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Radio

THE RADIO TECHNOLOGY LEADER

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MARCH 2012 | RADIOMAGONLINE.COM
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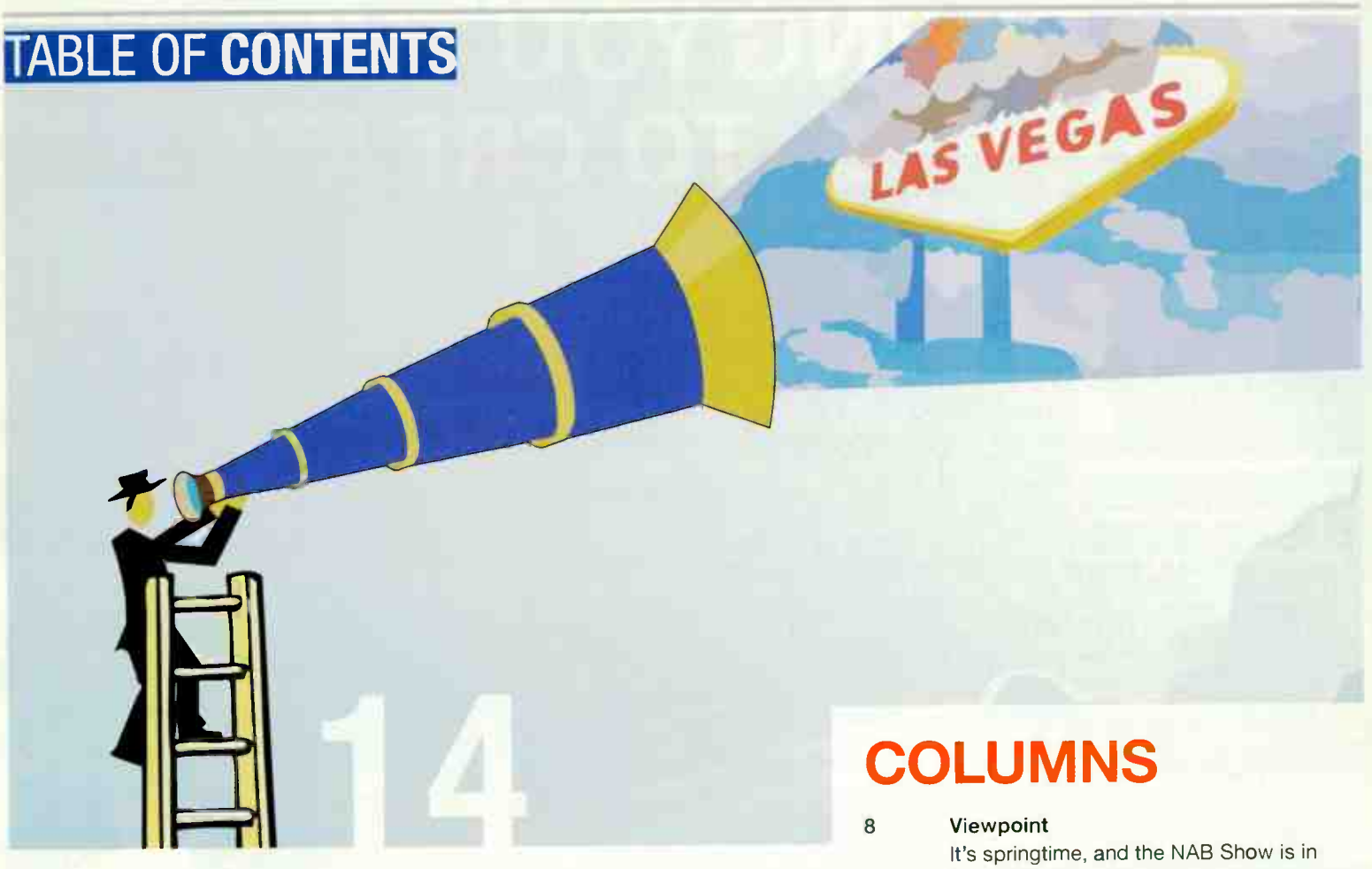

FEATURES

COLUMNS

DEPARTMENTS

The Tieline Mic Adapter

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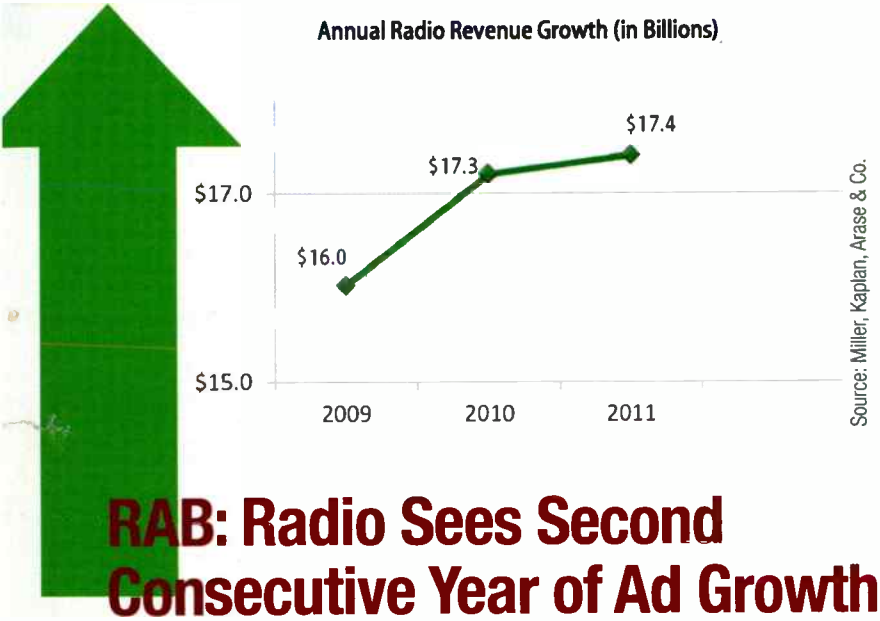

RAB: Radio Sees Second Consecutive Year of Ad Growth

Radio marked its second consecutive year of growth in 2011, with full-year revenue finishing at $17.4 billion, up 1 percent. Performance was based on spot momentum through the first three quarters, a double-digit gain in digital (+15 percent), and stronger showings in off-air (+7 percent) and network (+3 percent).

The latter three sectors also excelled in 4Q2011, up 8 percent, 6 percent and 5 percent respectively, offsetting spot at -4 percent to produce 4Q2011 comps of -2 percent.

According to Jeff Haley, RAB president and CEO, "The diversity of radio's revenue mix helped our industry achieve a second consecutive year of growth since rebounding from the recession. Spending across radio's top five categories has been consistent since 2007 and contributed greatly to radio's revenue performance. Further, while automotive remains dominant, the categories ranked #2 to #5 have grown closer to each other compared to 2007 levels and now represent a larger percent of the overall pie."

Carl Davis Joins ERI as Eastern Region Account Manager

Carl Davis has joined Electronics Research, Inc. as the eastern region account manager for radio broadcast systems. Davis is responsible for sales of ERI's RF and structural products to individual radio stations and radio group owners in the Eastern Region of the United States.

HD Radio
Pure Digital. Clear Radio.

Hyundai has added HD Radio to more vehicles including the 2012 Azera and 2013 Genesis coupe. These models will join the Equus, the Genesis Sedan and the Sonata in the growing assortment of Hyundai products that offer HD Radio.

Samsung Electronics and International DMB Advancement Group (IDAG) have launched digital radio, mobile TV and Internet services with the Samsung Galaxy S WiFi 5.0. The device will be available next month in Germany, the Netherlands, UK, Switzerland, Norway and South Africa.

NAB Crystal Radio Awards

KUZZ-FM has been selected to receive the NAB Crystal Heritage Award. 2012 marks the 25th anniversary of the NAB Crystal Radio Awards.

The NABEF Career Day 2012 will be held April 18. Career Day provides experienced professionals, college students and entry-level job seekers the opportunity to network and interview with media industry recruiters.

CPI Econco Acquires Freeland Products

The Econco Division of Communications & Power Industries (CPI) has acquired the business of Freeland Products, a Louisiana-based company that repairs and rebuilds vacuum electron devices for the communications, industrial, scientific and medical markets. CPI Econco Division and Freeland Products provide similar services to customers in shared markets.

Under the terms of the asset purchase agreement, CPI Econco Division has acquired all the inventory, equipment, supplies and substantially all the other assets of Freeland Products for an undisclosed sum. CPI Econco Division will integrate these assets into its Woodland, CA, facility, and will run the business from that location. The acquisition was funded entirely from CPI's cash on hand.

LV Monorail Offers Advance Rates for NAB

Purchase advance tickets for the monorail during the 2012 NAB Show at these special rates. Must order online; tickets will be mailed.

> Unlimited 3-day pass: $24
> Convention special unlimited 4-day pass: $32
> Convention special unlimited 7-day pass: $50
> go to lvmonorail.com

FIND THE MIC AND WIN!

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

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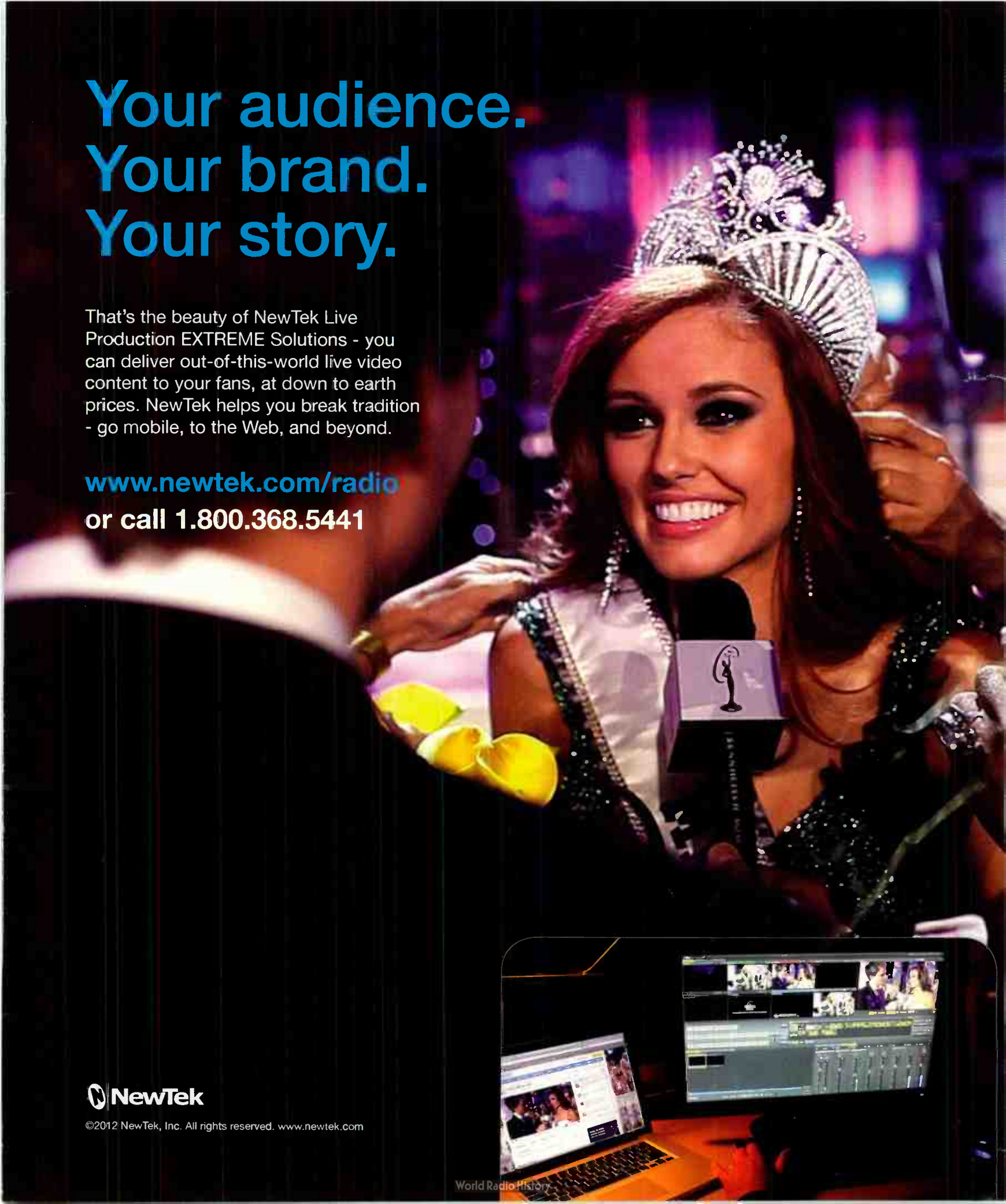

NewTek

VIEWPOINT

That Time Again

It seems I say this every year: "I can't believe it's time for the NAB convention. Again. Didn't we just ...?"

But it's true. The annual trek for all things broadcasting and media is coming up fast. And whether you're a seasoned veteran with decades of conventions behind you or a first-time attendee, the convention is an overwhelming, ever-expanding marathon of sessions, exhibits and professional interaction.

So what's on your list for this year? As we prepared this issue of *Radio* magazine, we reviewed the sessions and poured through new product announcements. Like anyone attending the convention, preparation before you go is what makes the trip successful. While it may be tempting to just wander and see what pulls your attention, you'll miss a great deal if you do.

The Broadcast Engineering Conference is the primary focus of sessions for the engineers, and as usual there are lots of interesting topics being covered. It all starts on Saturday with the Society of Broadcast Engineers Ennes (pronounced EN-ness, by the way) Workshop. This daylong technical extravaganza covers topics for radio, TV, IT, online and mobile with case studies, technology reports and discussions. The exhibit floor doesn't open until Monday, so the SBE Ennes Workshop is a great way to spend the day and be completely immersed in broadcast engineering.

On Sunday, the radio focus digs in deeper with the Advancements in Radio Technology session, which explores the transmission and distribution side of radio. The sessions continue during the week to cover network security, EAS, broadcast management, MDCL, radio data and more. One high point of the Broadcast Engineering Conference is the Technology Luncheon on Wednesday, when the NAB recognizes the NAB Engineering Achievement Award winners. We have a session timetable of all the radio-related BEC events on page 44 of this issue.

The convention isn't just about the sessions. There's just as much to learn on the exhibit floor. Once again, the front of the Central Hall has been designated the Radio and Pro Audio exhibit areas, although you will find plenty of companies with a radio focus spread around the other halls.

The exhibits always have something interesting to see. If you have a specific shopping list, take some time (and not just the time on the plane en route) to find the exhibitors you need to see and set a path. Our Radio Hall map on page 27 can help. It's easy to get sidetracked while walking the floor, so set an agenda and timetable as well. Once you're looking at the latest new gizmo, it's easy to lose track of time (it's like being in a Las Vegas casino sometimes).

But don't schedule all your time, either. Leave some time to roam and gawk. You might find something you didn't expect. You can also use the free time to go back to an exhibitor for more information. If you still need more time, see if time outside the exhibitor hours can be arranged. You made the trip to the convention, don't leave without every ounce of information.

While you're at the show, be sure to keep an eye out on Wednesday late in the afternoon when *Radio* magazine will present its Pick Hit Awards to the top new products of the convention. We started this tradition in 1985, and they are the longest-running technology recognition of the convention.

It really is time for the NAB Show. Again ...

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Radio
THE RADIO TECHNOLOGY LEADER

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

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Translator Rules Revisited

by Jeremy Ruck

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A little over a year ago, we looked at some the history behind FM translators and gazed into a cloudy crystal ball. Fast forward to now. While the crystal ball is still a little cloudy, a couple of important events have happened in the life of translators that warrant some discussion.

It is an undeniable fact that the change in the permissible service rules of FM translators to allow fill-in service has been a boon to AM licenses. The demand for translators by AM stations has also generated substantial new interest in these secondary facilities. The effect a fill-in translator can have on the value of an AM station, especially a Class-D facility, is huge.

Because there is no free lunch, we, as expected, are seeing more cases where the interests of fill-in translator operators are pitted against their colleagues or competitors in the same or adjacent markets. Despite the obvious benefits these translators provide to their communities, they still retain their secondary status, which means they cannot cause actual interference to the regularly used signals of full-power FM facilities. Thus, a 3kW class A that is under height and 50 miles from the location of your translator, can complain about your interference, while it would have no leg to stand on should a similar level of interference come from an authorized full power station operating according to the terms of its license.

That being said, many licensees have been able to construct fill-in translators that will likely enjoy long-term survivability. In some cases, the end state of the translator was finally reached after several hops or relocations. In others, the moves are still ongoing with the end result yet to be realized. While large changes in the location of a translator are not strictly prohibited by the Commission's rules through hopping, this practice has been abused by a number of entities over the past several years.

A MINOR CHANGE

Under the current rules, a minor change involves a change in frequency of plus or minus three channels, plus or minus 53 or 54 channels, or a change in location where there is common overlap of the 1.0mV/m service contours. It should be noted that any change in frequency for an un-built translator that moves the facility from the reserved to unreserved portion of the band, or vice-versa, is considered major regardless of how small the change in frequency is.

Hopping occurs when the translator is moved to a new location through successive minor changes to avoid a making a single major change. The Commission is not fond of this practice, and has alluded to the imposition of restrictions on such activity in the future. This can be problematic since on the one hand the use of translators to fill-in AM facilities is promoted. On the other, however, the relatively small footprint of a translator coupled with the coverage overlap requirement has hampered some relocation efforts to fill-in AM facilities.

One solution to this dilemma has been for the Commission to waive, in certain instances, provisions of section 74.1233 of the Rules. This is the section that describes major and minor changes to translators. The first of these narrowly defined waivers was granted to a translator in Central Illinois that sought to relocate to a site that would not have met the 1.0mV/m contour overlap requirement between the proposed and licensed facilities. The Commission agreed with the contention of the applicant that this move was nevertheless in the public interest because of four specific conditions.

First, the applicant did not have a history of submitting serial minor change applications that resulted in the previously mentioned facility hopping. As the Commission noted in the grant of the waiver, some licensees had been hopping translators 100 miles or more in distance. Not only does the long term hopping of a translator accomplish what is technically prohibited under the Commission's Rules, it also implicitly creates problems with the 1945 *Ashbacker* case. That case essentially requires competing applicants in the same situation to be given the same chance when applying for the same license. Because a major change application would have to be filed under a window, which is in essence a freeze, other applicants could reasonably argue their *Ashbacker* rights have been frustrated.

Next, the Commission noted that the proposed facility was mutually exclusive with the licensed facility. This condition is one that can be applied to changes in full power station allotments. If a proposed allocation is mutually

exclusive with a currently authorized one, then a competing applicant is not denied any opportunities since they would ne be available in the first place due to the licensed allocation.

TRANSLATORS AND LPFM

Under the *Third Further Notice* for the LPFM service, the Commission noted that many of the pending translator applications by virtue of their existence preclude LPFM opportunities in many locations. To prevent further erosion of LPFM opportunities, a threshold floor for LPFM service based on market size was created. The Commission noted in this instance that the relocation of the translator did not cause issues with this concept.

Finally, the proposed facility would be utilized as an AM fill-in translator, the single application would conserve Commission resources, and the applicant could avoid substantial delay and expense in providing this valuable service to the residents of its community. These factors, in addition to the previous three, were deemed sufficient to meet the public interest threshold, and the requested waiver was granted. Since that original waiver grant, numerous similar requests have been met with favorable treatment by the Commission.

The ire of the Commission toward multiple licensees seems to have been raised over additional flagrant violations by those licensees. First, it was well known that many facilities for which license applications had been filed were never in fact constructed. It is important to remember that the Commission has the assumption that all information submitted to it is factual, thus issues with candor really cause them to get unglued for obvious reasons.

Secondly, many proposed facilities did not meet any sense of site assurance or availability. Initially after the ending of most site location map requirements, an applicant could probably skate through an unregistered tower easily, since the Staff was not likely to dig out the USGS topographic map and verify your location. Now that multiple satellite imagery websites are available, it is quite simple for the Staff to check on your proposed location. Logic would dictate that no site assurance was granted for the shoulder of a highway or an Interstate rest area.

Although the translator rules have not changed in essence over the past year, some key policy changes have. The discussed waiver makes it easier for translators to be used for AM facilities, but the *Third Notice* makes it more difficult in certain cases to move a translator into urban markets. Because the wheels tend to grind slowly in Washington, the six-month processing freeze imposed in 2005 is still in effect. The signals coming out of the Commission, however, seem to indicate that we should see some movement in this arena in the near future. This future could possibly even be reached this spring.

Ruck is a senior engineer with D.L. Markley and Associates, Peoria, IL.

Translator Moves Targeted by FCC

by Lee Petro

In my November 2011 column, I discussed the FCC's rulemaking addressing the coordination of new applications for Low Power FM stations and FM translators. I referenced the new policy of the Commission's staff to slow the processing of FM translator applications where the licensees have moved a facility long distances through a series of minor change applications.

The Commission has taken a further step to address this issue. On Feb. 10, 2012, the Media Bureau issued a letter of inquiry to a broadcaster that had filed a series of minor change applications to move an FM translator across the state of Wisconsin. The issuance of the letter is likely the first salvo in a new battle between the Media Bureau and FM translator licensees. The letter also serves as a reminder for all licensees of the FCC requirements for the construction of broadcast facilities.

First, the letter focuses on whether the licensee had obtained reasonable assurance from the tower/land owner of each site from which the station operated, and to supply documentation of such reasonable assurance in the form of lease agreements, invoices or cancelled checks. In the past, the Commission required applicants to actually supply evidence with their applications, but later only required certification pursuant to its 1999 Streamlining Order.

Even if an applicant is not attempting to move a facility across the state, though, the Commission does require certification from the applicant that it has contacted the tower/land owner, and has had some meeting of the minds regarding the availability of the site should the application be granted. There is a long line of FCC decisions on what qualifies as "reasonable assurance," and the letter seeks supporting information from the applicant for each of the sites referenced in its applications.

Next, the letter requests evidence that the licensee actually operated at each site, such as power bills or invoices from engineering firms. The letter also requests the licensee detail which station it rebroadcast during its operation at each site, and for how long it operated at each site. In the event that the station was silent for more than 30 days, the letter requests information as to whether the Commission was informed, and whether special temporary authority to remain silent was requested.

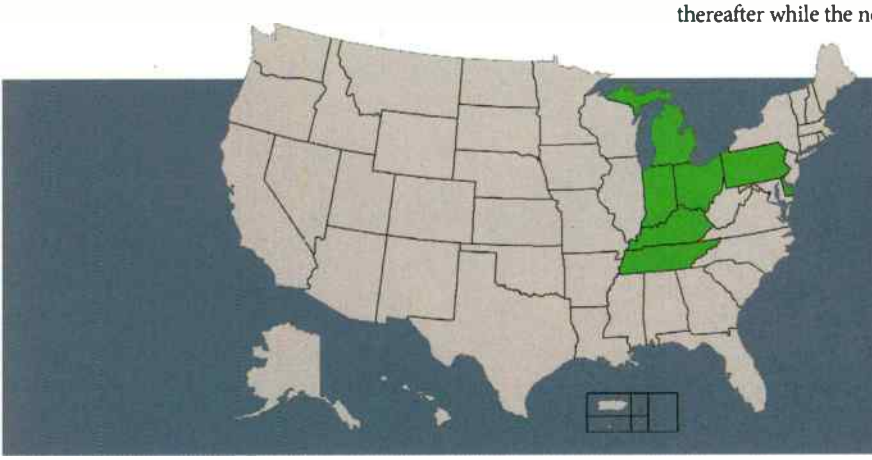
In most cases, a station's extended silence is due to equipment malfunction or damage, or the licensee's lack of funds. However, in the case of applicants moving FM translators, the silence is usually tied to the practice of turning the station on at each site to submit the license to cover application, but then taking the station silent shortly thereafter while the next move is planned.

As with the reasonable assurance question, the issue of not having alerted the Commission to a station's silence extends beyond the context of FM translator move-ins, and applies to all broadcast stations. If a broadcast station is silent for more than 10 days, the licensee is responsible for filing a notification with the Commission. If the silence extends beyond 30 days, special temporary authority to remain silent from the Commission is required. Thus, all licensees should take steps to notify the Commission when the station goes silent.

The letter likely foreshadows the Media Bureau's intent to issue additional inquiries to other licensees that have followed a similar path. The Media Bureau has taken the position that these move-ins are an abuse of the Commission's processes and reflect a lack of candor or misrepresentation to the Commission as to the intent of the licensee to serve the intermediary communities.

On the other hand, the Commission has a long history of processing these applications, so it may face difficulty in justifying the mid-stream switching of gears should a licensee take the matter to court. The best short-term advice to all licensees is to keep detailed records of their construction efforts in case the Commission comes knocking some day.

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



DATELINE

March 2012: Stations in Indiana, Kentucky and Tennessee continue running license renewal pre-filing announcements on March 16.

April 1, 2012: Stations in Indiana, Kentucky and Tennessee file license renewal application and EEO Program Report. Noncommercial radio stations in Delaware, Indiana, Kentucky, Pennsylvania and Tennessee file their Biennial Ownership Report (FCC 323-E).

April and May 2012: Stations in Michigan and Ohio commence running license renewal pre-filing announcements, continuing on April 16, May 1 and 16. Stations in Indiana, Kentucky and Tennessee commence running license renewal post-filing announcements, continuing on April 16, May 1 and 16.

NAB Show Here We Come!

When you get the NAB Show, what will you be looking for? Do you center your trip around the exhibits? Are the sessions your main focus? Do you try strike a balance between the two? Do you end up trying to do more than is humanly possible the first day? We can help. As you have come to expect from *Radio* magazine, this issue has lots of information about the convention: new products being shown, a rundown of the Broadcast Engineering Conference sessions, and a pullout map of the radio and audio exhibits in the Central Hall.

Even if you spend the entire week in Las Vegas, time is precious. Before you leave for Las Vegas, plot a course to make the most of your time. The NAB Show is a concentrated dose of radio broadcast and media technology. You can't see it all, but you can certainly see a lot. That's where our NAB Show preview can help.

See you in Las Vegas.

Chriss Scherer

Chriss Scherer, editor

Easy to use, Easy on the Budget

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In a world of ultra-complex operating systems (just look at your smartphone), sometimes simpler is better. Logitek's Pilot brings you the operational features you need with an almost non-existent learning curve.

Available in configurations with 6, 12 or 18 faders, the Pilot surface offers intuitive controls for bus and source selection, a Cue switch over every fader, built-in cue speaker, and 16 character source names on bright, wide angle displays. It includes 12 user-configurable soft keys along with a Quick Route button for fast selection of program, aux and user defined monitor sources. Its tabletop design allows you to use it anywhere or move it out of the way when not needed, and its economical price works well even with tight equipment budgets.

Even the most simple to operate console doesn't have to sacrifice on features. The Pilot offers easy, intuitive operation backed by the power of the Logitek JetStream Mini, a powerful 128-channel user-configurable audio node that handles all console functions as well as IP audio networking. Mixing, routing and processing along with buckets of mix-minus are all contained in a single fanless, convection-cooled 2RU enclosure.

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New Products

iPhone/iPad/iPod microphone | Tascam

iM2: The iM2 turns an iPhone, iPad or iPod Touch into a high-quality stereo recorder. A pair of condenser microphones plugs into the dock connector of an Apple device. The microphones are adjustable over 180 degrees for the best sound placement. The unidirectional elements are arranged in an AB pattern for detailed stereo imaging while capturing the ambience of a room. The iM2 contains its own microphone preamp and analog-to-digital converter for low noise and great audio quality. It can handle up to 125dB sound levels to capture the loudest concerts and instruments without distortion. Also contained in the iM2 is a stereo limiter to tame sudden loud sounds. It's powered through the dock connector.

tascam.com

Digital mixer | Yamaha

01V96i: The 01V96i digital mixer offers one-cable connection to computers with USB 2.0 connectivity, new multi-track recording features and improved sound quality. Features include multi-track live recording at 96kHz with 16 I/O USB audio streaming. The 01V96i includes comes with Cubase AI6 built-in and it is completely compatible with ProTools, Logic, Performer and Studio One. It incorporates a full suite of the latest pre-installed Virtual Circuit Modeling (VCM) and REV-X reverbs for a full spectrum of tonal colors.

yamaha.com/proaudio

Audio file transfer system | Enco Systems

ENconveyor: ENconveyor automatically downloads audio files from the Web or FTP sites and delivers them to a station's automation or audio delivery system. It can convert from multiple audio formats, sample rates and stereo/mono files. It works with Enco's DAD and Presenter systems or any automation system that can access a local or LAN-based directory. Set up user-defined schedules for downloads. PCM16 WAV files can be trimmed automatically to the first and last instance of audio at a user specified dB level. ENconveyor can even download and extract audio from unprotected video files. ENconveyor will automatically create and send an email if a site is down, if audio files are missing or files are an unexpected length, so there are no surprises. There is a built-in help system and helpful popup windows that guide users through setup and operation.

enco.com

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sonifex.co.uk

Disc publisher | Primera Technology

Bravo 4051: This new model delivers the same performance as the Bravo 4100-Series, which has a 100-disc capacity, but with a 50-disc capacity. Bravo 4051 is the fastest 50-disc publisher available. It prints full-color, 100 percent coverage discs in just 6 seconds each.

Features include individual CMYK ink cartridges, one high-speed Sony OptiarcT CD/DVD drive, 4800dpi print quality, 300 percent faster robotics than previous models, interior blue LED lighting with job status feedback, seventh-generation disc picking mechanism, Windows XP/Vista/7 and Mac OS X 10.6 or higher compatibility, and optional Blu-ray Disc recordable drive.

primera.com

Multi-pair audio cables | Clark Wire and Cable

700 Series: Built for high-density audio applications, the 700 series comes in configurations from four to 24 balanced audio pairs within a single master jacketed cable. New to the 700 series is an updated jacket and core construction that improves the flexibility and elevates the UL rating to riser type CMR. The 700 series pair construction still features 22AWG tinned copper conductors insulated with a low-shrink back and low-loss polypropylene dielectric. To achieve low RF/EMI noise and exceptional common-mode rejection, each pair is precision twisted and shielded with a bonded foil shield and a tinned copper drain wire. For quick identification each single-pair element has a color-coded and alpha-numerically printed jacket that makes channel identification easy, even in low-light environments. New to the 700 series is an improved TPE jacket compound. This dual purpose jacket allows the same 700 series cable to be used in harsh environments where flexibility and durability are critical as well as in permanent installation environments that require a CMR listed cable.

clarkwc.com

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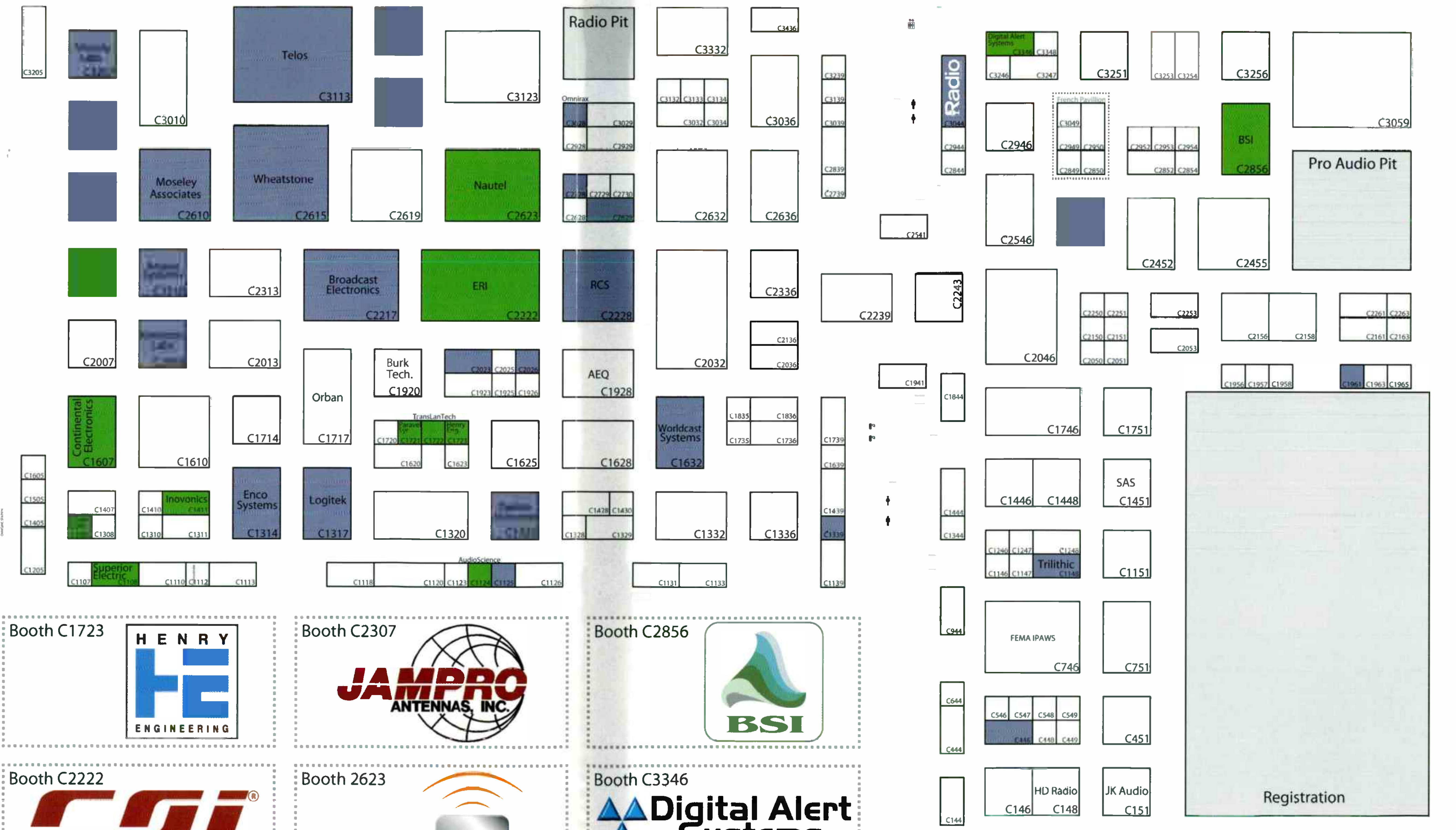
NABSHOW Radio Hall Map



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Booth information provided by the NAB, current as of Feb. 23, 2012.

Radio

A supplement to March 2012

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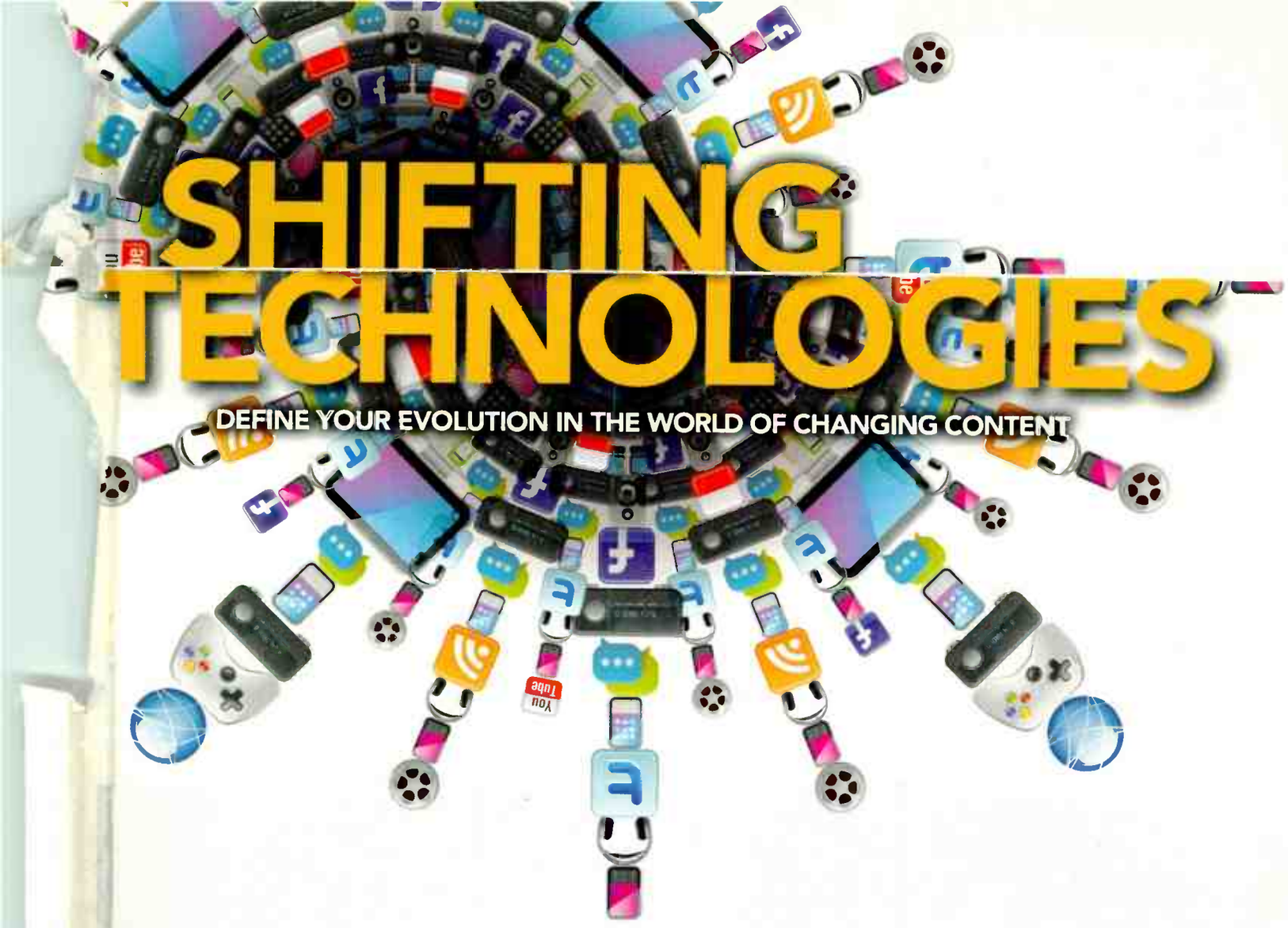

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New Products

Digital mixing console | Studer

OnAir 1500: A 12-channel, six-fader console (expandable to 12 faders), the OnAir 1500 digital mixing console is for studios needing an additional professional-grade fader unit and additional I/O or a compact and cost-effective mixing console for a production room or on-air studio. Integrated USB playback and record functions make the console a very compact yet complete production unit and mixer. With simple point-to-point connectivity it can be moved around as a backup or secondary unit. Flexibility is increased with the addition of a six-fader extension bay, creating either a 12-fader surface, or an additional six faders that can be remotely placed in a producer's bay or used as a redundant surface. Channel parameters such as EQ and dynamics can be edited using console controls in combination with the OLED channel displays without requiring an additional screen or PC. For more advanced operation and configuration, the console provides interfaces for connecting a PC screen, keyboard and mouse. The master section gives the operator access to the signal monitoring and switching for control room and studio with an internal speaker preconfigured to output cue and talkback signals.
studer.ch

Portable live production | NewTek

TriCaster 450/450 Extreme: The latest addition to the TriCaster line of portable live production systems, the TriCaster 450 series makes HD production available to more live video producers than ever, in an even more compact, cost-effective solution. TriCaster 450 Extreme offers additional innovative benefits, such as NewTek's IsoCorder multi-track, multi-format video recording technology. With TriCaster, anyone can simultaneously produce, live stream, broadcast, project and record HD and SD network-style productions. A single operator or small team can switch between multiple cameras, virtual inputs and live virtual sets, while inserting clips, titles and motion graphics with multi-channel effects.
newtek.com

Wireless interface | Tieline Technology

USB Module, 4G Modem: Tieline now has a 4G USB m capable of interfacing with both the Pantech UML29(the Verizon Wireless 551L 4G LTE USB Modems. Thi allow Tieline G3 codecs to connect and broadcast over Verizon 4G LTE network. The module fits into existing mander G3 Field and i-Mix G3 remote broadcast codecs. Both the Pantech UML290 4G LTE and the Verizon Wireless 551L 4G LTE USB Modems support 4G LTE (700MHz), as per modem specifications.
tieline.com

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New Products

Mic and headphone controller | Henry Engineering

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

henryeng.com

Commentary/intercom unit | Glensound Electronics

COIN GT-013: The COIN range was established to produce hybrid commentary/intercom units. Glensound Electronics provided the commentary interface, with RTS/Telex providing the intercom interface. The COIN GT-013 is a single commentator system in the Glensound style featuring a microphone front end with low-noise preamps (48V switchable) and a compressor limiter system. The headphone monitoring section offers three inputs with adjustable level controls and left/right/both headphone switching. The first input features the commentators own voice, the second, a local input (program) and the third features the input from the Telex Intercom system. The top of the unit is a four-key Telex intercom panel integrated into the dedicated Glensound commentary box. Each of the four channels can be assigned to a location on any point of the Telex intercom matrix. The first three channels are selected and fixed by the operator using the rotary encoder and individual screen per channel, which are then fixed to those sources. The fourth acts as a roaming incoming feed; any non-assigned communication from the matrix will come through on input four and show its source in the display.

glensound.co.uk

Server room environmental monitor | Burk Technology

Climate Guard LT: Climate Guard LT expands on Burk's line of environmental monitors, offering a cost-effective solution to detect and avoid temperature and other environmental problems. It uses a built-in Web interface and requires no software installation or browser plug-ins, allowing use from any computer, tablet or smartphone. Email, SMS and SNMP notifications ensure that responsible personnel can respond to problems quickly and effectively.

burk.com

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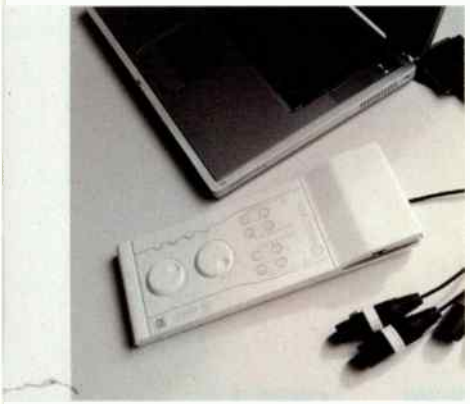
New Products

USB sound card | Digigram



Cancun: Cancun is a range of high-end mobile USB sound cards for on-the-go audio professionals. The first two models in the series are the Cancun 442-Mic and 222-Mic, a four-in/four-out and a two-in/two-out respectively, simultaneous analog + AES I/O device. Both offer no less than 2x500 MIPS dual-core processing power embedded in a robust casing. Features include a mic preamp, professional analog level of +24dBu max and guaranteed low latency of under 3ms. Its design also incorporates a thin and durable touch panel with LED lights hidden beneath the surface as well as housing all of the required connectivity for a Neutrik XLR plug for professional microphones. A companion software application presents the user with all the relevant information regarding the sound card.

digigram.com

Handheld microphones | Audio-Technica

ATM510, ATM610a: The ATM510 cardioid dynamic mic and ATM610a hypercardioid dynamic mic both reduce the pickup of sounds from the sides and rear, improving isolation of the desired sound source. The ATM510 is designed specifically for close-up vocal use in professional live-sound applications, and the ATM610a is intended for both lead and backup vocal use and is especially effective on loud stages. Delivering durable performance for professional applications, both microphones feature a rugged, all-metal design and construction; a newly designed superior internal shock mounting; Hi-Energy neodymium magnets; a multi-stage grille design; Quiet-Flex stand clamp for silent; and corrosion-resistant contacts from the gold-plated XLRM-type connector.

audio-technica.com

STL application | Barix

Reflector App: This free iOS app for use on the iPhone, iPod Touch and iPad is a mobile receiver for the Barix Reflector Service, allowing customers to monitor their audio streams on the go. The Barix Reflector Service is typically used by radio broadcasters and service providers to stream audio between two or more points. The service essentially offers IP streaming without the complexity of IP, simplifying the setup process for audio transport connections. The Reflector app taps into the main Reflector Service audio feed to allow real-time listening and monitoring of contact closure status and network statistics. This gives broadcasters and service providers access to a wealth of information about their streams and channels from any location.

barix.com

We've got a full house at NAB 2012!
Visit BGS at booth C3020

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

New Products

Wireless management network | Shure

Axient: This family of wireless mic products includes a handheld mic transmitter, a bodypack transmitter, rack-mount receiver and several charger options. The receiver features Shure's proprietary Interference Detection and Avoidance circuitry and a 228MHz tuning bandwidth to allow more channels to be used on air. The transmitters are powered by lithium-ion power supplies and feature dual-channel output to ensure interference-free reception. The transmitters can also be operated on a single channel to conserve spectrum. The receivers allow real-time remote control of all transmitter parameters, including remote gain setting, remote frequency change and remote RF mute.
shure.com

File-based audio processor and encoder | Omnia Audio

F/XE: F/XE is a file-based audio processor and encoder application specifically engineered for podcasting or file-based streaming. It combines Omnia audio processing with Fraunhofer MP3 and AAC codecs. F/XE is software only; no special cards are required. It is able to read PCM WAV files, MPEG Layer-2 and MPEG Layer-3 source files. It can automatically send the output file to an FTP server and will notify the user at once by email if problems are detected. Logs are kept during processing so that the source of a problem can be traced. F/XE can also read metadata from external files and embed the information as ID3tags in the output files. It can encode the output audio using MP3 or AAC (including HE AAC and HE AAC v2), or save linear PCM WAV audio files.
omniaaudio.com

High-quality printed panels | Acoustical Solutions

AcoustiArt: Decorative AcoustiArt Panels give the option of adding high-quality designs and photos to acoustical treatment and can be made in any size ranging up to a 4' x 10' panel. The ink used to print AcoustiArt is acoustically transparent to allow sound waves to pass through to the absorptive components of the panel. Since AcoustiArt Sound Absorbing Panels are available in such a wide variety of sizes and prints, customers must call to order, and will be walked through the process of choosing the design for their noise control solution.
acousticalsolutions.com

CUSTOM

SCALABLE

AUDIO PLAYOUT

USER FRIENDLY

AUTOMATION

ENCO DOES NAB.

RELIABILITY

INTEGRATION

IP AUDIO

SMALL MARKET

NON-COMM

PUBLIC

MAJOR MARKET

LIVE ASSIST

NETWORK HEADEND

REDUNDANCY

PROCESS CONTROL

VIRTUALIZATION

REMOTE VOICE TRACKING

METADATA

DISTRIBUTION

CONTENT MANAGEMENT

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COMMUNITY

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Virtualization

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and More...

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BOOTH C1314

enco.com/NAB

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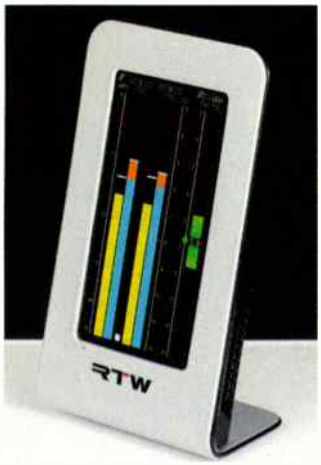
New Products



Audio signal monitor | RTW Radio-Technische Werkstatten

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

rtw.de

Mobile marketing tool | Broadcast Electronics

SMS Campaign Manager: SMS Campaign Manager takes the mystery out of creating successful mobile marketing campaigns for advertisers. Users can quickly build a database of mobile text subscribers using a variety of keywords. SMS Campaign Manager creates an unlimited number of keyword-based campaigns for targeting mobile users, who then opt-in as subscribers for additional messaging. It easily sends text messages using BE's list of short-code numbers (for example, text keyword "Lunch Deals" and the short-code 1234) or users can create their own. Users can also send SMS messages in bulk or to only a few and track campaigns in realtime. Also, prevent text fatigue and schedule outbound messages for only those times when customers are likely to welcome the text, for example, texting lunch specials during lunchtime.

bdcast.com

Audio snake cables | Belden

Brilliance Waterblocked, Plenum, Banana Peel Cables: The water-blocked series consists of six standard product codes with constructions ranging from one to 12 pairs. These products are suitable for direct burial and are outdoor-rated without the installation difficulties associated with gel installations. The plenum series offers nine product codes including the recent additions of four, six, eight and 12-pair constructions with an overall jacket. Each pair is individually jacketed, eliminating the need for heat shrink. This simplifies field termination and reduces labor costs. Belden also now offers two, four, and six-pair audio snake cables in its patented Banana Peel construction. Banana Peel cables are easy-to-install composite cables. All component cables are bundled and affixed to a center spline, eliminating the need for an overall jacket. Installers can easily split the composite cable into individual cables by peeling them away from the center spline.

belden.com

Message repeater | RDL (Radio Design Labs)

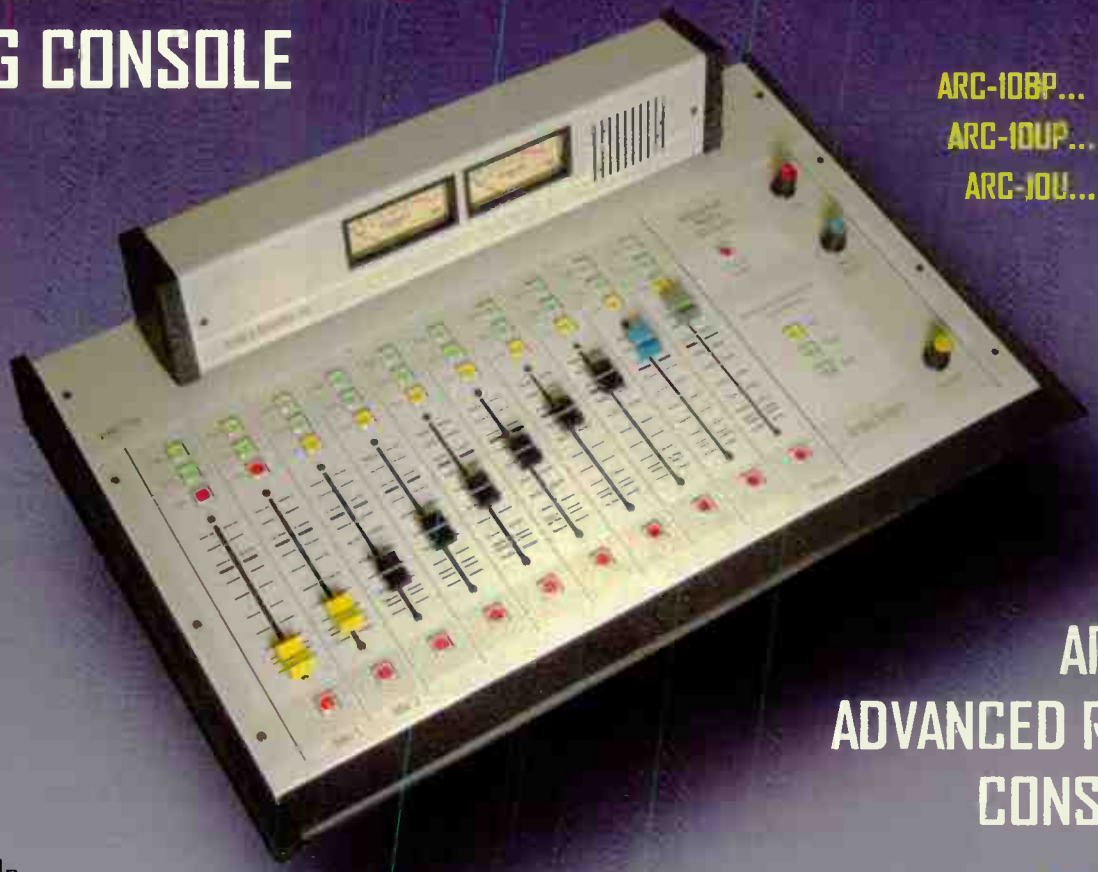
FP-MR2: The FP-MR2 records up to 1 min. 40 sec. of audio, and both the frequency response and the noise floor have been dramatically improved over the previous version. The Record Enable button replaces a dip-switch setting, simplifying re-recording messages. The Start button has been enlarged for easier operation. Audio connections are now made via detachable terminal blocks and the front-panel graphics have been redesigned to make the unit easier to use. The recording input is a standard -10dBV consumer level unbalanced phono jack. An input level trimmer is provided to set the correct recording level, which is indicated on a dual-LED meter

rdlnet.com

ARRAKIS SYSTEMS INC.

THE NEXT GENERATION ANALOG CONSOLE

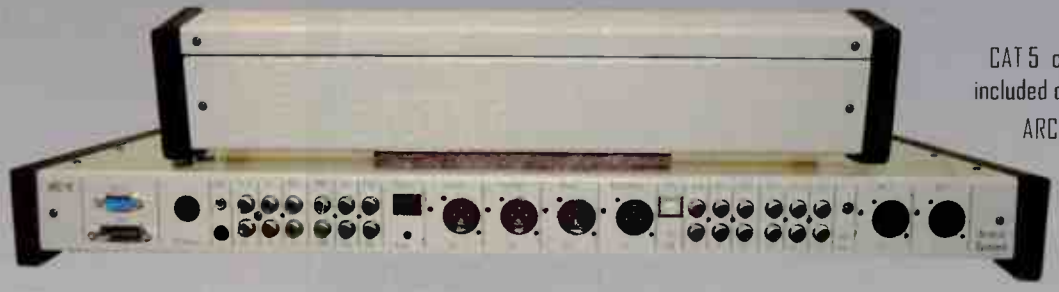
ARC-10BP... $2,495
ARC-10UP... $1,999
ARC-10U... $1,599
msrp



ARC-10 ADVANCED RADIO CONSOLES

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

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



CAT 5 cables included on the ARC-10BP

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

www.arrakis-systems.com

New Products

A/V streaming | Digital Rapids

TouchStream: The TouchStream video and audio streaming appliances combines Digital Rapid's live streaming quality and reliability with an intuitive touch-screen interface in a fully self-

contained, easy-to-deploy, portable form factor. Stream media in the field, on a desktop or in a rack; software controls are accessed through a touchscreen interface with integrated live video monitoring and VU meters for audio validation, eliminating the need for laptops, keyboards, mice and separate monitors. Viewing platforms include Web (Adobe Flash, Microsoft Silverlight and more), tablets, mobile phones and more. TouchStream can even stream in multiple formats, resolutions and bit rates simultaneously, including adaptive streaming support.
digital-rapids.com

Digital audio processors | Junger Audio Studiotechnik

D*AP LM2, D*AP LM4: D*AP LM2 is a two-channel digital audio processor incorporating Level Magic II. It is capable of handling analog and digital (AES/EBU) audio and features an automatic input switchover with parallel output formats. Junger Audio's Adaptive Dynamics come as standard, allowing customers to incorporate additional processing blocks such as filters, compressors, expanders and the recently introduced proprietary Spectral Signature processor. This proprietary technology offers the ability to create a signature mask as a template so that broadcasters can recreate the same atmosphere and dynamics on subsequent audio content. D*AP LM4 is a four-channel digital audio processor with Level Magic II. It features onboard AES/EBU digital I/O, along with optional 3G/HD/SD-SDI I/O or analog I/O. All I/Os come with power fail bypass. Control of this 19" rack-mountable unit is via a smart new front panel or via a Web interface for those who wish to operate it remotely.
junger-audio.com

A/V mixer | Roland Systems Group

VR-3: The VR-3 incorporates a video switcher, audio mixer, previewmonitors and streaming-ready USB output. As a USB audio/video class device, Web streaming is accomplished by connecting to a computer running a live streaming service. The VR-3 is portable, weighing less than five pounds. It can be powered by the provided power supply or by external battery options. Its intuitive touchscreen interface provides an easy way to switch video sources or access menus. Features include four-channel video switcher, four mono and two stereo mixable audio channels, built-in stereo mic for mixing in ambient sound, built-in scan converter for PC input with a thru for connecting a projector or display, built-in single LCD monitor with touch control, quad display on monitor, compositing video effects, and digital audio effects.

rolandsystemsgroup.com

Multichannel AES switch/ convertor | Digital Alert Systems

R198: R198 converts an incoming analog source to digital AES audio and distributes it to four different AES switches. It enables users to convert a stereo analog signal into AES and switch it in and out of four other AES program streams. In a 1RU chassis, the R198 features a built-in Web server and therefore can be configured and operated from any standardWeb browser on any standard platform. Once the system is configured, each channel switch is controllable over a standard TCP/IP network connection or via GPIs, making it easy to use over a network or directly interfaced with other broadcast equipment such as automation and older EAS equipment.

digitalalertsystems.com

Multi-platform scheduler | RCS

Selector2Go: Selector2Go is an Internet-based multi-platform scheduler. This puts the Selector and GSelector scheduling engine in the hands of radio programmers no matter where they want to schedule. It delivers a powerful, easy-to-use interface. Now programmers can check back from anywhere on those extended schedules they started before they left the office.

rcsworks.com

Audio multiplexer | WorldCast Systems

APT Worldcast Oslo AoIP NextGen: Fully compatible with existing Oslo units, the AoIP NextGen card combines audio, IP transport and auxiliary data on a single module providing the user with audio over IP performance, as well as scalability and flexibility. It also features SureStream, which enables broadcast-quality audio over public Internet links. With six cards per Oslo and four channels per card, the unit is able to decode up to 24 streams, even discrete mono channels with independent bit rates and algorithms, from independent locations. The IP performance is increased because each AoIP NextGen card handles its own IP traffic, avoiding any bottlenecks in the system, and embedded aux data means there is no need for to invest in additional cards.

aptcodecs.com

New Products

Computer audio amplifier | Gefen

USB Audio Amplifier: With the USB Audio Amplifier, output high-quality sound from any laptop or desktop computer using the USB Port. The small enclosure fits in the palm of ah- and and offers 25W per channel amplification delivered in standard two-channel, left/right format. The amplifier is equipped with left/right binding posts for speaker connections. An RCA connection is also available for connecting a high performance, powered subwoofer.

gefen.com

FIND THE MIC WINNER
JANUARY ISSUE

Congratulations to

Josh Rickert

WDBM-FM, E. Lansing, MI

He won a pair of Hosa HDC-800 headphones.

www.hosatech.com

The mic was hiding between the selector buttons on the upper right corner of the console.

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

Headphones | Sennheiser Electronic

HD 700: These fully open dynamic stereo headphones combine high-end sound with an innovative headphone design. The ear cups are designed so that sound waves are directed to the ears at a slight angle. This results in a natural listening experience. The ear cups themselves have a completely open design. This not only ensures a highly transparent sound but also clearly displays the 40mm Duofol transducer. Its powerful neodymium magnet systems guarantee detailed, lifelike audio reproduction from 10Hz to 42kHz.

sennheiserusa.com

Consumer plug-in | Fraunhofer Institut

Sonnox Fraunhofer Codec Plug-in: This plug-in is the consumer version of the Sonnox Fraunhofer Pro-Codec plug-in. It provides mastering quality audio codecs for use in consumer music recording software, such as GarageBand and Sonar. Critically audition and encode audio mixes to multiple formats within a digital audio workstation (DAW) and pre-listen to the content before uploading it online. This allows users to create optimized mixes for the specific codec and bit-rate that their distribution chain requires. Sonnox Fraunhofer Codec Plug-in features include an easy-to-use interface for offline encoding and decoding and basic meta-data editing. The plug-in supports WAV and AIFF files and works with audio software supporting VST, RTAS, AAX or Audio Units plug-ins on Mac and Windows.

iis.fhg.de

FM rebroadcast receiver | WorldCast Systems

Audemat FM Receiver Silver: The FM Receiver Silver is capable of receiving a signal in difficult circumstances and outputting an MPX baseband or audio signal, which can be used for high quality retransmission by any make of transmitter. This enables a broadcaster to provide complete coverage in shadow areas, tunnels and other hard to reach areas. To provide broadcast engineers with complete peace of mind, the FM Receiver Silver will monitor RF levels and MPX deviation to establish the presence of a suitable signal and display the current status via the LED front panel.

audemat.com

Constant impedance FM bandpass combiner | Jampro Antennas

RCCC-102-FM: Jampro's RCCC-FM constant impedance combiner features a compact modular design that can be configured to fit into the smallest transmitter rooms and allows an additional frequency to be easily added. These combiners use temperature compensated bandpass filters with integrated heat sink tops to keep filters cool and locked on their frequencies. Various models are available for different channel spacing.

jampro.com

ARRAKIS SYSTEMS INC.

MARC-15 MODULAR ANALOG CONSOLE

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

$5,499
MARC-15-12

$6,499
MARC-15-15

CAT 5
cables included

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

THE NEXT GENERATION OF ANALOG CONSOLES

$3,495
msrp

CAT 5
cables
included

ARC-15BP ADVANCED RADIO CONSOLE

- Fifteen input channels
- Two Stereo Program outputs
- 1-5 mic, 8-12 stereo line, PC, & Phone in
- USB interface for play and record from a PC
- Mix minus in-out for an external Telephone hybrid
- Conductive plastic faders & multimillion operation switches
- Socketed ICs for ease of on site repair & LED lamps for long life

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

www.arrakis-systems.com

all prices are msrp

ARRAKIS SYSTEMS INC.

Digilink-Xtreme Automation

integrates with Arrakis ARC consoles

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

- Unattended Games mode
- Streaming services support
- RDS support

$6,500 complete
or only
$100 per month

NEW~WAVE
and
NEW~WAVE~LITE

integrates with Arrakis ARC consoles

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

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

www.arrakis-systems.com

all prices are in US$

BEC Session Highlights

Saturday April 14			Room
SBE Ennes Workshop: Video and Audio on IP to IPTV	8 a.m. - 8:55 a.m.	The Broadcast Engineer in an IT World, Part 1	S225
	8:55 a.m. - 9:05 a.m.	Opening Remarks	
	9:05 a.m. - 9:50 a.m.	The Broadcast Engineer in an IT World, Part 2	
	9:50 a.m. - 10:15 a.m.	The Tube Sound: Fact or Ficton?	
	10:15 a.m. - 11:15 a.m.	Broadcasting and the Cloud	
	11:15 a.m. - 11:35 a.m.	IBM Cloud Case Study	
	11:35 a.m. - 11:55 a.m.	Chyron Cloud Case Study	
	1 p.m. - 1:25 p.m.	Standards Update	
	1:25 p.m. - 1:55 p.m.	Evolved Multimedia Broadcast/Multicast Service Tutorial	
	1:55 p.m. - 3:25 p.m.	IPTV Tutorial	
	3:25 p.m. - 4:25 p.m.	adcast Workflow/Content Flow 2012	
	4:25 p.m. - 5 p.m.	ATSC's Future of TV	
Sunday April 15			**Room**
	9 a.m. - 9:30 a.m.	Broadcast Engineering Conference Opening Keynote	S225
Advancements in Radio Technology	9:30 a.m. - 10 a.m.	A New Approacn to High-Power Circulators for FM Dual-Input Antenna Systems	S228
	10 a.m. - 10:30 a.m.	A Standardized Method for Radio Program Service Data Distribution - An Update	
	10:30 a.m. - 11 a.m	FM Stereo Using Single Sideband Suppressed Carrier (SSBSC) Modulation	
	11:30 a.m. - Noon	Optimal Deployment of an FM+HD Booster with a New Over-the-air Repeater	
	2 p.m. - 2:30 p.m.	The Advantages of Liquid-Cooled vs. Air-Cooled Transmission Systems	
	2:30 p.m. - 3 p.m.	High-Level IBOC Combining Methods for Single-Input Antenna Systems	
	3 p.m. - 3:30 p.m.	Topologies for HD/IBOC FM Translators	
	3:30 p.m. 4 p.m.	Interactive HD Radio Opportunities	
	4 p.m. - 4:30 p.m.	Characterizing Digital SNR Improvement with FM IBOC Asymmetric Sidebands	
	4:30 p.m. - 5 p.m.	HD Radio Broadcast System: 4th Generation	
Monday April 16			**Room**
	9 a.m. - 10:15 a.m.	Opening Keynote	LV Hotel
HD Radio 101 – Making it Happen at Your Station	10:30 a.m. - 2 p.m.	Part 1 for Managers: What's so Great about HD Radio?	S227
	2 p.m. - 2:30 p.m.	Part 2 for Engineers: Understanding HD Radio Technology	
	2:30 p.m. - 3:30 p.m.	Part 2 for Engineers: Available Hardware and Software for HD Radio	
	3:30 p.m. - 4 p.m.	HD Radio 101 - Break and Networking	
	4 p.m. - 5 p.m.	Part 2 for Engineers: Updating Your Facility for HD Radio: Lessons Learned	
Engineering Case Studies for Broadcast	10:30 a.m - 11 a.m.	VoIP in the Real World: How I Quit Worrying and Learned to Live Without POTS	S228
	11 a.m. - 11:30 a.m.	Advanced STL Alternatives for Radio	
	11:30 a.m. - Noon	Social TV System: Analysis of User Behavior in Large-Scale Field Trial	
	1 pm. - 1:30 p.m.	Spectral Growth Through Passive Intermodulation (PIM) Distortion	
Broadcasting: A Global Technology Perspective	10:30 a.m. - 11 a.m.	Video Distribution Issues Unique to South American ISDB-Tb Broadcast Standard	S225
	11 a.m. - 11:30 a.m.	CienRadios.com: From Broadcasters to Anycasters Reinventing Itself	
	11:30 a.m. - Noon	Digital Radio: A Global Perspective	
Next Generation Remote Production and Delivery	2 p.m. - 2:30 p.m.	Broadcast Data Transformation and Management Capabilities to Portable Devices	S225
	2:30 p.m. - 3 p.m.	Assuring Integrity of Wireless Mic Frequencies Upon Intro of White Space Devices	
	3 p.m. - 3:30 p.m.	Reliable Networking Solutions for Television Distribution Over IP	
	4 p.m. - 4:30 p.m.	The New Newsroom: How Broadcasters Use Technology to Cover More News for Less	
Tuesday April 17			**Room**
The Broadcast Infrastructure	9 a.m. - 9:30 a.m.	IPv6: Why Do I Need To Implement?	S227
	9:30 a.m. - 10 a.m.	Hey, You, Get Off of My Cloud	
Network Security for Broadcast	10:30 a.m. - 11 a.m.	IP Network Security for Broadcasting	S228
	11 a.m. - 11:30 a.m.	Securing SNMP for Transmitter Control	
	12:30 p.m. - 2 p.m.	Radio Luncheon	LV Hotel

Green Engineering for Broadcast	1 p.m. - 1:30 p.m.	Weighted Carbon Footprint for Broadcasting Products	S227
	1:30 p.m. - 2 p.m.	The ABCs of LEDs	
	2 p.m. - 2:30 p.m.	Making Redundancy Cheap and Green	
	2:30 p.m. - 3 p.m.	Greening of Engineering Revisited	
	3 p.m. - 3:30 p.m.	Transmission System Total Cost of Ownership	
	3:30 p.m. - 4 p.m.	High Efficiency Transmission with "Green" Amplification	
	4 p.m. - 4:30 p.m.	LED Lighting Systems for Aviation Obstructions	
	4:30 p.m. - 5 p.m.	The Green Advantages of ATSC and DVB-T2 and ATSC	
	5 p.m. - 5:30 p.m.	Sustainability Aspects for Innovative Products in Broadcasting	
	5 p.m. - 6 p.m.	SBE Membership Meeting	S225
Mobile TV Update	5:30 p.m. - 6 p.m.	Using Mobile DTV for Radio	S228
Wednesday April 18			**Room**
Technical Regulatory Issues for Engineers	9 a.m. - 9:30 a.m.	Implementation of Statewide Common Alerting Protocol (CAP) Delivery for EAS	S224
	9:30 a.m. - 10 a.m.	EAS Developments	
	10 a.m. - 10:30 a.m.	EAS: The Year Past, and the Year Ahead: A View from Industry	
Engineering Management	10:30 a.m. - 11 a.m.	The Shortage of Broadcast Engineers	S224
	11 a.m. - 11:30 a.m.	Broadcast Engineering Perspective: A Useful Data Point in Planning for the Future	
	12:30 p.m. - 2 p.m.	Technology Luncheon	LV Hotel
Disaster Preparedness and Recovery	2 p.m. - 2:30 p.m.	Stormy Weather: Making an Effective Business Continuity Plan in the Cloud	S227
	2:30 p.m. - 3 p.m.	Preventing the Next Tower Disaster	
	3 p.m. - 3:30 p.m.	Covering the March 11, 2011 Disaster in Japan	
	3:30 p.m. - 4 p.m.	Extreme Disaster Preparedness for Broadcast Operations	
	4 p.m. - 4:30 p.m.	Tailoring a Disaster Recovery Plan to Your Business Continuity Requirements	
	4:30 p.m. - 5 p.m.	Planning for Facility Evacuation: How to Evaluate Your Needs	
	6 p.m. - 8 p.m.	Amateur Radio Operators Reception	LV Hotel
Thursday April 19			**Room**
Saving Energy with MDCL	9 a.m. - 9:30 a.m.	Amplitude Modulation Companding, Significant Power Savings	S227
	9:30 a.m. - 10 a.m.	Saving Power with AM IBOC Using Modulation-Dependent Carrier Level Control	
	10 a.m. - 10:30 a.m.	Application of MDCL Control Technologies to AM Transmission Systems	
Graphics for Radio	10:30 a.m. - 11 a.m.	Understanding and Deploying RadioText Plus (RT+)	S227
	11 a.m. - 11:30 a.m.	Creating Real Web Video with Virtual (Few) Resources	

Check the on-site program for room and time updates.

Not the Same Old STL

Why it's so important to have network access at your transmitter site, and how you can do it now

By Doug Irwin, CPBE DRB AMD

In larger radio markets, or even markets where many FM stations are gathered at one mountaintop or tall tower farm, obtaining a new 950MHz license for STL purposes can be difficult at best and impossible at worst. Fortunately, there are alternatives, and we'll explore some of them.

The FCC has recognized this frequency congestion issue and responded by eliminating what was called the final link rule from Part 101 of the Rules. Previously, broadcasters could use certain Part 101 bands for transmission of programs in the direction of the transmitter, from the studio, except for the very last link. (It was possible to get a waiver of this rule in certain circumstances.) In the Commission's own words, "With increasing adoption of digital technologies, the final link rule has become an outdated regulation that imposes unnecessary costs on broadcasters." And further: "Eliminating the rule will provide tangible benefits to broadcasters by reducing unnecessary duplication of systems and facilities and enabling them to operate more efficiently. We therefore find the benefits of eliminating the final link rule to be significant."

ARRAKIS SYSTEMS INC.

ARC-8X COMPACT RADIO CONSOLE

$799

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

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

ARC-10 ADVANCED RADIO CONSOLES

Ten mixing channels
Two Stereo Program outputs
2 mic, 6 stereo line, PC, & Phone in
USB PC sound card on ARC-10UP & ARC-10BP
Mix minus in-out for an external Telephone hybrid
Multimillion operation switches with long life LED lamps

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

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

CAT 5 cables included on the ARC-10BP

www.arrakis-systems.com

all prices are msrp

Moseley Event HD 5800

Radio Systems IPC100

Before the elimination of the final link, an alternative to the 950MHz band was using an ISM band (928MHz, 2.4GHz, 5.8GHz) radio link, and of course all those options are still available. For example, Moseley offers its system called the Event 5800, which operates in the 5.8GHz ISM band (or the 5.3GHz UNII band). It can handle up to nine T1s, or alternatively 27Mb/s Ethernet. This is a system that makes use of an indoor unit and outdoor unit. Control is via a built-in Web server or SNMP.

But if you want to go with a licensed channel, you have many options. Radio Systems offers the IPC100 series of point-to-point microwave radio systems. The IPC100 operates in frequency ranges from 7 to 38GHz (licensed frequency bands), and its payload bandwidth can be allocated in various ways, including 4, 8, 16, 32 T1/E1 Interface, or 100base-T Ethernet. It uses indoor and outdoor units, which can be separated by as much as 300 meters (using LMR-400). Control is accomplished via an NMS GUI or via SNMP.

I've written in prior articles about how the explosion in the use of Ethernet has substantially affected how we assemble radio stations. I want to point out that the dramatic increase in smartphone usage is having a similar effect. Cell telephone companies are scrambling to rebuild and upgrade their own infrastructure – in particular the way they backhaul data from cell sites – and this has made a huge market for Ethernet radios, such as those described below. This market has brought new manufacturers into the game, which lowers the prices of the equipment.

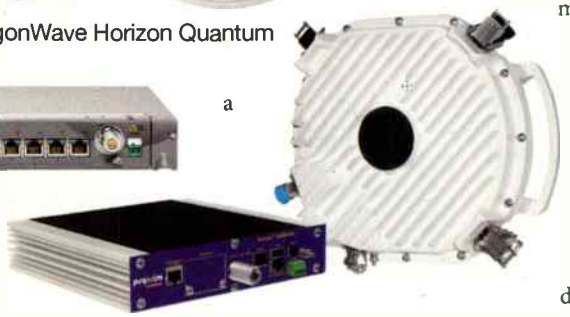
IP IN PLAY AGAIN

Ceragon has an extensive product line, but in particular take a look at the FibeAir IP-10 E series. This radio hauls Ethernet, and it's scalable up to 2Gb/s of throughput (don't laugh – who knows what might go at the transmitter?). This radio uses an indoor unit and outdoor unit, and you can use coax (LMR-400 for example) to connect the two ends together. Comprehensive QoS mechanisms are specified.

Another brand with which you may be familiar is DragonWave. The Horizon series also has an indoor/outdoor configuration and is scalable up to 2Gb/s of throughput (Ethernet of course). QoS packet prioritization is specified as a feature.

Ceragon FibeAir IP-10 E

DragonWave Horizon Quantum



Proxim Tsunami GX800

Though there are others, finally I'll mention the Tsunami series by Proxim. Like the other radios I mentioned, this is an Ethernet radio (though the throughput is limited to only 622Mb/s) and it makes use of indoor/outdoor units. Notice that it also supports 802.1Q (VLAN tagging) plus 802.1P QoS (packet prioritization).

Radio systems of this ilk have extensive remote monitoring and control capability, not the least of which are Web interfaces and SNMP control. This type of radio is designed for a large enterprise and as such may look like overkill initially; however, I believe when you look at the price points versus capability you'll become a believer like I have.

LICENSING

Once you've specified the radio you'd like to use, you'll need to find the emission designator (from the data sheets that go along) that matches with the payload you want to carry over the link. This is an important piece of information to have for prior coordination.

As you likely know, before you can get a radio channel licensed for your station's use, you have to go through the prior coordination process. Prior coordination is defined by the Commission as: "A bilateral process conducted prior to filing applications which includes the distribution of the technical parameters of a proposed radio system to potentially affected parties for their evaluation and timely response." According to 101.103(d), prior coordination must be completed prior to filing an application for regular authorization, or major amendment to a pending application, or any major modification to a license.

Now in case you think that sounds slightly intimidating, it really needn't be; and even better, there are lots of firms

RESOURCES

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comrex.com

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that will do that work for you. A few to keep in mind are Comsearch, Micronet, V-Soft, RFEngineers.com and Terrestrial RF Licensing Corporation.

There will likely be a process between you and the frequency coordinator, where you match the emissions designator, and channel bandwidth to the specifications for the band you ultimately want to use. Again, this isn't difficult because radios that are specified to work within FCC guidelines already have those design parameters built in.

Comrex BRIC-Link


Worldcast Systems APT Horizon HD

Tieline Genie

ALL THE BANDWIDTH

Let's now take a look at just what you can do with all the bandwidth delivered by one of these Ethernet radios. There are quite a few companies making IP codecs. For our purposes let's focus on nailed up links – like you would use on a 24/7/365 basis for an STL.

Comrex offers the BRIC-link as a means by which you can haul audio over IP links (such as the radios I described earlier). The unit is small – two fit side-by-side in 1RU. Each device operates in a full-duplex fashion. Audio ins and outs are on 1/4" TRS connectors (analog or AES); mini-DIN connectors are used for contact closures and other ancillary data. The unit has an embedded Web server, displaying connection status, network diagnostics, and audio level meters for monitoring of levels in and out. Coding options are Linear, FLAC, AAC, HE-AAC and HE-AAC v2. Also, Comrex has recently given the BRIC-Link the ability to utilize the BRIC Traversal Server.

Worldcast Systems APT has an extensive lineup of codecs, but the one I'll highlight is the Horizon. This is a 1RU full-duplex codec that supports linear coding and Apt-x. Probably its most interesting feature though is called Surestream, which basically sends two identical streams out on two different Ethernet ports, to two different networks. The underlying idea is that the public Internet isn't very reliable (which we all know) so making use of separate networks increases the robustness of the link. If you were to use the Horizon in conjunction with one of the radio links previously described you could opt to use one of the Ethernet ports for management on the LAN.

Tieline has introduced an IP codec called Genie, which is designed for high-reliability STL applications. Toward that end, it features two gigabit Ethernet ports and dual power supplies. Genie supports uncompressed PCM audio and E-Apt-x, LC-AAC, HE-AAC v1 and v2, MPEG Layer II, Tieline Music and Musicplus. It has integrated alarm management, and Tieline's G5 toolbox allows complete remote control of the device by IP. Finally, I think it's interesting to note that along with IPv4 support, that Genie will support IPv6 as well.

Musicam makes the Suprima, a 1RU full-duplex codec. It supports linear coding along with MPEG layers 2 and 3, AAC LC/LD/HE and ELD. This device also has two Ethernet ports, one of which can be used for management; it has an embedded Web browser, allowing full control and monitoring. It makes use of FEC for error correction, but also has an automatic jitter buffer (as deep as 10 seconds) along with error concealment to reduce audio dropouts from packet loss. Finally, the device will support multiple-unicast or multicast, as a means of serving audio to multiple locations simultaneously.

Telos offers the Z/IP One, a 1RU, full-duplex codec that supports long


Musicam Suprima

Telos Z/IP One

list of coding algorithms, including AAC-ELD, AAC-HE, AAC-LD, MPEG Layer 2, MPEG 4 AAC LC, MPEG 2 AAC LC, and linear PCM. The unit senses network conditions and adapts codec performance to provide the best audio for the circumstances. It has dual Ethernet ports for separate streaming and control, which is done via an embedded Web browser. Analog inputs and outputs are accessed via XLR connectors. It supports Livewire; it has an RS-232 channel for audio side channel or metadata, and an 8-bit parallel GPIO port for signaling and control.

It's important to note that the codecs I mentioned above would more than likely be used in a system where the program output from your studio is in an AES or analog format; but what if you use an AoIP sytem? In that event, you could select a radio link that could be configured as a LAN bridge, so that the far end of the link, as well as the near end, is on the same VLAN. In the case of Axia, you would then locate another node at the far end, or alternatively, a device that supports Livewire. In the case of Wheatstone, you would locate another blade at the far end, and take a digital or AES out from that blade to feed processing or perhaps your transmitter directly.

Several manufacturers make radios that have been proven to work with Wheatnet, for example Redline, Radwin, Dragonwave, Motorola Canopy, Ubiquiti Wifi Radio and Exalt. Likewise, many radio systems have been proven to work with Axia, namely Dragonwave (Horizon Quantum), Exalt EX-r, Harris RF7800, Motorola PTP600, RAD Airmux and Ubiquiti Nanobridge. Speak to your AoIP system provider to get the exact details before purchasing a system or even starting up the prior coordination process.

There are so many reasons to have network access at the transmitter site today – I can't really imagine being without it. What practically seemed like science fiction just five or so years ago is now just commonplace.

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

Surrounded by the Crowd

By Chriss Scherer, editor

The Kansas City Chiefs Broadcast in Surround

The Kansas City Chiefs have been broadcast on KCFX-FM and the Chiefs Radio Network for more than two decades. Broadcasting a game on the radio may sound like a simple undertaking, but it's far from plugging in a small mixer and two mics. Dan Israel, executive producer (and pregame show host) has been involved with the broadcasts since 1989. Near the end of the 2011 season, he took time to tell Radio magazine how a broadcast is put together.

The Chiefs have broadcast in stereo since 1990, which at the time was an unusual idea. While the announcers are essentially mono (panned center), the sound field from the stadium provides a stereo field, which immerses listeners in the experience. This experience is part of the foundation of the network's production goals.

PRODUCTION GOALS

There are two main production goals for every game broadcast. The first is to provide a compelling broadcast that is beyond what other broadcasters provide. This includes local and network TV coverage of the game. The second goal is to bring as much of the game-day experience to the listener as possible; this is done by painting a sonic image that includes the players, the audience, the announcers and other on-site elements. This sonic image has been provided in stereo for more than 20 years. With the 2011 season, surround sound was added. We'll start with the stereo portion of the mix and add the surround later. For simplicity, we'll also focus on a home game broadcast.

To create the aural image, the broadcast team gathers several audio elements. Front and center are the game announcers in the booth, Mitch Holthus and Len Dawson. There is also a sideline reporter, Kendall Gammon. Holthus and Dawson wear BeyerDynamic DT190 headsets, which have fully enclosed earpieces and hypercardioid mics. The earpieces help isolate outside sound from their monitor, and the hypercardioid mic elements drastically reduce excessive pickup of other sound sources.

While they convey the description of what is happening, the sounds of the stadium immerse the listener in sound, like

A1 Nate Wetmore (left) and Assistant Producer John Taylor sit in the upper tier of the home broadcast booth. Producer Dan Israel is in front.

he is sitting in the stadium. This ambience comes from several sources to create the surround mix.

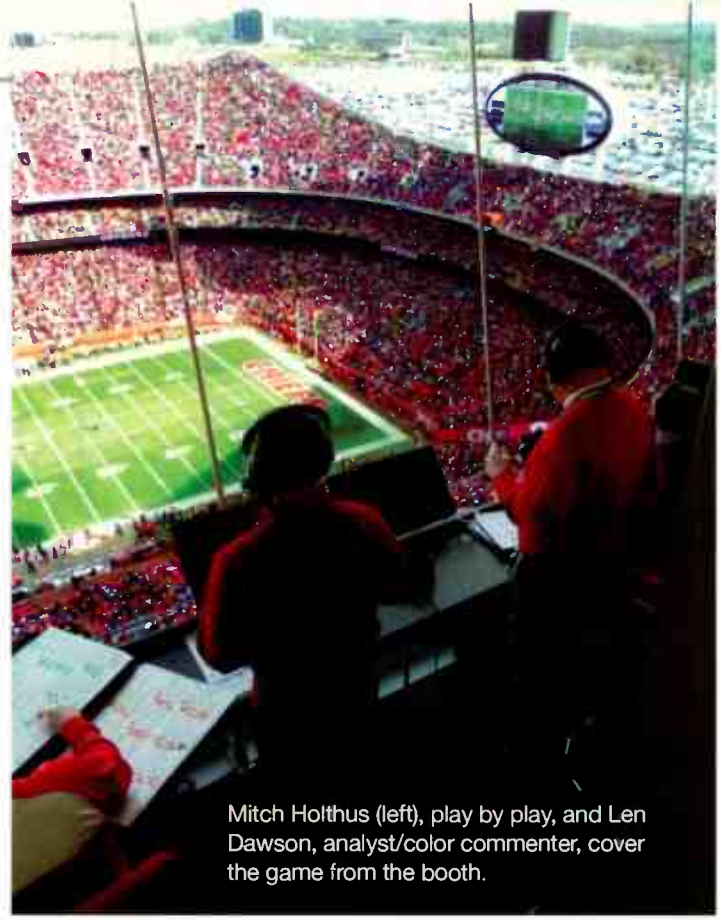
There is a stereo mic setup on the field just behind the Chiefs bench. These shotgun mics are set up with their elements spaced 90 degrees and about 12" apart. They are panned mostly hard left and right in the stereo mix (about 9:00 and 3:00 on a pan pot). There are also two parabolic mics on the field. While it's common to set the parabolics on either side of a team's bench to avoid having to run around the bench, this only provides a mono signal of that end of the field of play. Instead, Israel places a parabolic on either side of the field so they follow the line of scrimmage from both sides. These mics are also panned mostly left and right (about 10:00 and 2:00 on a pan pot).

The parabolic placement and panning allows the play action on one side of the field or the other to move across the stereo field. Likewise, if the quarterback shouts a play to the right and then to the left, that verbal command is picked up appropriately.

Another source is called net effects, provided by the TV network covering the game. It includes TV crowd mics and TV parabolic mics, as well as the mic on the front of the offensive center's shoulder pads. While the crowd noise in this feed is redundant (and often not well mixed), the offensive center mic is very useful. This mic provides the on-field feel to pick up the quarterback's commands.

The stadium provides the referee mic on the field. There is also a direct feed from the stadium PA. Both of these are panned center. The PA feed is delayed slightly for better time alignment with the PA audio that is picked up through the crowd mics.

The broadcast team has its own library of sound effects, bumpers, music beds and other effects. These are created in stereo to provide a broad stereo image. These elements will be enhanced for the surround broadcast, which will be detailed later.


Mitch Holthus (left), play by play, and Len Dawson, analyst/color commenter, cover the game from the booth.

PUTTING IT TOGETHER

All these audio sources are brought into the mixing system, which is a complex matrix of sources, mixes and feeds. In the past, conventional audio mixers were used to mix and distribute all the elements and various mix-minuses. While this worked, there are limitations to using a conventional mixer in this way. The game audio plan is better compared to a live stage production with a dedicated monitor mix and front-of-house mix. While the radio listener hears a complete mix of the game, various submixes are needed to feed other sources. In some cases, these submixes are not static setups; they need to be modified on the fly or with a sidechain. Sound complicated? It is, unless you have the right tool: an audio matrix system. For the 2011 season, Israel installed a BSS Blu system.

The BSS Blu system is a software-based audio matrix system. Audio sources are connected, and then various routing and mixing paths are created in a GUI, drag-and-drop interface. Virtual modules are placed, paths are created, effects are applied and control screens are built. While the initial set up is more complex than plugging a bunch of cables into a mixer, the end result is that nearly limitless mixes can be created, salvos preset and recalled, and the entire process saved for easy recall at the next game. For example, when a commercial break is taken, bed music starts and is faded up automatically. Then next trigger mutes the announcers from the network feed. The audio continues to be fed as an intercom. As the break ends, the commercials are faded up as a warning and a cue is given to the announcers. The announcers are unmuted and the broadcast resumes.

The on-air mix is just one feed. Multiple mixes are created.

> On-air feed to network: This is delayed about 10 seconds.

> Concourse feed: For home games at Arrowhead stadium, this feed has only the on-air talent and the return studio audio.

> Visiting team feed: Audio from the crowd noise mics

> Scoreboard feed: Just the play-by-play and color commentary for highlights replay during the game.

> Archive feed: This modified mix of game day contains color at -3dB, play-by-play at 0dB, parabolics at -6dB, crowd at -10dB. This provides a clean mix of the game without any sound effects so a clean highlight is always available.

> NFL films: A mono mix

> Visiting media: Just crowd noise. The broadcast booth windows do not open at Arrowhead Stadium, so there's no way for visiting stations to capture crowd noise on their own.

There are multiple monitor feeds as well.

The BSS system also eliminated the need to carry external processors. The built-in DSP can be applied to add dynamics and time delay processing as needed. This effects processing is also useful in setting limits when needed. For example, if the crowd noise drastically and quickly increases, the audio engineer may not be quick enough to reduce the crowd feed manually. A smart AGC is applied to keep the crowd noise under control so the play-by-play is not covered up by the roaring crowd.

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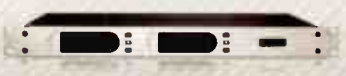

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The surround mics (one of two circled) are positioned in the open booth with the TV cameras.

The BSS system is controlled with a Windows GUI, and various operational screens can be created as needed. The glass console idea works, but there are times when a physical interface of buttons and faders simplify things. For this, Israel's company wrote an API to communicate with the BSS Soundweb product line via a JL Cooper MC-3000XL. This provides several soft buttons and dedicated faders to allow the audio engineer quick access to multiple elements. A fader can control an individual source or a complex submix. This simplifies operation so the engineer does not have to use an on-screen GUI. The soft buttons are programmed to execute various salvos, such as breakaways and rejoins.

Where does the surround come in? There are two more mics placed two levels up in the open window booth where TV cameras are set. This stereo shotgun pair is separate by about 12 feet. The mics are pointed higher then the field mics. This pair of mics are panned had rear left and hard rear right. The PA feed is also fed the rear speakers at a low level.

The on-site Enco playback system also takes advantage of the rear speakers. While the Enco DADpro is a stereo player, the effects are produced in surround and then a DTS DaySequerra Downmix encodes the file to stereo. At the game, the stereo file is played through a DTS Day Sequerra Upmix to restore it to surround.

The complete surround mix then feeds a DTS DaySequerra Downmix to encode the surround information to a stereo audio feed to the station for network distribution. If a listener does not have a surround decoder, he hears a full stereo mix.

A Musicam ISDN codec carries the stereo game mix to the studio. The two-channel return path of the codec has an on-air mix-minus for the broadcast on one channel and the intercom communication link on the other channel. A POTS line is also installed, which carries a dedicated communication link from the executive producer to the studio. The return side of the POTS line is not typically used.

At away games, the postgame feed is sent using a Comrex Access from the locker room or pressroom tied to a wireless air card or Ethernet

connection. The Access can also be used for a backup audio connection if needed, as can the POTS line.

TIME AND TRAVEL

One major challenge in creating the broadcast is accommodating all the various delays. The Chiefs Radio Network announcers have strong ties to the team, and Chiefs fans are dedicated listeners. Some game attendees listen to the radio at the game. Home viewers will often watch the game on TV but listen to the radio audio. With HD Radio, DTV and uplinks, delay times can vary. The effect used by TV to show the line of scrimmage and the 1st down marker adds about 3 seconds. A compromise in the overall delay time is made to appease both the in-stadium and TV viewers.

The entire equipment setup is designed for flexibility, but the same equipment is also used for away games, so size and weight is a consideration. For home games, two racks are used. For away games, a single rack is used. The BSS system detects if the second rack is attached and reroute signals automatically.

STADIUM PERSONNEL

Steve Cook – booth assistant
Len Dawson – analyst/color commenter
Kendall Gammon – sideline reporter
Bernie Haney – statistician
Mitch Holthus – play by play
Dan Israel – pre-game host/executive producer
Josh Looney – spotter
Derek Nelson – statistician
Tom Rosberg – spotter
John Taylor – creative services director, stadium assistant producer
Nate Wetmore – stadium mixing engineer (A1)

STUDIO PERSONNEL

Ken Cox - studio engineer
Dennis Eversoll - market chief engineer
Art Hains – host
Gary Kline - SVP of engineering, Cumulus
Derek Nester – production assistant
Chris Sellers – segment producer
Eric Townsend – studio director
Rob Trainor – production assistant

For away games, the equipment is carried by and the broadcast crew travels with the Chiefs. Once the game has finished, there is a window of about 30 minutes from the end of the game until the equipment and broadcast crew have to be on the bus heading to the airport. The challenge: The post-game show lasts an hour. The one-hour post-game show is essentially created in the first 20 minutes after the game. Lead-ins and outs are recorded and fed to the studio. Locker-room and pressroom audio is gathered and fed to the studio. These pieces with recorded game highlights are reassembled back at the studio into an hour-long post-game show.

MORE ONLINE

Check out more photos and a typical schedule for a noon away game online at RadioMagOnline.com.

Upgrade Work-arounds and Playing Good D

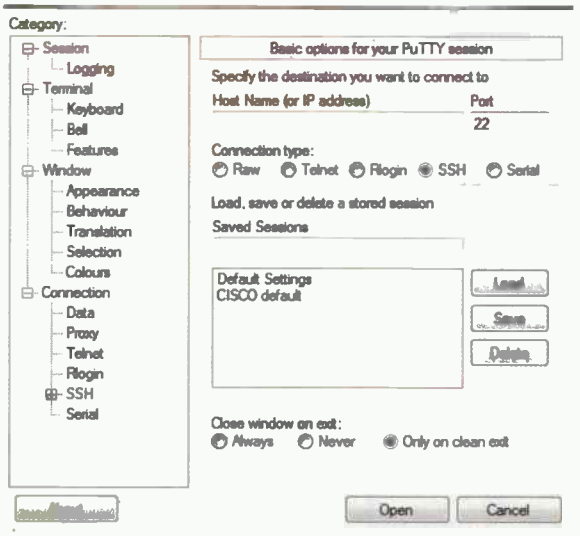
by Doug Irwin,
CPBE DRB AMD

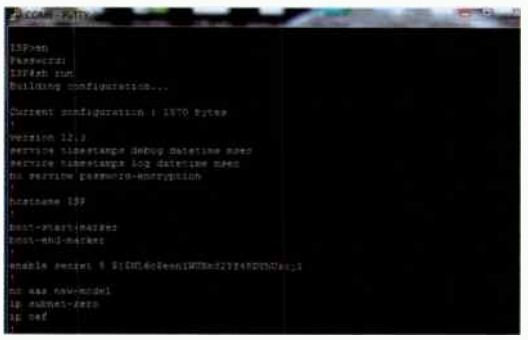
UPGRADE WORK-AROUNDS

I work in a large engineering department in New York and our IT department had been after me for quite some time to upgrade from Windows XP to Windows 7. Finally I had some issues with my laptop and it made sense at that point to just do it.

There were several specific-to-my-work issues that had to be taken care of though; for example, the ability to make serial connections. During a previous laptop change-out I no longer had a DB9 available for serial connections, only USB. If you haven't been through this yet, just search for USB-to-serial converters and you'll find a wide array of devices. If you get one I recommend trying it immediately to make sure the drivers and configuration work. You don't want the frustration of setting up the converter when you're in a crunch.

Once I started using Windows 7 I discovered that hyper-terminal was not included. I got around this by just using PuTTY (putty.org).





PuTTY can save various terminal configurations (above) to simplify sessions (below).

PLAYING GOOD D

Have you had the occasion to need multiple DB9 connectors (for example) on a serial connection? Of course you can always build your own, but in the spirit of making things just a bit easier, take a look at the DB product family from L-Com (l-com.com/productfamily.aspx?id=7287). This page in and of itself could make your day.

The number of devices that use serial communications rather than IP and Ethernet is shrinking rapidly, but there are still plenty of serial devices around: transmitters, RDS units, SCA generators, legacy EAS equipment, microwave radios, satellite receivers and Layer 2 LAN switches and routers. Generally one would communicate with these devices via that same network, but if the network is down, you're back to the serial port. You also might find very convenient (if you have a computer workstation that lives at the transmitter site) to simply install an old school mechanical serial switch. Search "DB9 switch" and you'll come up with multiple sources. Also check your local electronic surplus or computer repair shop.

Legacy serial-only devices can sometimes exist on an IP network as well. Several years ago we installed three new air conditioners at our backup transmitter site, each of which had a network connection. However, their common control only had a serial connection. I found a company that made the device I needed, which is a serial-to-Ethernet converter. There are multiple sources, but I use B&B Electronics, which also makes a lot of other useful stuff (bb-elec.com).

I suppose the next step up, combining the ideas of serial-to-Ethernet conversion, along with the serial input switcher, would be a device that did both. I found one from Network Technologies (networktechinc.com/srvsw-term.html).

Personal computing equipment keeps moving along rapidly in terms of its capabilities, and serial has seemingly been left behind. It's still important in terms of broadcast and IT hardware though. Keep that in mind when working with your IT department or otherwise upgrading your own personal equipment.

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

LOOKING FOR HYPER TERMINAL?

If you have access to a Windows XP machine, you can borrow Hyper Terminal for your Windows 7 computer.

In Windows XP, find hypertrm.dll and hypertrm.exe. Copy both files to your Windows 7 machine and make a shortcut to them or add the program to the Start menu.

WE NEED YOUR TIPS

Tech tips may be suitable to earn SBE recertification credits. Send your tips to radio@RadioMagOnline.com.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5.6
Gate Offset
-4.0 dB
SL
LO
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MH
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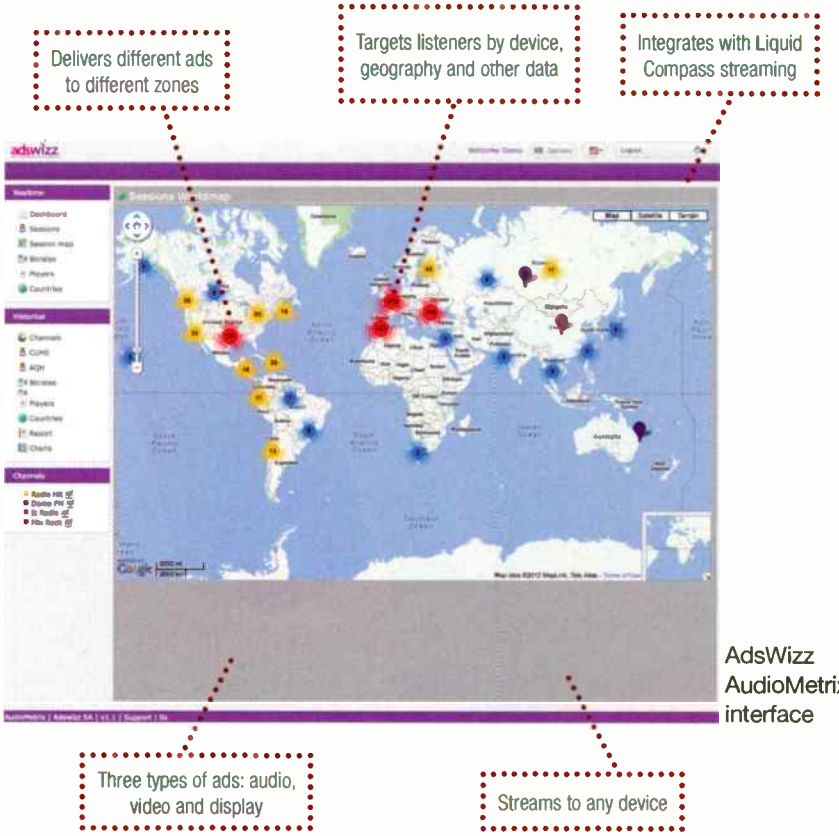
World Radio History

AdsWizz Audio Advertiser and Liquid Compass

by Travis McGinnis



AdsWizz AudioMetrix interface

In April 2011, our ad replacement company up and shut down without so much as a week's notice, leaving us high and dry to find a suitable replacement as quickly as possible. We stream our four Central Minnesota radio stations with Liquid Compass, who called me right away with two options. One of them was AdsWizz, a third-party company Liquid Compass was closely integrating with its streaming network.

We were one of the first station groups in the Liquid Compass network to be integrated with AdsWizz, and the transition was seamless. Liquid Compass took care of importing and re-scheduling all our campaigns, banners and video pre-rolls from our previous system into AdsWizz Audio Advertiser.

Learning to use the system was easy for me since I'm familiar with the OpenX Ad Delivery platform. My own experience aside, for a newcomer looking in, it can be pretty daunting to understand the terminology and workflow. That said, give it a couple weeks and you'll be a master.

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THE WORKFLOW

AdsWizz runs on what I could call a hierarchy workflow. It starts with an advertiser. Inside each advertiser, campaigns are scheduled. Inside each campaign, ads are uploaded. Inside each ad, zones for delivery are scheduled. From the top down, it looks like this: Advertiser → Campaign → Ads → Zones

You can have as many campaigns running as you'd like from a single advertiser, and each of those campaigns can have its own set of flight dates. Each campaign can have as many ads in it and each ad inside that campaign can be scheduled and targeted accordingly.

As far as ads go, we use three types: audio, video and display.

> Audio ads are delivered to our listeners whenever the radio station takes a break on-air. When that happens, the stream cuts away and plays a different set of commercials delivered by AdsWizz.

> Video ads are scheduled as a pre-roll (15 to 20 seconds each) and are played before the Web stream starts.

> Display ads are linked to audio ads. When the audio ad plays during a commercial break, the corresponding display ad is shown in the stream player to allow the listener to click on the banner to follow some sort of call to action from the audio. This linking process is determined by a simple check box set at the campaign level called Companion Positioning. Once checked, the system will automatically pair any display ads with the audio ads scheduled in the same campaign.

TARGETING AND SCHEDULING

AdsWizz is one of the most advanced systems that I have used over the years in terms of its ability to target and schedule media to various sources. Like I mentioned earlier, each campaign can have as many ads inside it as you'd like. Each ad can be individually scheduled or targeted, or you can have every ad follow the schedule set at the campaign level, which trickles down to each ad unless overwritten.

Ads can be delivered to any number of stations (zones). I can theoretically have a campaign with a unique spot for each radio station inside of it. As for targeting, each ad can individually be delivered based on date, time, day of week, etc. This is pretty basic scheduling and day-parting functionality.

Where it gets really cool is that I can target any individual ad to a user based on his geographic location, operating system, mobile status, etc. For example, we ran a campaign for a mobile phone company with three ads. One ad was talking about Android devices and upgrading to the latest device. Another ad was talking about the latest iPhone that just came out and the third ad was just a general message. We were able to target the Android spot to only those listeners on an Android devices and the same for the iPhone message to iPhone listeners. We ran the general ad for everyone else.

SUPPORT & DOCUMENTATION

I've never seen any training documentation for AdsWizz, but I've also never asked for it since the system was intuitive for me. Support is offered through the Liquid Compass support team, who works directly with AdsWizz when necessary. I've never had any problems with support. Response is always same day and any issues are always resolved in a timely manner.

There are only a few things that I would change about AdsWizz, and none of them are a deal breaker by any means.

The biggest frustration for me is that there is no way to actually delete an advertiser, campaign or ad. They can only be deactivated. Over time, this tends to clutter up my interface with ad information that is no longer needed. There is an option to hide everything that is not currently active, so I use this all the time. I'm told that the option to delete items is currently in development.

AdsWizz has a feature that allows things to be duplicated and/or moved. Duplicating a campaign will also duplicate all ads inside it. Duplicating an ad makes a copy inside its current campaign. I use this all the time to create a starting point for new campaigns that will utilize some aspect of the duplicated campaign. The downside here is that when I want to move a duplicated ad out of a campaign and into a new campaign, I have to sort through every campaign for every advertiser, which is really annoying. It would be much nicer to only show the campaigns for the current advertiser, as there will never be reason to move an ad between advertisers.

The only other feature that I would like to see (and I have not seen this in any other provider either, so it's not really an AdsWizz gripe) would be the ability to email missing copy reports. Currently, we have no way of knowing when a campaign is about to expire or when the ads inside of that campaign are about to expire. It's a common problem to go a few weeks and suddenly find out that an advertiser has not been playing because his ad expired and we had no idea. We use some rudimentary methods internally to track this, but an automated report would be ideal.

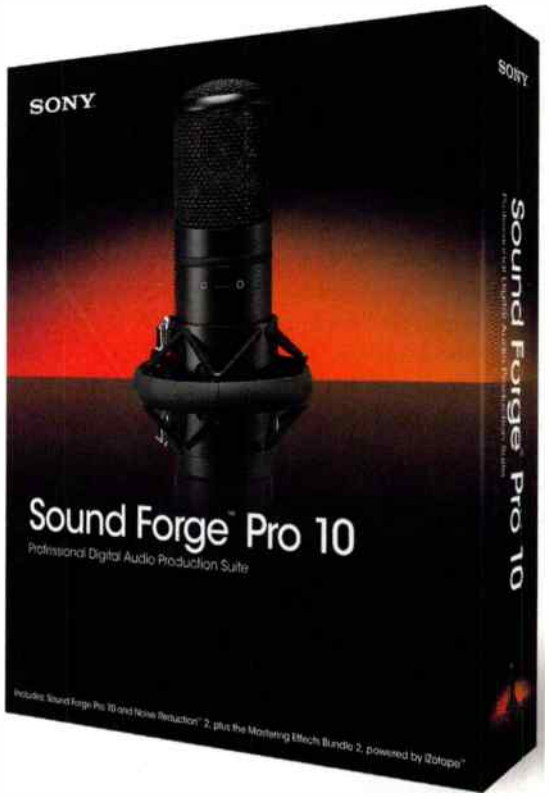
Aside from the few minor complaints – again, nothing that's a deal breaker – AdsWizz is an exceptional product. I have ultimate control over everything in my system right down to the hour of the day for a single ad inside of a campaign. I'm inside the system everyday managing our streaming inventory, and everything is very easy to use, minus the initial learning curve.

This is certainly one of the best ad replacement products on the market today. I have either used or seen very in-depth demos for all the major products out there, and AdsWizz is at the top of the list in my book.

McGinnis is project manager and webmaster for Leighton Interactive, St. Cloud, MN.

Sony Creative Software Sound Forge Pro 10

by Chris Wygal, CBRE



I learned at an early age that having the right tools will decide the success and quality of a job. Some products get us through, while others stand out and make us look like heroes. This is true of Sony Sound Forge Pro 10. It's a veritable "Swiss Army Knife" for audio recording, restoration and mastering.

THE BASICS

Sound Forge Pro 10 is built on previous versions of the software. Current Sound Forge users will find it refreshingly familiar. Upon launching, the user finds a typical waveform workspace where recognizable editing tasks like recording, cutting and pasting are available. Standard transport buttons are located in the transport bar. Other toolbars are fully customizable to aid in quickly locating commonly used features. Additionally, nearly every task in Sound Forge 10 has an associated keystroke.

The software can edit multichannel tasks using project files – a new feature for this version. Templates for project files allow common settings and tasks to be stored for later and repeated use, without having to recreate projects from scratch. Projects can be saved as Windows Media files for Web use, as well as BWF files and numerous other popular audio file formats. As far as waveform editing, common volume and pan envelopes are a click away. Sony improved on Sound Forge Pro 10's workflow by creating custom window layouts, floating window docks and metadata windows. Tabbed browsing puts collapsed windows in plain sight in the workspace. Batch jobs speed up tasks that are applied to multiple files.

Included with the software is an impressive list of tools for restoring audio. Clipping detection, click and crackle removal, clipped peak restoration, audio (general) restoration, and Noise Reduction 2.0i all have multiple presets and capture ability to sample and remove unwanted noise from audio. NR 2.0i is a plugin from Sony that captures the noise print from a selected piece of poor audio. Then, the user adjusts a few parameters to negotiate removal of noise vs. artifacting. The results are impressive. I pulled out a popular 1950s rock n' roll recording and cleaned it up markedly without introducing artifacts. Tape hiss was gone with no degradation to the original material. In addition to the plugin, general audio restoration settings could be invaluable to stations that air older material from LPs or noisy tapes.

GET IT ON DISC

CD Architect 5.2 is a CD burning software packaged with Sound Forge. It is easy to use, but the best part is the Red Book standard it forces on the CD production process (depending on user preferences). Computer-burned discs can sometimes fail to play in various CD players. However, with Red Book standards enforced, the disc is cut with the standards of any major production house. CD Architect is invaluable if CD production quality is critical.

SONY CREATIVE SOFTWARE
800-577-6642
www.sonymediasoftware.com

TOP 5 FEATURES

- Multichannel editing
- iZotope Mastering Effects Bundle 2 plugin
- Dockable floating windows for increased workflow
- Plugin chainer for effect rack-type monitoring
- Phase, spectrum and mono compatibility scopes

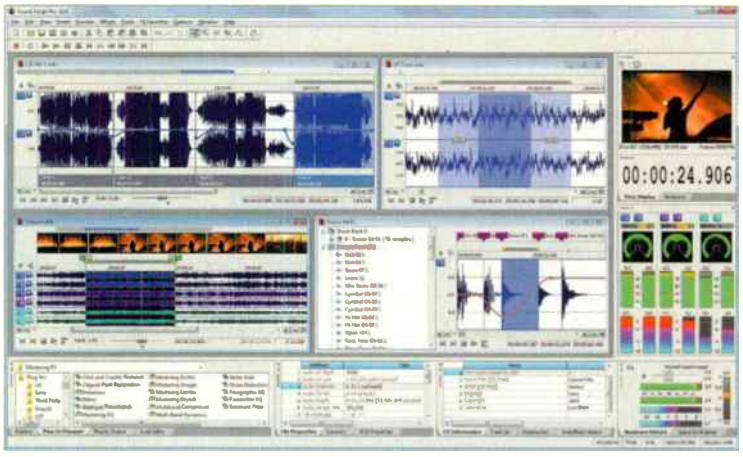
Sound Forge Pro 10 boasts a hefty line of effects, divided into four areas.

> Processes offer common tasks like normalizing, panning, fading, equalization, dc offset correction, resampling and many others.

> Effects is home to numerous reverb and delay settings.

> Tools is where the more intricate features live, including noise reduction, clipped peak restoration, batch converter and other repair tools.

> FX Favorites however, is where the software changes things considerably. Sony provides a powerful Xpress Effects bank in addition to an endless list of dynamic processing, noise reduction, filtering, time stretch and restoration settings. The real sweet spot however is found in the iZotope Mastering Effects Bundle 2 plugin. EQ, exciter, imager, limiter, reverb and compression – they all do exactly what they say with accuracy and clarity. Proper implementation of the iZotope



package can be the difference in sound between a locally produced radio spot and a national ad. The six iZotope effects can be patched together and monitored in real time using the plugin chainer. The mastering exciter, as an example, uses retro, warm, tape and tube emulation to add punch to final mastering processing. Each process comes with more than 20 presets with clever names to aid in getting started. As with any processing, tons of experimenting is necessary, and the results using iZotope are extraordinary. As stated before, proper final mastering sets production pieces a step above basic mixdowns. iZotope makes it simple.

ICING ON THE CAKE

There are a number of Sound Forge Pro 10 features that add to its functionality and utility. Pitch bend and pitch shift effects are very accurate. Many times, changing pitch on an audio file will degrade audio and introduce unwanted artifacts and distortion. The software uses intelligent algorithms to accurately perform pitch corrections or changes. Additionally, the dockable real-time spectrum and phase analysis scopes and mono compatibility meter are perfect tools for critically correcting phase and EQ characteristics that could be problematic on the air. Familiar X-Y, rotated, linear and circular phase scopes are available. Sound Forge 10 also makes three VU and four PPM meters available with adjustable integration times, aiding in accurate metering of audio levels in nearly every production environment. Finally, disc-at-once CD burning can be used to master a CD quickly, without closing the program and opening additional software.

While we barely scratched the surface concerning the tools included in Sound Forge Pro 10, it is more than sufficient to say that the software has plenty to offer a serious production house. Whether competitive audio production is in order, or you need to restore audio to its original pristine condition, it can handle the task. Adding this software to the audio production toolbox is certainly a plus.

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

Cable Testers

There are few things more frustrating than trying to get a remote on the air when a defective gets in the way. Likewise, during a studio installation, ensuring the cables work before they are needed saves time and aggravation.

While a basic continuity check can verify a cable's performance, the trusty ohmmeter can yield a false result through human error or by only checking one conductor at a time. There's also the hassle of touching the probes in just the right spots, holding it there, then flexing the cable to check for intermittents.

Multi-connector cable testers have the added flexibility of testing cables with various connectors on each end. And even if you're not in a time crunch, your time is still valuable. A few seconds with a decent tester is better than several minutes with just as ohmmeter.

The latest breed of cable testers have evolved beyond being passive devices. They can quickly diagnose wiring errors, which further saves time in making the repair. Some have added unique connectors beyond XLR and TRS as well, such as RJ-11, RJ-45 and USB.

These handy toolbox testers may not get used every day, but they have proven to be timesavers when they are needed.

Model	Behringer CT100	Hosa Technology CBT-500	Rolls CS1000	SM Pro Audio CT-3	Whirlwind DCT-9
Connectors					
1/4" TS/TRS	✓	✓	✓	✓	✓
1/8" TS/TRS	✓	–	✓	✓	✓
Banana	–	✓	✓	✓	–
BNC	✓	✓	–	✓	✓
MIDI/DIN	✓	✓	✓	✓	–
RCA	✓	–	✓	✓	✓
RJ-11	–	–	✓	✓	–
RJ-45	–	✓	✓	✓	✓
Speakon	✓	✓	✓	✓	✓
TT	✓	–	–	–	✓
USB	–	✓	–	–	–
XLR-3	✓	✓	✓	✓	✓
XLR-5	–	✓	–	✓	–
Continuity test	–	✓	–	✓	–
Audible continuity	–	✓	–	✓	–
Test tone	1kHz, 440Hz	–	1kHz	–	1kHz, 440Hz
Test tone level	+4dBu, -10dBv, -50dBv	–	-30dB to +7dB	–	+0.7dB, -10dB, -35dB
Phantom power check	✓	–	✓	–	–
Features	Installed cable test, microprocessor controlled	detachable test leads	microprocessor controlled	Split design for installed cables	microprocessor controlled
Batteries	2 × AA	1 × 9V	1 × 9V	2 × 9V (1 @ unit)	2 × AA
Dimensions (in.)	4.75 × 3.63 × 2.75	9 × 7 × 2.3	4.65 × 6.95 × 2.28	7 × 5.5 × 1.75	8 × 5.5 × 1.5
Weight (lbs)	1	2.2	2.8	3	1.8
Accessories	belt clip	test leads	–	–	–
MSRP	$45	$70	$160	$150	$120
URL	behringer.com	hosatech.com	rolls.com	smproaudio.com	whirlwindusa.com

COMING UP NEXT MONTH In the April issue we'll compare computer audio interfaces.

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

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

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

www.AxiaAudio.com/Partners

ADVERTISER	PAGE	PHONE	WEBSITE
Acoustics First	38	888-765-2900	www.acousticsfirst.com
Adam Audio	16	516 681 0690	www.adam-audio.com
AM Ground Systems Co	72	877-766-2999	www.amgroundsystems.com
Aphex	59	818-767-2929	www.aphex.com
APT	18	+1-305-249-3110	www.aptcodecs.com
Arrakis Systems	37, 42, 43, 47, 75	970-461-0730	www.arrakis-systems.com
Array Solutions	63	214-954-7140	www.arraysolutions.com
AudioScience	54	302-324-5333	www.audioscience.com
Axia - A Telos Alliance Company	67	216-241-7225	www.axiaaudio.com
Bay Country Broadcast Equipment	71	877-722-1031	www.baycountry.com
Belar Electronics Laboratory	70	610-687-5550	www.belar.com
Broadcast Connection	36	970-482-9254	www.broadcastconnection.com
Broadcast Electronics	13	217-224-9600	www.bdcast.com
Broadcast Software Int'l	49, 65	888-BSI-USA-1	www.bsiusa.com
Broadcasters General Store	33	352-622-7700	www.bgs.cc
BSW	41	800-426-8434	www.bswusa.com
CBT Systems	68	858-536-2927	www.cbtsystems.tv
CircuitWerkes	70	352-335-6555	www.circuitwerkes.com
Clear Channel Satellite	32	800-345-8728	www.clearchannelsatellite.com
Coaxial Dynamics	58	440-243-1100	www.coaxial.com
Comrex	9	800-237-1776	www.comrex.com
Continental Electronics	23	800-733-5011	www.contelec.com
Crown Broadcast	25	800-262-8919	www.crownbroadcast.com
Deva Broadcast	55	+359 56 820027	www.devabroadcast.com
Digital Alert Systems	38	585-765-1155	www.digitalalertsystems.com
Dixon Systems	70	416-261-3773	www.dixonsystems.com
DM Engineering	72	805-987-0487	www.dmengineering.com
Enco	1, 22, 35	800-ENCO-SYS	www.enco.com
ESE	51	310-322-2136	www.ese-web.com
Gorman Redlich	71	740-593-3150	www.gorman-redlich.com
Henry Engineering	40	626-355-3656	www.henryeng.com
Inovonics	29	800-733-0552	www.inovon.com
Jampro	50	916-383-1177	www.jampro.com
Kintronic Labs	34	423-878-3141	www.kintronic.com
Logitek	15	800-231-5870	www.logitekaudio.com
Mooretronix	69	800-300-0733	www.mooretronix.com
Moseley Associates	17	805-968-9621	www.moseleysb.com
Myat	31	201-767-5380	www.myat.com
Nautel Electronics	24	902-823-5131	www.nautel.com
NewTek	7	800-368-5441	www.newtek.com
Nott Ltd.	72	505-327-5646	www.nottltd.com
OMB Broadcast	55	305-477-0973	www.omb.com
Omnia	61	216-622-0247	www.omniaaudio.com
Omnirax	39	800-332-3393	www.omnirax.com
OMT Technologies	3	888-665-0501	www.imediatouch.com
Paravel Systems	55	877-447-2728	www.paravelsystems.com
Progressive Concepts	69	630-736-9822	www.progressive-concepts.com
PTEK	63	888-889-2958	www.ptekpower.com
Ram Systems	68	800-779-7575	www.ramsystemsonline.com
Ramsey Electronics	72	800-446-2295	www.ramseybroadcast.com
RCS	30	914-428-4600	www.rcsworks.com
RF Parts	68	800-737-2787	www.rfparts.com
RF Software	71	352-367-1700	www.rfsoftware.com
Sabre Industries	45	800-369-6699	www.sabre.com
Sage Alerting Systems	40	914-872-4069	www.sagealertingsystems.com
Sandies	56	215-547-2570	www.sandiesusa.com
SCMS	28	800-438-6040	www.scmsinc.com
Shively Labs	11, 71	888-744-8359	www.shively.com
Sine Systems	56	615-228-3500	www.sinesystems.com
Studio Technology	59	610-925-2785	www.studiotechnology.com
Superior Electric	54	800-787-3532	www.superiorelectric.com
SWR	58	800-762-7743	www.swr-rf.com
Telos - A Telos Alliance Company	57	216-241-7225	www.telos-systems.com
TieLine Technology	5	317-845-8000	www.tieline.com
Transcom Corporation	69	800-441-8545	www.fmamtv.com
Trilithic	26, 73	800-344-2412	www.trilithic.com
V-Soft Communications	68	800-743-3684	www.v-soft.com
Wheatstone	2, 76	252-638-7000	www.wheatstone.com

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CLASSIFIEDS

What Happens When the Spots Come On?

by Erin Shipps

According to a study released by Media Monitors, Coleman Insights and Arbitron, many industry insiders still believe that radio loses a considerable portion of its audience during commercial breaks. A survey among people in the advertising and radio industries finds a perception that the audience levels during commercial breaks are substantially lower than the size of the audience before spots run. Contrary to what many believe, this study reveals that radio delivers most of its lead-in audience during spot breaks.

68%

Size of pre-commercial audience during commercial breaks according to **advertisers and advertising agency insiders.**

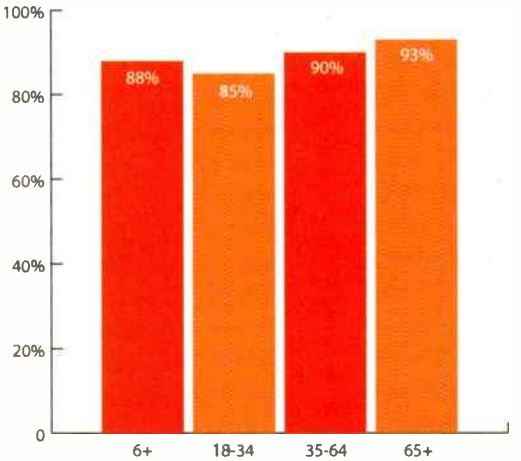
Size of pre-commercial audience during commercial breaks according to **radio broadcasters.**

78%

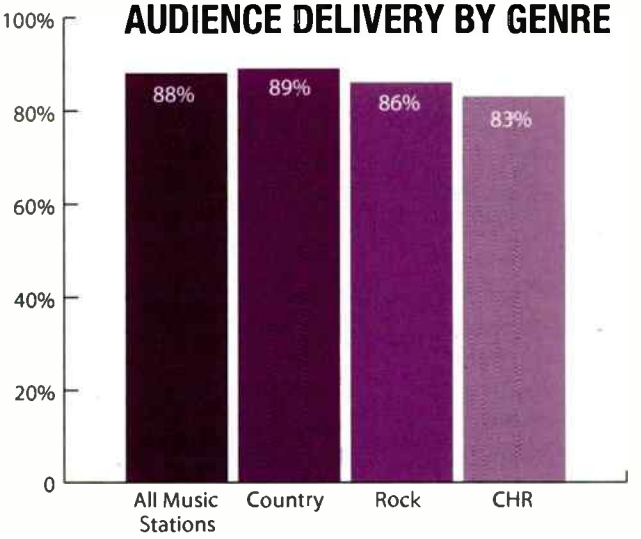
On a 24-hour basis, the average radio station in this study aired 2.6 commercial breaks and an average of nearly nine minutes of advertising per hour. The average spot break was approximately 3.5 minutes in duration. Spot breaks of one to three minutes in duration and those of four minutes or longer were distributed in roughly equal proportions.

Here's what the study found.

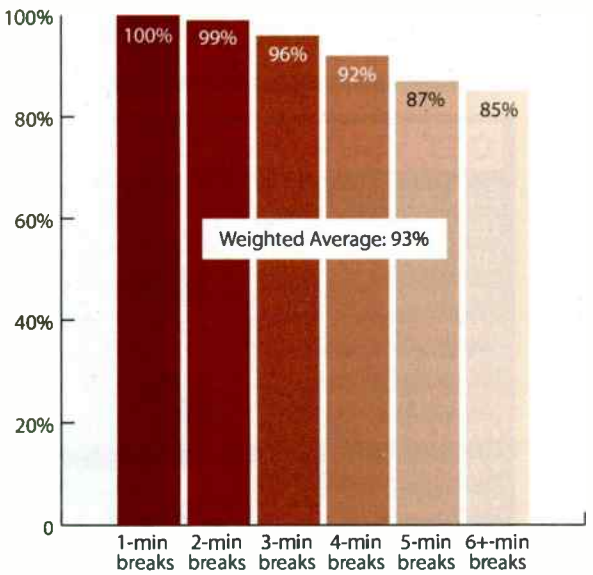
AUDIENCE LEVEL FOR MUSIC STATIONS BY AGE



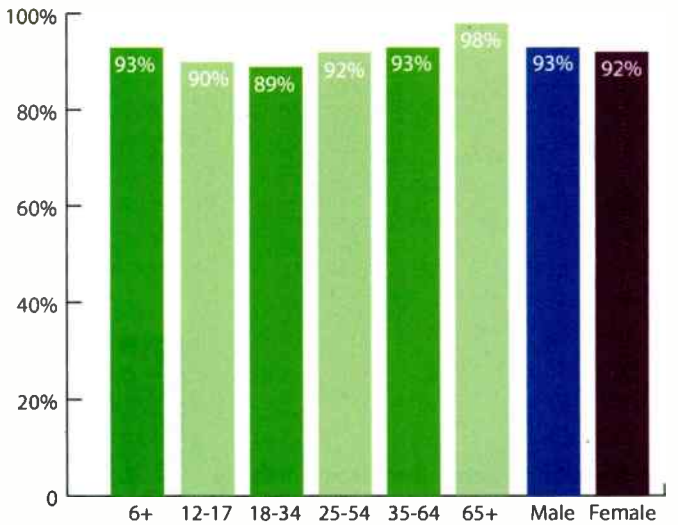
AUDIENCE DELIVERY BY GENRE



PERCENT OF LEAD-IN AUDIENCE DURING COMMERCIAL BREAKS



RADIO'S AUDIENCE DELIVERY DURING AN AVERAGE MINUTE OF COMMERCIAL BREAKS BY AGE/GENDER



LEAD-IN AUDIENCE RETENTION BY FORMAT

99%

Spoken Word

88%

Music

Source: What Happens When the Spots Come On? 2011 Edition by Media Monitors, Coleman Insights and Arbitron

ARRAKIS SYSTEMS INC.

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ARC-8
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per month

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

ARC-10
three models

ARC-15
only $3,495

15 mic inputs,
PC USB , and Phone inputs
both balanced & unbalanced IO

ARC-10U $1,599 unbalanced
ARC-10UP $1,999 umbal w USB
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PC USB , and Phone inputs.
both balanced & unbalanced
models.

'ACCENT'
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25% off

all ARC consoles
(except ARC-10U) feature built in
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