platforms. These new systems are from three incompatible vendors, but all have similar features – such as addressability and remote store and forward capabilities. They also have analog RF signals that are much more fragile than their predecessors. It is possible to have a legacy receiver working properly on a particular satellite dish while a new generation receiver shows a marginal signal (or no signal at all) from the same dish. Should you encounter this problem the first thing to do is remove any inline amplifiers or amplified splitters. Some of these amplifiers have increased the noise floor on a satellite feed to the point that the newer receivers can't recoginze the RF. Wherever possible, feed the new receiver with a direct feed off the LNB. Then split that signal to feed the legacy equipment.

Inline power for the LNB of a satellite dish should be provided by an external power supply if you intend to feed multiple receivers from it. This is also a good idea if you have a long (300' or more) cable run between the receiver and the dish. All of the new generation receivers have a selectable LNB power feed option, and it should be switched off if you don't use it. Selecting this option is easy:

For the Wegener Ipump:

On the Front Panel:

1. Press the right arrow button until the display reads "unit setup". Press enter.
2. Press the right arrow button until the display reads "transport in setup". Press enter.
3. Press the right arrow button until the display reads "LNB power". Press enter.

For the IDC Max:

On the Front Panel:

1. Press check mark
2. Press up arrow 15 times until it says LNB.
3. Press right arrow
4. Press check mark
5. Press up arrow to change Disabled/Enabled
6. Press check mark to save

A similar choice exists in the X-Digital Pro-4 receiver menu.

Do the dishes

The warmer weather almost always brings satellite reception problems. Some problems are unavoidable (such as the sun outage periods in early spring). Others are preventable with some routine maintenance. Regardless of the location (city or rural) wildlife often set up housekeeping in or around a satellite dish. It is a good idea to inspect the dish as early in spring as you can, and evict any birds nesting near the feedhorns. Later in spring, wasps may build a nest, and most of the time they do it directly inside the feed horn, eventually cutting off all RF. Be sure to also check the back and underside of the dish (I once had a very large hornet's nest on the rear of a 4.5 meter dish that was all but invisible from the front – those hornets weren't happy with us climbing on that dish).

Switch to safety

Make sure your transmitter sites are secure. The spring is a good time to verify all gates and fences are in good order and access to areas of high RF voltage such as dog houses, towers and transmission lines are only not accessible to unauthorized people. Check security lights, alarms and cameras to make sure they are working.

Landry is an audio maintenance engineer at CBS Radio/ Westwood One, New York.

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Burk ARC Plus

By Michael Kernen

It was not all that long ago I relied on a Harris facility control system that used dry pairs to communicate between studio and transmitter sites, their modems using FSK at something like 110 baud. Moseley and a few others made systems like this enabling broadcasters to move the point of control from the transmitter to the studio effectively eliminating the full-time transmitter engineers' job.

Those systems had the same three basics we use today: Telemetry in the form of status indicators and metering combined with control via contact closures. Burk has made its own inroads in the broadcast facility control marketplace. Fact is, it has become the foremost purveyor of such technology, even winning Pick Hit awards for its ARC Plus family components the ARC Plus, Plus-X 300 and Plus-X AC-8.

What makes a better facility control system? Flexible connectivity, rock-solid reliability, expandability and the ability to automate corrective action – all flavors of the aforementioned are included in Burk's ARC Plus.

System overview

ARC Plus is available with or without the Enhanced Speech Interface. Status and metering inputs are added by the 1RU Integrated Input Unit (IIU), which supports 16 of each. Up to 256 channels of status and metering are available. Command channels are added eight at a time by installing Integrated Command Relay Units (ICRU) (eight raise/eight lower). Both units connect via Burk's Plus Bus network, which is essentially RS-422. A single system can scale to more than 1,000 sites.

There are several compelling options and accessories for the Plus. The Plus-X 300 I/O Interface allows system connection of eight status or metering (in any combination), and eight command channels to be placed anywhere there is network access. The ARC Plus SL is essentially a lower cost ARC Plus without the front panel controls that works exclusively with Plus-X devices. Plus Connect is a direct interface between the Plus system and several popular transmitter models. Plus-X AC-8 is an eight-outlet power strip that can be controlled via its built-in Web interface or fully integrated into an ARC Plus system. A variety of accessories are available from arc and flame detectors, several temp sensors, voltage and current sensors, even a tower light monitor.

Performance at a glance

- IP-based remote control
- Vacuum Fluorescent Display
- E-mail alerts and notifications
- Expandable system design
- 256 metering channels and status channels
- 256 relay pairs
- 512 virtual channels

Connectivity

The ARC Plus features an excellent Java-based Web interface, mobile Web access via Blackberry, Iphone, etc. and the company's much-improved Auto Pilot Plus software. Simple interaction is accomplished with Burk's Enhanced Speech Interface and any touchtone phone. ARC Plus communicates with its brothers via IP over closed or public networks. Control points can be located literally anywhere there is Internet access and each unit can see any other unit. A straight modem-to-modem connection is supported for those lacking Internet access at the tower.

The ARC Plus is extremely easy to get started. We decided to connect our existing ARC16 equipment via the Plus' rear panel RS-232 port and after a few minutes in Auto Load (included) we had full control of our site. To date we have expanded the system to include five sites each with their own unique combinations of I/O and accessories. After spending a little time with the Auto Pilot software, I created a custom view that we continuously display on a 37" LCD monitor in the engineering office (see photo, next page). Custom views allow users to build a collection of meters, status indicators and controls, along with a variety of other elements such as Web content, SNMP content, even a Bird Power Meter. With it we can keep a close eye on things without having to log in. We monitor a wide range of systems' statuses here. Our UPS system, all of our critical PPM encoding, silence detectors, room temperatures, and we have room for plenty more as needs arise.

I've grown to appreciate the Plus' ability to allow alarm reporting in different ways. Depending on preference, each alarm can be independently programmed to alert the user in several ways: e-mail, SMS text messaging, telephone or simply on screen. You can even have it alert different people

The big screen display in the engineering offices

depending on the particular alarm. Logging and event lists are supported as well.

Another favorite are the macros. Burk's ARC Plus system allows the user to create macros that will monitor conditions and take corrective action. For instance, if a transmitter's power creeps too high, an ARC Plus macro can respond by lowering the transmitter power. If several actions need to occur in a particular order, the user can create a macro that carries out the sequence of commands. I've created several macros: one that continually runs shows whether a site is on the air, another allows me to mute all alarms at a site with one click during maintenance. I will eventually write one to automate site switching – it will bring the Aux site online and shut down the main while checking each element during the sequence. Macros can be scheduled too, useful for automating daily pattern switching.

Burk is a wonderful company to work with. I have gotten to know several people behind the scenes over the years and have had the good fortune to demo beta software and participate some in their product development. The Plus is the logical next step for anyone looking to interconnect sites, or simply make the leap to IP-based control. Burk remains very focused on their broadcast clientele, so it's a good bet that their products will continue to exceed our expectations. Besides, have you tried to order any dry pairs lately?

Burk Technology

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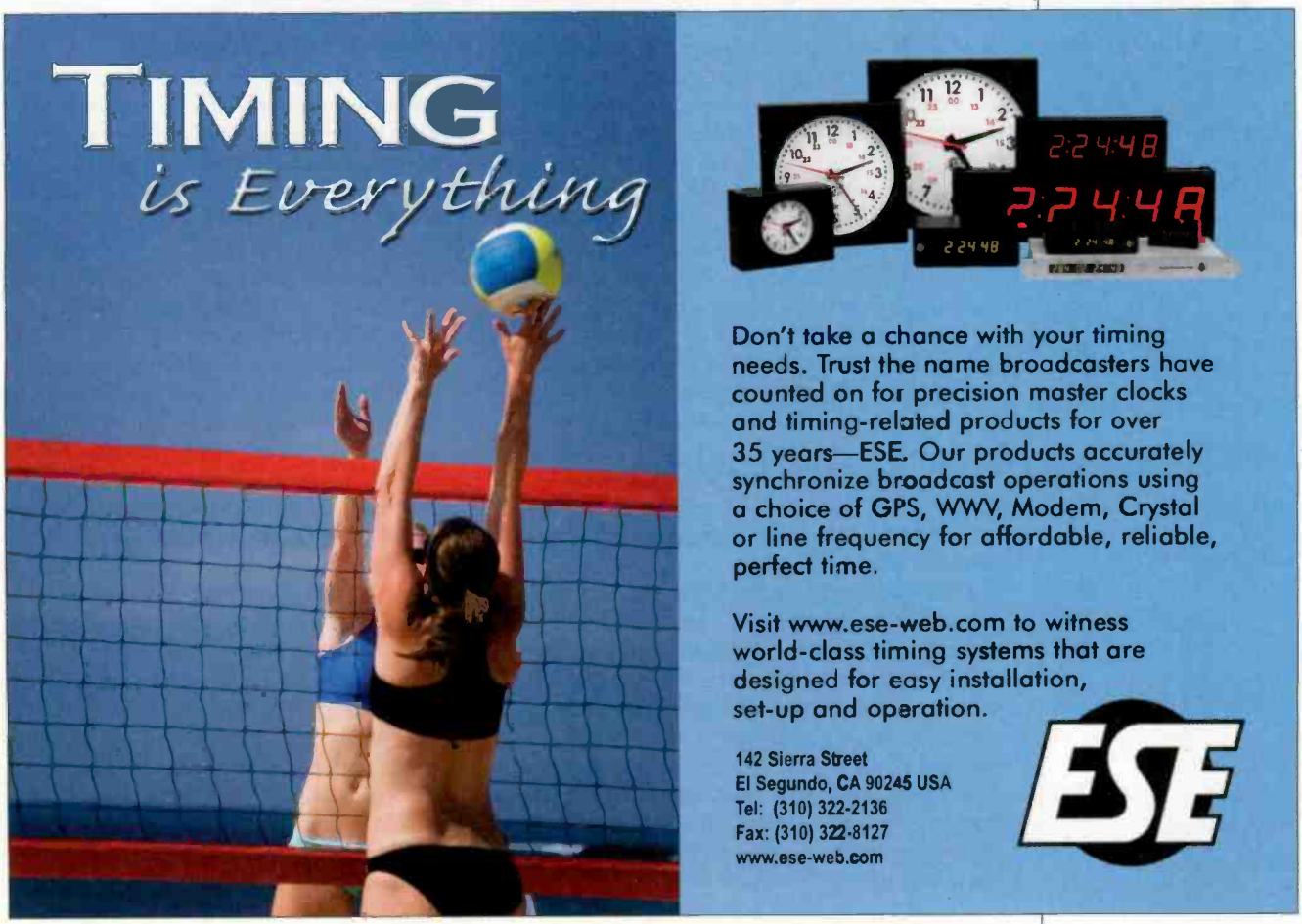
Kernen is chief engineer of Greater Media Detroit.

Editor's note: Field Reports are an exclusive *Radio* magazine feature for radio broadcasters. Each report is prepared by well-qualified staff at a radio station, production facility or consulting company.

These reports are performed by the industry, for the industry. Manufacturer support is limited to providing loan equipment and to aiding the author if requested.

It is the responsibility of *Radio* magazine to publish the results of any device tested, positive or negative. No report should be considered an endorsement or disapproval by *Radio* magazine.



Aphex
Model 454 Head Pod

By Bill Eisenhamer

I never thought I would be writing about a headphone amplifier – a device we use every day and never give any thought. We use headphones in our business; it is our business, and we can be very particular about them as we know the quality of what we hear is reproduced by them. But do we give much thought on how we drive these headphones? I know I am a victim of "using what has been successful in the past." I learned my lesson after listening and comparing our existing headphone amplifiers with the Aphex Model 454 Head Pod.

The Head Pod is a compact headphone amplifier designed for those who need a loud and clean feed. The controls are cleanly laid out and what one expects in a headphone amp. The front has four 1/4" TRS output jacks fed by their own independent stereo amplifier, each with a separate gain control on top. Along with the individual gain controls is a master gain control on top. The back has the power connection for an external power supply, an input selector switch and two types of inputs.

Performance at a glance

High gain, up to 35dB

Low distortion

Small size

Stereo input, four outputs

Operates on 16Vac

It features one unbalanced 1/4" TRS jack for a left, right, ground feed and a second pair of balanced 1/4" TRS jacks for discrete left (mono) and right channel feeds. Though marked as balanced inputs, the discrete inputs accept unbalanced connections as stated in the easy-to-read manual. The external power supply is critical and the manual stresses the need for an ac supply in the 12-16V range. It is also recommended that the supply have at least a 6W capacity. This is no problem as a wall-wart type power supply is provided. The bottom provides a wiring diagram for each input and a graph depicting output power versus headphone impedance.

Plenty of headroom

As clearly stated on the top of the unit, this is a high-output headphone box. As advertised, it provides a high output with very low distortion. The specifications state a maximum gain of 35dB and a THD of <0.001 percent. I need to obtain some better test equipment because my Potomac peaked at +30dB and a THD of <0.1 percent. A better instrument is required to know how much better the spec can be. Likewise, I attempted to verify the frequency response of 10Hz-120kHz ±1dB. I was able to measure 20Hz-80kHz ±1dB with the Potomac before the meter's response broke down. This is an amazing frequency response considering our hearing extends to 20kHz when we are young. I measured a signal-to-noise of greater than 90dB and the stated typical SNR is 100dB. I would say the unit passed all tests with flying colors. The low 10Ω output impedance is capable of driving 8Ω through 1kΩ devices.

The clarity of this headphone amp is superb. I fed a number or sources into the box ranging from a typical air monitor tuner and straight program feed to HD Radio off-air feeds. I even used different tuners for the air monitor feeds because I had them available, and in one case I took a feed from a Day Sequerra M2.2R modulation monitor. With this headphone amp I learned quickly that two same-model tuners can have different output characteristics. I was able to clearly hear the audible difference between an off-air analog feed versus

an off-air HD Radio feed. Even the differences between program sources were clear and make me wonder how some songs ever passed a quality mastering process. Even at high level listening, which I do not recommend for long periods of time, the music was clean and distortion-free. I listened using a pair of Sony 7506 headphones and my own Ultrasone Pro 650 headphones.

I highly recommend this device for critical listening environments, and I plan to install these for our main operator positions. Given such a high output level, the box is perfect for a loud environment such as concert events where the extra gain is necessary. The ability to drive higher impedance headphones is a plus for those using 600Ω headsets as found in sports broadcasting. The higher gain makes a huge difference. Many headphone amps do not make the grade when driving these higher impedance devices. The Head Pod's small footprint makes it a great addition to a small computer-based production environment where multiple headphone feeds are lacking. For the price, this little box is a monster performer.

Eisenhamer is the staff engineer for Lincoln Financial Media Company of California.

Aphex Systems

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E sales@aphex.com

Back view of unit showing connections

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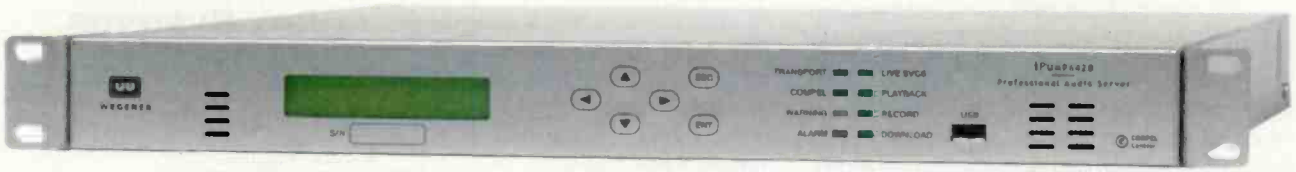


Wegener Ipump 6420

By Gary Pelkey

A radio station's local personality has always sparked its appeal. But market pressures, such as increased competition for ad revenue, have driven many local stations to join networks to survive. These station groups, many of which have hundreds or thousands of affiliates, have turned to automation to save on labor and operating costs and eliminate operator error endemic to repetitive tasks. While automation benefits the bottom line, it also drains stations of the local character that fosters listener loyalty. So how can a station group benefit from centralized, automated operation while still retaining the unique flavor of each station?

Hyper localization

By deploying Wegener Ipump 6420 satellite receiver/media servers at each station site and a Compel network control system at the network operations center (NOC), a station group can migrate from live to file-based radio broadcasting. With a file-based, store/forward workflow, it can send stations local liners, programs and play-out commands that hyper-localize the on-air product.

Instead of DJs sitting at microphones at every station, a single announcer can produce all the local liners any affiliate would need. These short audio segments are a collection whereby the DJs identify themselves, their call letters, market, musical format and other station information. An example would be, "Hello, St. Louis. Bill McCoy bringing you the classic rock hits on WJZT FM."

The reality is that Bill McCoy sat in a booth and recorded hundreds, even thousands, of permutations of every local liner for every affiliate – to satisfy different lengths, moods, formats and other criteria. The net effect is that stations across the country deliver a personalized message from Bill McCoy, the familiar voice at that spot on the dial.

While there may be no one physically at that station, there is still work to be done – running and repeating programs, inserting ads, local liners, even responding to technical or power failures. Let's look under the hood to see how the Ipump 6420 can perform, customize and hyper-localize these tasks.

Central command and control

The key to making file-based radio broadcasting work is to control where content is sent and how it will be played. This means sending only those local liners, programs, ads and promos that pertain to a given station. WJZT shouldn't have to deal with/store content intended for WNNL or WXYZ. And the group shouldn't have to waste time and money repeatedly sending the same content via satellite every time it must air.

When content is deposited onto the Ipump 6420 at each local station, it is accompanied by instructions as to how and when to play it. This is orchestrated from the NOC by Compel, which can perform traffic, conditional access and content management. While media can play live-to-air, the real advantage of Ipump 6420 is its store/forward capability. Within a single satellite transmission, all content needed for a certain period of time can be stored onto the media server and played out time and time again without incurring further costly satellite charges.

The secret sauce

The Compel/Ipump 6420 file-based solution has many patented features designed to simplify operational complexity while giving listeners the impression a station is locally derived. Besides the liners mentioned above, these include: parameter addressing, switch groups, show shift, and play shuffle.

Parameter addressing enables the Ipump to automatically identify the most appropriate liner/insertion commands to play out at any given moment.

Switch groups allow stations to be organized and managed as groups based upon such criteria as time zones, formats or regions.

Show shift enables the rebroadcast of programs at different times of the day without retransmission and without station labor beyond the initial setup.

Play shuffle is a style of the file Play command that causes the receiver to randomly select a file that has all of the correct characteristics – DJ, music

format, length and style – and shuffle them to keep the presentation dynamic and fresh.

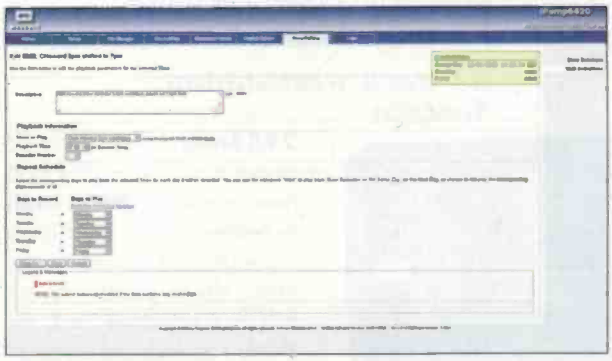
For recorded or time-shifted programming, the Ipump captures commands during the record phase as programs are received, it then time stamps and saves them along with the compressed audio file of the program. During playout, these commands are executed according to the chronological relationship established with the original audio stream.

Liners, programs and ads can be played over live or prerecorded music and enhanced with fades, dissolves or other effects. Also, program-associated data (PAD), a data packet that identifies music titles and artists, can be broadcast – a critical capability in the age of HD Radio. And in the event the signal or power is lost, Ipump can resort to "evergreen" content to seamlessly fill the gap every time that content is played.

The value proposition

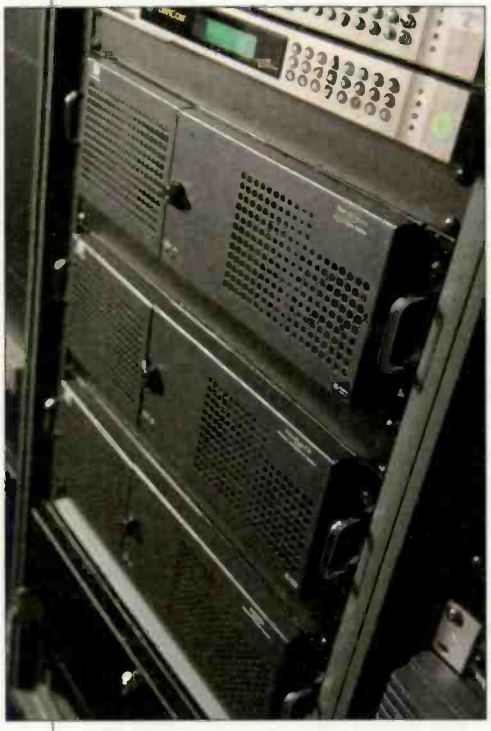
Demand for file-based radio broadcasting is strong and growing. Over the last year, Wegener has received hefty orders for Compel and Ipump products from several radio networks, including Dial Global which recently acquired Jones Radio Network, extending its reach to more than 6,000 stations.

Wegener's intelligent, centralized, file-based workflow enables station groups to manage the delivery of unique program content from each affiliate, maintain a local identity and maximize ad revenue. Since it can also reduce bandwidth, and other costs, this strategy leads to a rapid return on investment and increased profitability.



An Ipump 6420 screen shot highlights its show-shifting capabilities.

Pelkey is vice president and systems architect for Wegener, Duluth, GA.



The Compel network control system for linear and file-based broadcasting

NEW PRODUCTS

www.RadioMagOnline.com

by Erin Shipps, associate editor

24-track workstation
Tascam

2488neo: This updated model has a new look and new mastering effects. Like its predecessor, the 2488neo has eight microphone inputs, seven effects processors, an 80GB hard drive and the simple user interface common to all Tascam Portastudios. The eight microphone inputs, four with XLR and phantom power, can be assigned to any track for recording large ensembles. A reverb effect, multi effect with guitar amp simulation, and up to 9 compressors are also included. The new mastering effect includes multi-band EQ, compression and limiting for professional-sounding mixes which can be burned to CD or transferred to computer through the USB 2.0 jack.

323-726-0303; www.tascam.com
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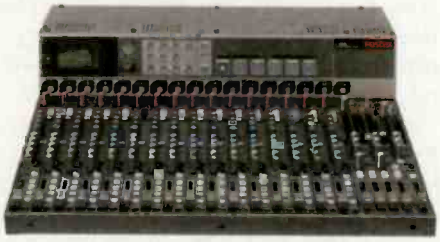
Live mixer/recorder
Fostex



LR16: The LR16 is a live mixer with integrated 16-track multi-track HD recorder. It has two components: the 16-channel digital mixer, with analog-style operation and recorder transport controls; and the connector box, which includes the recorder and I/O panel. They are connected by a CAT-5 cable, and can be separated up to 164'. It records individual WAV track files, as well as a simultaneous stereo mixdown. The LR16's other significant features include: 44.1/48kHz recording/playback; 16-channel strips with digitally controlled trim and limiter function, and 3-band EQ; track bounce and punch in/out; FAT 32 file system, which can mount the full HDD data domain to PC via USB; master effects library (reverb, delay, etc.); group out 1-4 (TRS), aux out 1-3 (TRS), and EFF send (TRS); and rack-mount hardware on each piece.

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Portable headphones
Ultrasone

HFI-15G: Designed for portable listening applications, the HFI-15G is the smallest headphone in the Ultrasone HFI line, but it still features Ultrasone's patented S-Logic Natural Surround Sound technology. They are open-back, supra-aural headphones. The HFI-15G allow the user to experience a natural surround sound sensation without the use of digital processing. Additionally, S-Logic technology reduces sound pressure on the ear drum by up to 40 percent, resulting in a safer listening experience for the user.

951-678-9091; www.ultrasone.com
P.Taylor@ultrasone.com

Website design
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Radio Web Platform: Platformic allows anyone at the radio station to be able to update content on the website without having to call the webmaster. WYSIWYG tools allow users to run online contesting, add keywords, insert articles and interact with listeners. Platformic allows anyone to update events, on-air promotions, concerts, create contests and more. The final product is a current and dynamic website that reaches listeners on each and every page. More than 30 custom applications will make content more interactive with the website. Platformic comes with its own SEO compiler.

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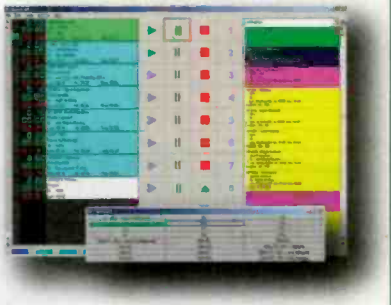
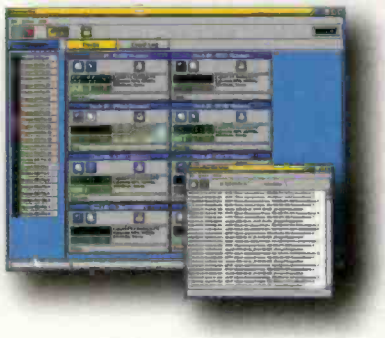


WaveCart - the original on-screen cart machine replacement.

Audio Logging



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Complete Systems

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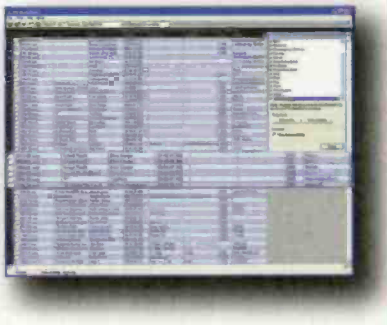
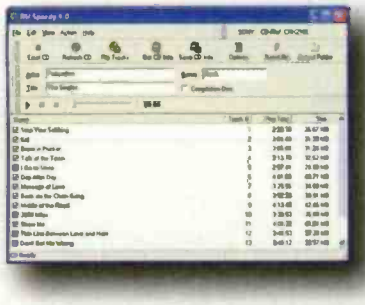


MusicStore - thousands of high-quality, tagged songs.

CD Ripping



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Audio-Pod: Ideal for remote broadcasts, talk studio applications or whenever one to four mic/headphone stations are needed, the Audio-Pod module is available with or without a low-noise mic preamplifier with switchable phantom power. The system may be configured with up to four Audio-Pod modules with one power supply. The power supply will power up to four Audio-Pod modules and any combination of Audio-Pod module types or options may be combined. Ten-foot power supply cables and trimpot adjustment tool are included. Table-top brackets for mounting the Audio-Pod module at an angle and flush mounting bezels are also available for recessed mounting.

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P-1800 PF R: A fully featured power conditioner, the P-1800 PF R safeguards equipment with comprehensive protection. The P-1800 PF R is also ideal for in-studio setups that use powered monitors for playback of recorded material. Furman's Power Factor Technology reduces ac line impedance by providing a 45-A peak current reservoir. This gives amplifiers the headroom to operate at maximum efficiency and sound consistent from venue to venue without being subjected to current compression caused by line impedance or resistance. Clear Tone Technology adds an additional level of linear filtration to Furman's Linear Filtering Technology (LiFT) circuit for a lower noise floor, allowing the instrument's tone and character to be expressed without the masking effects of ac line noise.

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Long pull ventilation system
Middle Atlantic Products

Duct Cool: Although Middle Atlantic Products originally designed the Duct Cool Series ventilation system for the residential installation market, potential customers quickly noticed that it solves a tricky cooling problem in broadcast applications as well. Smaller broadcast facilities may not have dedicated rooms, be cramped for space, and be in the process of converting to digital equipment that generates more heat than its analog counterpart. Duct Cool efficiently removes heat from the equipment without adding noise at the equipment location. In situations where the equipment is close to or in the same room as the operators or on-air talent, it can be cooled quietly and effectively. The Duct Cool vent system fan can also be mounted remotely (12' to 25' away is the recommended distance) without significant loss of performance. A temperature probe and thermostatic control save energy by only running the system when needed. The two primary components of the system are a powerful mixed-flow fan assembly and 25' of either 4" or 6" ID insulated flexible ducting depending on the model.

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Audio loop effects
Spectrasonics

Stylus RMX v1.7: The Stylus RMX version 1.7 now features Time Designer, which intelligently transforms RMX audio loops into different time signatures and features the ability to Groove Lock the feel of any groove to another - all in real time. Time Designer also lets the user create instant pattern variations with smart algorithms based on musical rules, and to simplify any RMX groove in a musical manner. Version 1.7 is also the first 64-bit native software release from Spectrasonics, includes all the new effects from Omnisphere and useful workflow enhancements to RMX, such as Suite Editing and Host Transport Sync.

818-955-8481; www.spectrasonics.net; info@spectrasonics.net

Stationalized app
Jacobs Media

Iphone application: Recognizing the potential and the necessity for radio to be mobile on the Iphone, Jacobs Media commissioned a developer who has already done this successfully to provide radio stations the ability to get their logos right on the Iphone desktop so listeners can stream a station through the phone. Other apps list a station in a large directory. Jacobs Media's vision was to simplify the process, and showcase an individual radio station's brand and streams. The program uses a station logo to make it easy for listeners to go to the App Store, locate the station, and download the app for free. Up to five channels can be installed on Iphones.

248-353-9030; www.jacobsmedia.com
pauljacobs@jacobsmedia.com

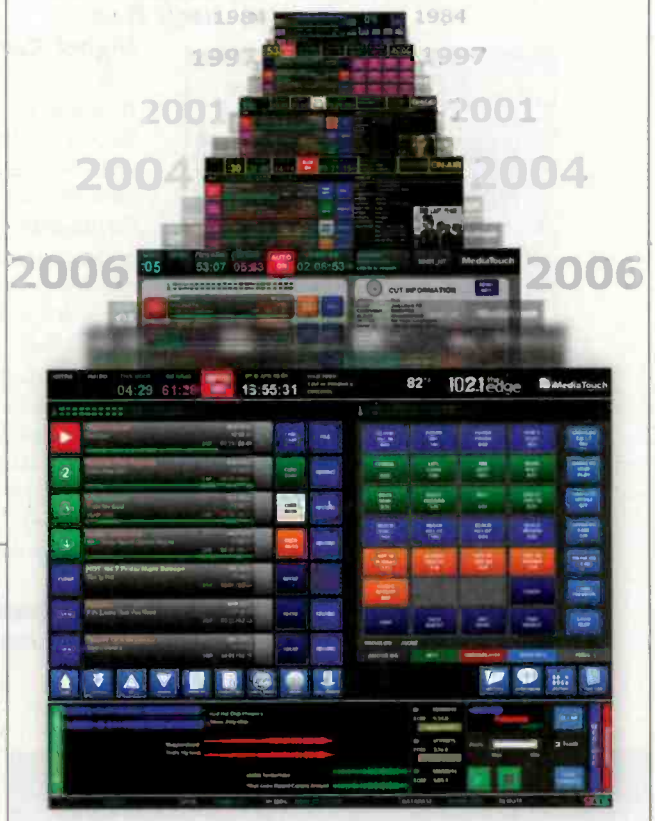
Beta version HD Radio
Dice Electronics

HD Radio for Visually Impaired: With HD Radio for the visually impaired, any radio actions are reported audibly. Voice announcements are made when: turning radio on/off, tuning to a particular station, seeking a radio station, a preset station is selected, a preset station is saved, an HD Radio station is being tuned, the time or alarm is set, the frequency band is changed. The HD Radio for the Visually Impaired is designed to provide a low-cost option for the handicapped to access a variety of radio programming. Also the HD Radio for the Visually Impaired has conditional access capability for users to access Radio Reading Service broadcasts.

888-DICE-999; www.diceelectronics.com
info@diceelectronics.com

iMediaTouch

Radio Automation Software



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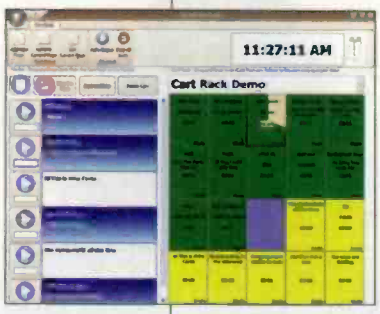
Audio playback software
Digital Juke Box



Digital Cart Rack: This in-studio software provides instant playback of audio. The software includes unlimited carts and racks, multiple file playback on a single audio card, segue with and without fade, plays MP2, MP3, WAV and OGG files, resizable screen and buttons, changeable button names and colors, import folders of audio drag and drop from a folder to a cart rack button, set ending of any audio cut, support for long file names, quadruple overlay audio with any standard windows audio card, definable fade time and default ending marks, and built-in automation system.

888-ONAIR-99; www.digitaljukebox.com
sales@digitaljukebox.com

UPGRADES and UPDATES

Tascam has updated its 202 dual cassette deck to the 202mkV by adding a return to zero function and A-B repeat. (www.tascam.com)...**Enco Systems** has released version 9.0a of Padapult, which features the ability to send customizable now playing information to the Twitter and Friend Feed social networking systems. (www.enco.com)...The **Middle Atlantic** Racktools 3.5 software has been updated with new shapes for user-defined components and greater drawing export flexibility. (www.middleatlantic.com)... **Last.fm** has launched its Personalized Visual Music player, a reinvention of the site's original online radio experience that now combines personalized streaming radio stations with rich media visuals. (www.last.fm) ■

Integration

[in-ti-grey'-shuhn] - noun
1. an act or instance of combining into an integral whole.

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Tower light monitor
FM Services

TLM-1: A microprocessor-based system that monitors the status of FAA type A incandescent tower lights, the TLM-1 provides a solid-state interface to indicate individual alarm outputs for photocell, flasher, beacon and marker failures and a general alarm output for any type of failure. Status outputs indicate lights on/off and beacon on/off conditions, and LED indicators are provided for each alarm and status output. The opto-isolated outputs protect external site monitoring equipment. The alarm outputs are designed with an automatic failsafe feature: Alarm outputs are normally closed with no alarm condition, so in the event of a power failure, the open circuits will indicate the lighting outage. The unit installs inside the transmitter building, even if the lighting control equipment is located at the tower, and can be calibrated with a one-button setting. Alarms can be set for any single bulb failure or photocell failure.

336-667-7091; www.towermonitor.com
info@towermonitor.com

Text-message service
Hyran Media Services

Snip It: Miss a song title or the phone number of a business that just ran a spot on the radio? You no longer have to wait to hear it again. A listener texts the station's call letters to Snip It (764748) and automatically receives the information on his mobile phone. The text message service offers radio stations a way to generate revenue by making every spot interactive. Hyran Media Service ran a test of Snip It with a Seattle radio station and found that spots running eight or nine times daily, Wednesday through Sunday for three consecutive weeks encouraged listeners to send a text to Snip It for more information about the songs heard on the radio.

425-408-3129; www.hyranmedia.com

Stereo to 5.1 conversion service
Penteo

Penteo: Penteo is a professional stereo-to-5.1 conversion service that has developed a method of converting legacy stereo mixes directly into 5.1 surround, without the need for multitrack masters or remix sessions. Audio is converted one piece at a time from stereo master mixes, under the eyes and ears of an upconversion engineer. The entire process uses a patent-pending method, which produces a 5.1 surround master that is 100 percent faithful to the relative pan-pot positions of the original stereo mixer.

www.penteosurround.com; john@penteosurround.com

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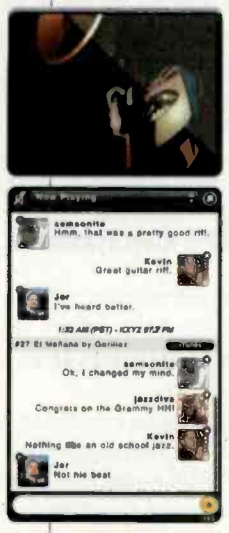
Internet radio widget
Yes.com



Yes Widget: The Yes Widget is geared to renew radio listenership by promoting listener loyalty and time spent with the station. The Yes Widget, which can be embedded into any radio station's website, offers an interactive experience for listeners, creating a community through chat features and prizes. Through the widget, listeners can instantly purchase songs from the station's playlist directly from Itunes. Radio listeners can search among thousands of stations at Yes.com.

+41 78 855 7117; www.yes.com

Remote lighted pushbutton panel
Broadcast Devices

REM-100: An eight-channel wired remote control system that uses a DIN rail-mounted series of electronics, this device allows control of up to eight relay closures in two directions over a single pair of wires. A single-pole switch closes a relay at the other end in both directions. Because the REM-8 system uses serial communications, one unit can act as a master to up to 64 slave units. Serial communications options include RS-485, CAN Bus or USB interface to a PC. When connected to a PC via a USB port, a single local REM-100 can communicate to up to 64 REM-100 modules. A multi-location remote control system can be configured quickly as only a single pair is needed to communicate along the REM-100 network. Each module has eight control inputs and eight relays so duplicate functions can be mirrored if required. Each module has a set of local and remote status indicators so that when a switch is closed in the remote location positive verification can be made at the other location.

914-737-5032; www.broadcast-devices.com
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sales@coaxial.com • www.coaxial.com

Find the mic winner
April issue

Congratulations to
Keith Johnson
of Shelby Broadcasting, Gaffney, SC. His name was drawn from the correct entries for the April issue. He won a Heil PR-20 mic from Heil Sound.

HEIL SOUND

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www.heilsound.com

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Stereo two-channel compressor
Prism Sound

MLA-2 Upgrade: The MLA-2 now features a stereo or two-channel compressor with stepped drive (input gain), ratio, attack and release time, and output gain controls. The exterior has been modernized to include custom designed metal knobs and a thicker front panel. New output amplifiers with improved high frequency performance have also been incorporated and this unit also offers total bypass when the power is off.

973-983-9577; www.prismsound.com; sales@prismsound.com

Single, mid- and full-sized rack kit
Key Digital

KD-RB100, KD-RB200, KD-RB300: These expansion kits come in three heights, KD-RB100 (24"), KD-RB200 (48") and KD-RB300 (72"), which allow users to customize current Key Digital Racks to meet growing needs for rack space. They are made of heavy gauge steel tubing and features EIN hole spacing with standard 19" rack spacing on the front and rear of the rack, therefore allowing users to make the most of available space without any excess bulk. The kits feature a 600lb. capacity, slim 21.125 OD width, and customizable height when used with KD-RE100.

914-667-9700; www.keydigital.com; tech@keydigital.com

High-power FM analog transmitter
Continental Electronics

816R-7C: The 816R-7C is capable of delivering up to 44kW of analog RF power using a single, air-cooled, Eimac 4CX20,000E tetrode. The 816R-7C is the analog version of Continental's existing 816HD-25 analog/HD Radio transmitter already in operation and delivering up to 28.5kW of analog and HD Radio power at 1 percent digital injection. While the 816R-7C is designed to be an analog FM transmitter, it can easily be upgraded later to analog and HD Radio operation, satisfying the needs of broadcasters needing to replace their existing analog transmitter now while not wanting to step up to HD Radio in the foreseeable future.

800-733-5011; www.contelec.com; sales@contelec.com

PCI Express serial interface adapter
Sealevel

COMM+2.PCIe: This high-performance 16C950 UART includes 128-byte FIFOs and provides error-free operation in high-speed serial applications. Additionally, it supports 9-bit framing and is fully software compatible with legacy 16550 UART applications. The serial ports on the COMM+2.PCIe are individually configurable for RS-232, RS-422 or RS-485. The 14.7456MHz oscillator and the UART's flexible clock pre-scaler support a wide range of standard and non-standard baud rates. Each serial port is capable of data rates to 921.6Kb/s. In RS-485 mode, the transmitter is automatically enabled in hardware, eliminating the need for application software control. This allows the COMM+2.PCIe to be used with standard serial applications while removing the risk of bus contention and data corruption. In RS-232 mode, all modem control signals are implemented.

864-843-4343; www.sealevel.com
sales@sealevel.com

Compilation CD
Create Space

Sounds Eclectic: The Next One: Create Space, part of Amazon.com group of companies, has teamed with Santa Monica-based public radio station KCRW to release its latest compilation CD. The CD will be manufactured via the Create Space CD-on-Demand service and will be sold exclusively on Amazon.com. The compilation features a collection of 12 live tracks performed on KCRW Morning Becomes Eclectic - a radio show that spotlights indie artists and provides them with a place to showcase their music. With the CD-on-Demand service, no pre-built inventory is ever needed because Create Space manufactures the CDs only after customers place orders; for KCRW, that means reaching their audiences while reducing the cost and risk associated with carrying physical inventory.

www.createspace.com
Info@CreateSpace.com

Software-based Intercom
Clear-Com Systems

Concert Version 2.0: Via its soft-panel mode, Concert V2.0 provides access to a user interface that emulates a traditional intercom station. When combined with Clear-Com's Eclipse digital matrix system, Concert V2.0 forms a hybrid time-division multiplexed (TDM)/IP server network. It directly connects over Ethernet to the Eclipse matrix system (upgraded Version 5.1) with Clear-Com's IVC-32 high-density IP card. Each IVC-32 card provides 32 IP connections, and up to four IVC-32 cards can be slotted into a single Eclipse frame, allowing up to 128 new Concert soft-panel users to be added onto the intercom network without the need for additional infrastructure and hardware investments.

510-496-6666; www.clearcom.com; sales@clearcom.com

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Altair: The Altair family of uplink satellite broadcasting systems was designed to meet the requirements of varying broadcast companies and applications of religious institutions, universities, new satellite channels, existing channels, large corporations, news agencies, etc. Altair is available in one-, two-, three- and four-channel packages in both C and Ku-band depending on customer needs. The Altair package includes the antenna and all related indoor and outdoor electronics that will handle encoding, modulation, transmission, as well as monitoring of the satellite signal. The Altair systems are offered all-inclusive, in stock and pre-tested for maximum reliability allowing for quick set up and fast time to air.

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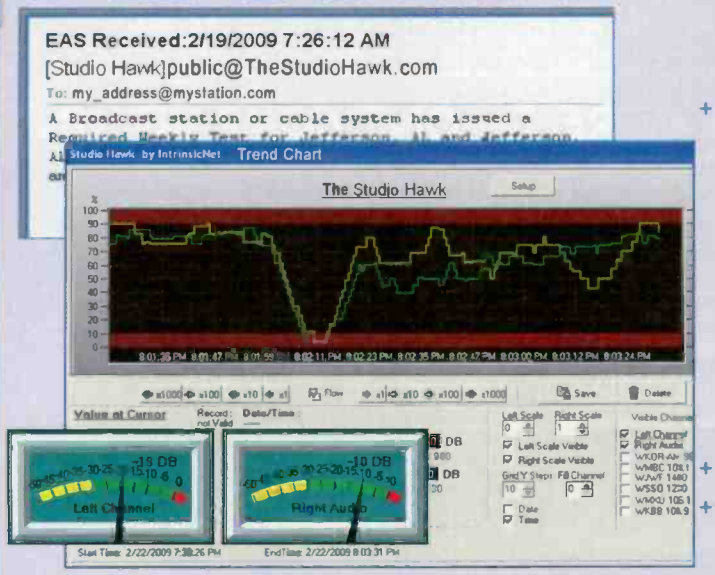

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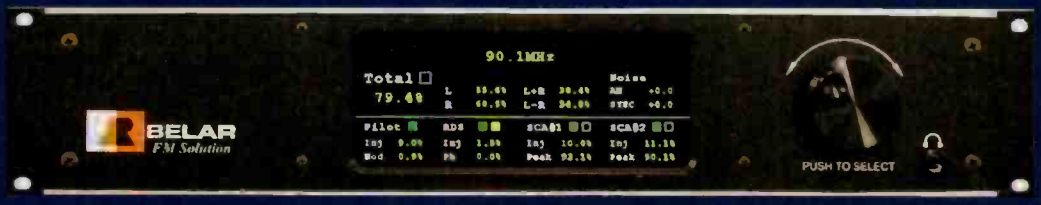

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7+HD	2005	Harris Z16HDC IBOC, solid state
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20 KW	2005	BE FM20S, solid state
20 KW	1985	Harris FM20K
20 KW	1996	Harris HT20CD
21.5 KW	1989	Continental 816R-2B
27.5 KW	1984	Continental 816R-4B
30 KW	1994	Harris HT30CD
30 KW	2002	Harris HT30CD
35 KW	2003	Harris HT35CD
50 KW	1982	Harris Combiner w/ auto exciter-transmitter switcher

USED AM TRANSMITTERS

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5 KW	1987	Harris MW5B
5 KW	1987	Harris SX5A, solid state
10 KW	1985	Continental 316F
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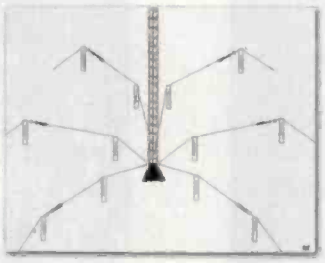

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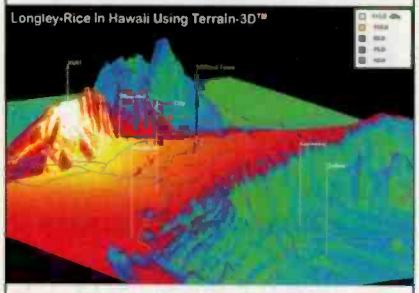

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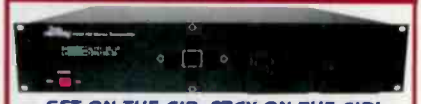

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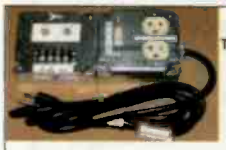

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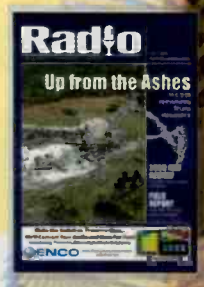

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Contributor Pro-file

Meet the professionals who write for *Radio* magazine.
This month:
Disaster Recovery, page 40.

Steve Fluker
Director of Engineering
Cox Radio Orlando

Fluker's love for radio began at the age of 12 when he spent time DXing the FM band. Celebrating 30 years as a broadcast professional, Fluker has been very active in the industry chairing committees for both the NRSC and the NAB as well as giving presentations at NAB and AES conventions. He is the inventor of and holds the patents for the HD Radio Split-Level Combining System.

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by Erin Shipps, associate editor

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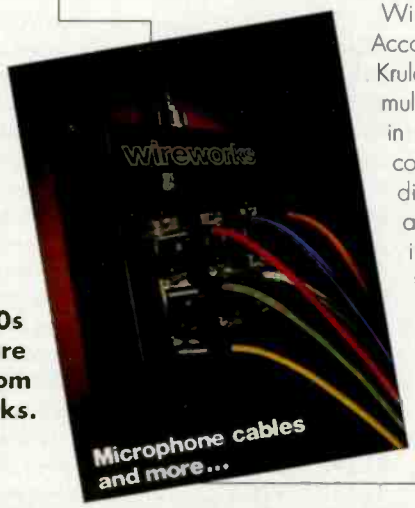


A 1970s brochure cover from Wireworks.

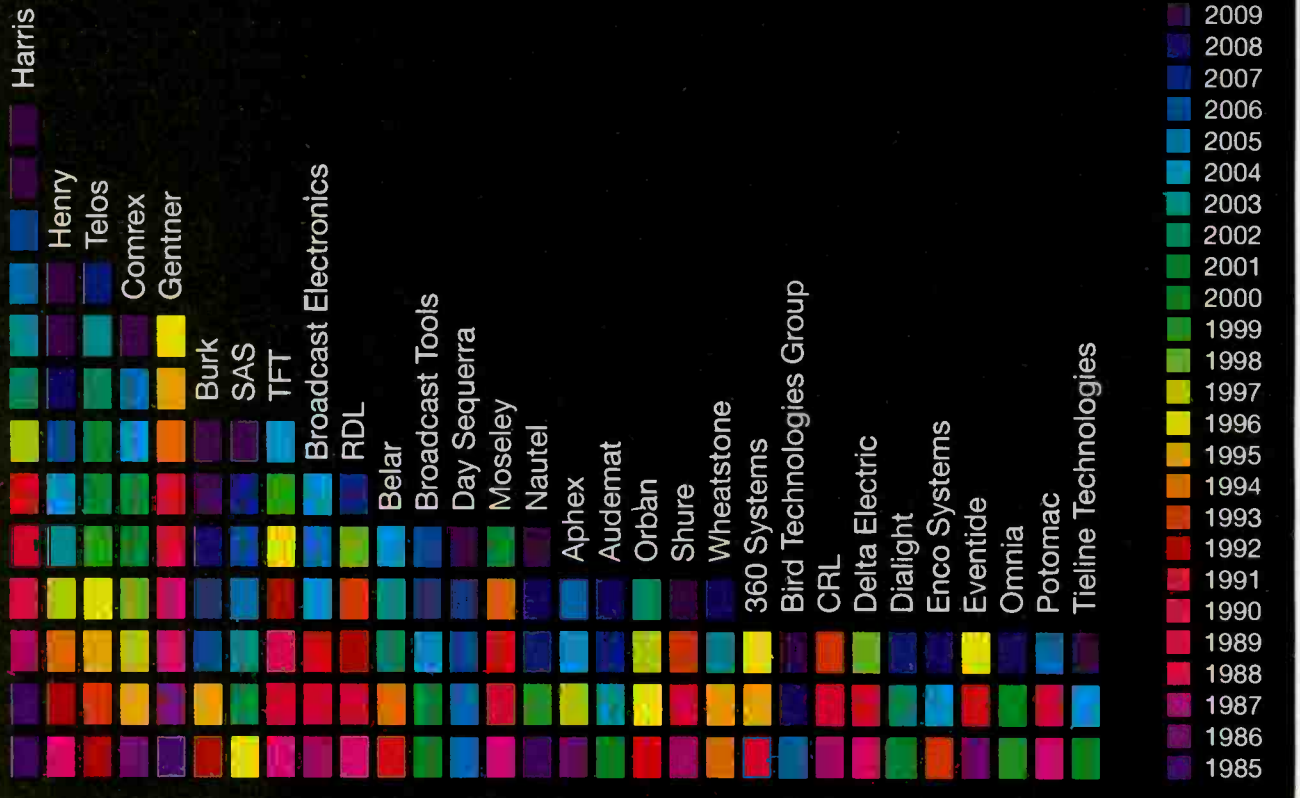
Wireworks is celebrating 35 years of business this year. According to a company press release, founders Gerald Krulewicz and Larry Williams saw the need for professional multi-channel audio products while working on Broadway in the early 1970s. After its founding in 1974, the company began manufacturing large-scale multi-pin disconnects and a full line of audio and video cable assemblies. In the 1980s, Wireworks expanded to include a combined audio/video multi-cable for broadcast use. The company's most recent products include the AV2000 multi-pin connector system, and Wirelux and Musilux audio cables. Within the U.S., the average American either hears or sees media content transmitted by Wireworks-manufactured cable every day.

The December 1978 cover of *db* – the sound engineering magazine.

Sample and Hold

Most *Radio* Pick Hits Winners

This year marks the 25th year for *Radio's* Pick Hit Awards, which began with *Broadcast Engineering* in 1985. We thought it would be fun to take a look back at companies who have taken home three or more wins. Harris tops our list, with Henry and Telos following closely. Congratulations to this year's winners (featured starting on page 14) for being a part of history!



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