

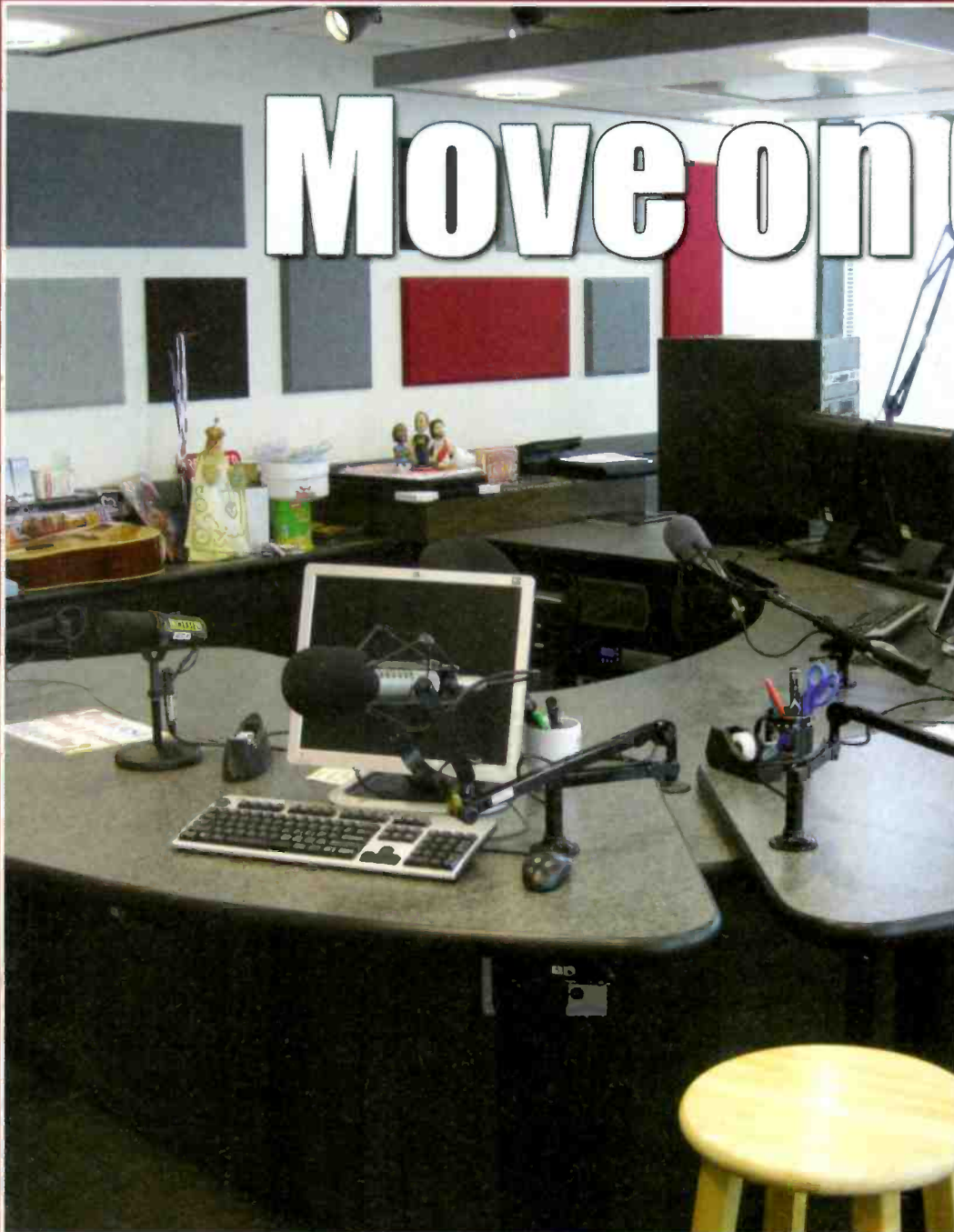
Radio

THE RADIO TECHNOLOGY LEADER

September 2009
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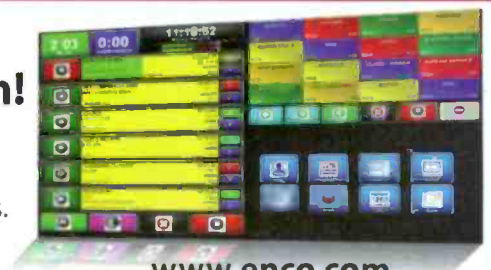
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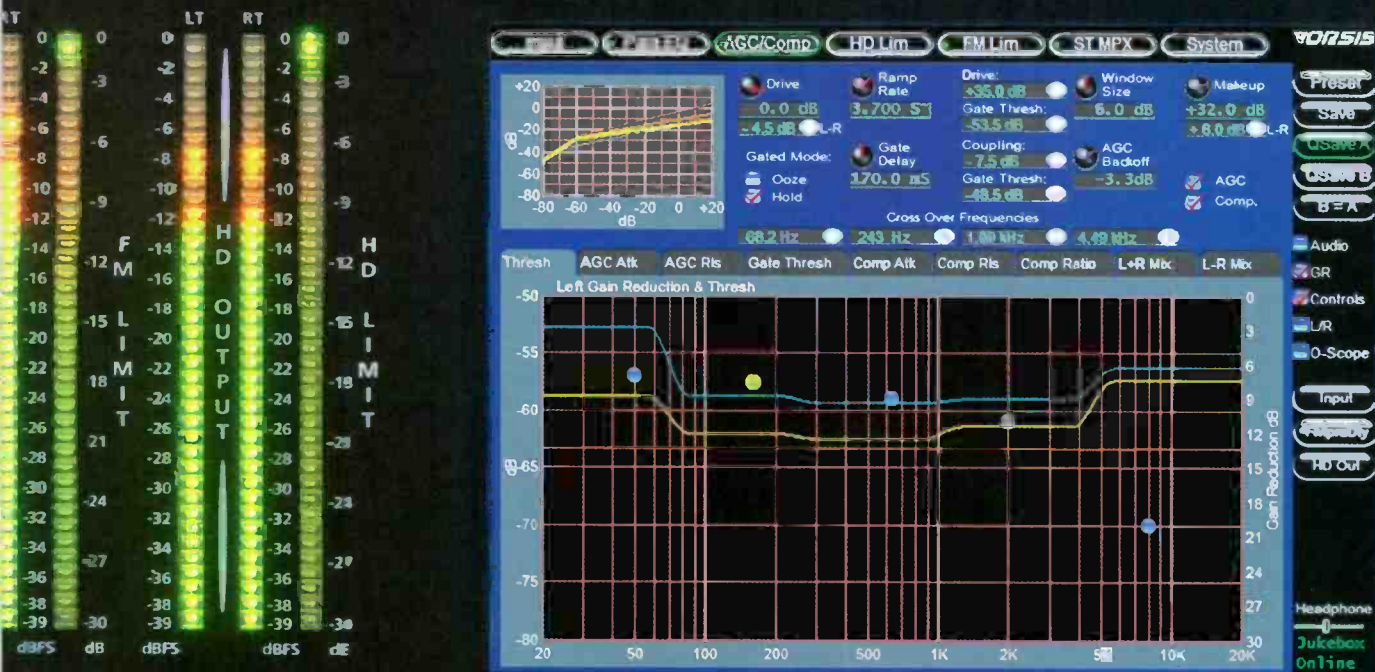
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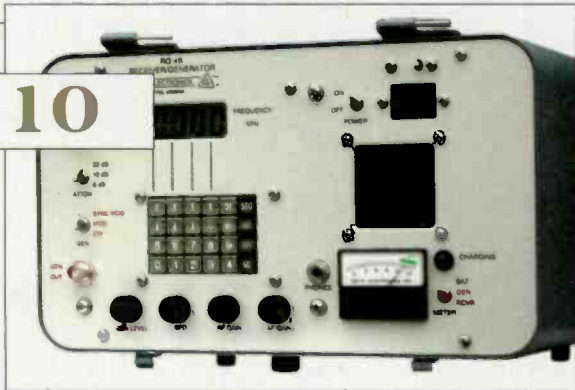
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ON THE COVER

Clear Channel Rochester moves to avoid demolition and asks Lightner Electronics to help.

Cover design by Michael J. Knust.



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Currents Online

Selected headlines from the past month.

SBE National Election Results for 2009 ➔

Elected to his first term as president is Vincent Lopez, CEV CBNT, director of engineering for WSYT/WNYS-TV, Syracuse, NY.

Ibiquity Approves Toshiba Chipset for Automotive Receivers

Toshiba's new radio chipsets, TB2178FG and TC94A90FG, provide a front-end to support communication with HD Radio decoders.

BBM Canada Launches Combined TV and Radio Media Measurement Panel Using PPM

BBM Canada chose the Arbitron/TNS Media Research service and PPM to support the multi-media measurement initiative.

Digital Music Downloads Continue to Increase

The International Federation of the Phonographic Industry says revenue from digital downloads will equal revenue from physical media sales in the U.S. in 2010.

NAB Offers Discounted NAB Radio Show Rate for Job Seekers

The free agent discount rate of \$179 includes a ticket to the Radio Luncheon.

Historical Program Set for 127 AES Convention

The program includes the history of Bell Labs and the technical contributions of RCA.



Lopez

Dave Gorman, Phasetek Co-founder, Dies

He died Aug. 16, 2009, in Quakertown, PA.

Audemat, Ecreso, APT Rebrand as Worldcast Systems

Each of the brands is being given a new logo and will be united under the group name Worldcast Systems.

Find the mic and win!

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Radio News Updated as it Happens

What's happening in radio? Turn to us to find out. Daily news and industry information is posted in the Radio Currents throughout the day.

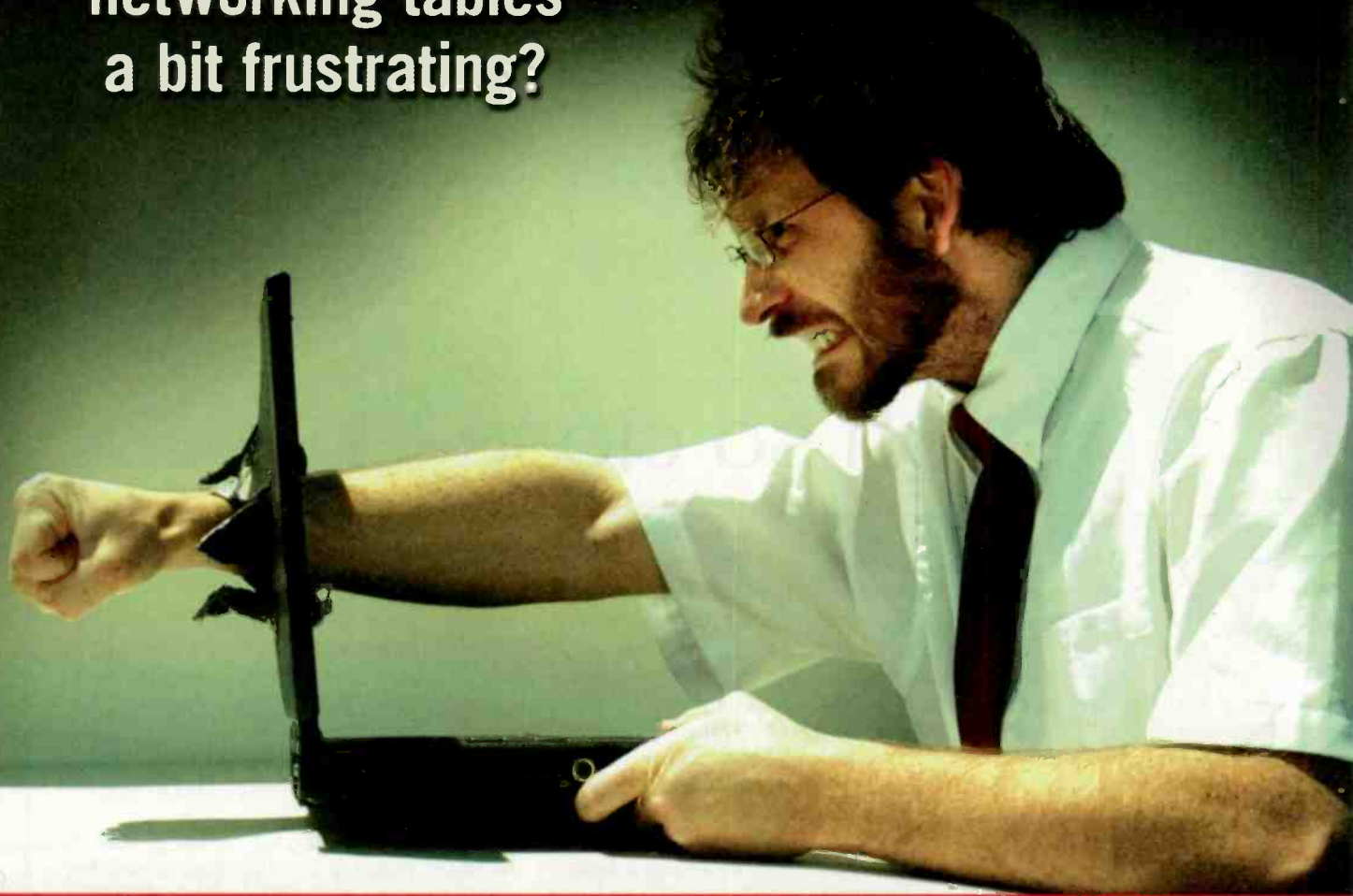
Podcasts Bring You More

The Radio Currents Podcast is updated every week, and special podcasts bring you more directly.

Industry Events

A list of upcoming conventions and conferences.

Is setting up IP Audio
networking tables
a bit frustrating?

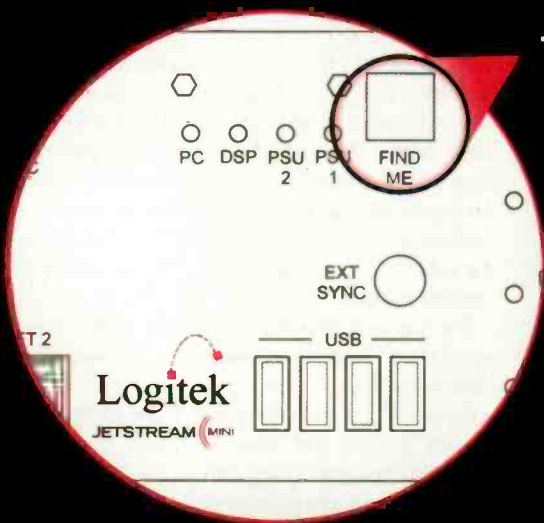


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Oh so close

We work in radio. To those who don't work in radio, our jobs usually evoke a wide-eyed response about how cool it must be. I'm sure you agree, after all, you're probably in this business mainly because you like radio.

But what comes next in that conversation? And I mean after the "Have you met..." and "Can you get tickets for..." The other person may tell you about his favorite station, but the conversation usually ends rather quickly. The other person tends to steer conversation to his own listening habits, such as online, satellite or portable media player. Even though terrestrial radio is working hard to retain listeners and stay relevant, despite all we do in radio to maintain position in the consumer media ranks, we just don't go far enough to really make that big splash.

Look at the current state of radio.

On the road

I'll talk at the 127th AES Convention during the Innovations in Digital Broadcast session on Oct. 9 at 11:30 a.m. I'll provide an overview of SBE Certification.

I'll also attend the NAB Radio Show (of course) and the SBE National Meeting and SBE22 Broadcast Technology Expo in Verona, NY, Oct 6-7.

The HD Radio rollout has slowed. It's still the most promising future for terrestrial today, but it's just not seeing the consumer interest we all would like. Granted, there are more HD Radio receivers available than before, and Toshiba just joined the ranks of HD Radio automotive chip manufacturers. You see it from time to time, but outside our own circles, it's not carrying a strong top-of-mind awareness with consumers.

How about getting radio receivers in more portable devices? There's not much going on here either. A few cell phones have a radio receiver, but not a significant portion. The Ipod and Iphone – the

most recognized personal media devices – don't have a built-in radio receiver.

There is some promise from Microsoft: the Microsoft Zune has an FM receiver. The Zune HD will have an FM HD Radio receiver. That's a good feature, but the Zune doesn't have the uber-device capability (or the multiple app base) of the Ipod/Iphone. The messages are mixed on whether or not that will change, but for now, it's a limited device.

Even the Zune HD preview campaign held at the end of August at Best Buy stores around the country generated very little response. Granted, that was an effort for the player and not the radio, but shouldn't radio have played a bigger part of the event?

What about HD Radio marketing itself? I hear ads for HD Radio on local radio stations quite often. These are run in unsold ad inventory positions. While these efforts are touted as part of a multi-million dollar ad campaign, there's no money changing hands. It's a good effort to reach the audience in their own domain, but where are the ads on TV, in newspapers, in movie theaters and elsewhere?

The same is true for the Radio Heard Here campaign. Radio is marketed on the radio but nowhere else.

It's not all doom and gloom. I see efforts from several groups and some individual owners to keep their stations at the forefront. But despite that, for all we do to promote ourselves as a consumer technology, we keep coming up short.

Chris Scherer

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Using the operating impedance bridge

By John Battison,
P.E., technical editor, RF

Most radio engineers today will recall uncomfortable evenings and cold nights spent in dog houses making antenna impedance measurements, or worse, still trying to balance a laboratory model GR bridge on a freestanding steel ATU cabinet, adjust a signal generator or oscillator, tune a detector and probably try to take notes. The development of the operating impedance bridge by Delta Electronics about 40 years ago changed all that, and together with the receiver generator made antenna impedance measurements not only much easier to perform, but more accurate because antenna measurements can now be made under actual operating conditions. Almost inevitably measurements made with actual operating power, or at least sufficient power to produce operating conditions, are more accurate than cold measurements made using flea power.

OIB

The first version of the OIB was known as the OIB-1, and as it became widely used a few minor changes were made. Today the OIB-3 is very similar in appearance to the OIB-1 and is shown at left.

Its impedance measuring range now covers from -1000 to $+1000\Omega$ resistance and -900 to $+900$ reactance to 1MHz. When the OIB was first introduced it became possible for the first time to measure circuit impedances under operating conditions at any point in the antenna system.

Remember that the bridge is calibrated at 1MHz and it is necessary to apply a correction to the reactance read directly on the reactance dial. Many years ago I found it was quite easy to forget to make this correction. However, with practice it becomes automatic. The actual correction is engraved on the panel of the instrument: $X(\text{corrected}) = X/F$.

X = reactance (dial reading) and F = operating frequency in megahertz.

The OIB-3 is available in two versions. The first version measures up to 2MHz, and version 2 has an extended range to 5MHz. The operating ranges are identified by the bridge's serial number. Serial numbers 001 through 1224 cover the broadcast band, and serial numbers 1225 and above tune higher. Two-range bridges have meter DIR/TUNE switches marked Tune HI and Tune LO. The high position extends the tuning range to 5MHz, which greatly increases its usefulness.

This instrument offers a choice of 12" or 18" connecting cables and comes with a coaxial adapter. I have always found the 18" cables very useful when measurements have to be made in difficult areas using the transmitter as the power source (but not more than 5kW). Care should be taken to avoid contaminated measurements caused by random lead movements. Coaxial connectors are also available in the form of a large male UHF male-to-female PNC adapter. It is very important to ensure that both dip leads are properly grounded at the instrument input and output connections when used with an actual transmitter.

The OIB-3 requires only an RF power source to put it into action and has a built in detector and indicator so that additional equipment is not normally required when used with a transmitter RF power source. The built-in detector and tuning circuit usually provides adequate sensitivity when using a transmitter as an RF source.

Variations

When greater sensitivity is required, the built-in detector is tuned to the frequency of interest by using the detector tuning control for the appropriate frequency range. If still greater sensitivity is required the internal battery operated meter amplifier can be switched into use to provide increased sensitivity. In this case it is advisable to turn the sensitivity control toward minimum prior to switching on the meter amplifier. When an upscale reading is obtained, the appropriate tuning control should be adjusted for maximum deflection and a sharper null.

When measuring conditions result in very low RF power levels, an external detector can be connected via a double-shielded cable to the BNC connector on the OIB-3 panel. When a suitable receiver/generator, such as the Delta Electronics RG-4B (next page) is used for this purpose, it provides a convenient RF power source for the operation of the OIB-3 impedance bridge in situations lacking a transmitter RF source.

Because it is an operating impedance bridge, the OIB-3 can be inserted anywhere in the transmitter to antenna path with a maximum of 5kW RF power. Therefore the actual operating impedances can be measured under operating conditions, and individual tuned circuits can be measured and adjusted under operating power as necessary using the receiver generator as a source of RF signal.



The Delta Electronics OIB-3

When measuring impedances under transmitter power the line is opened and the cable end coming from the transmitter is connected to the IN connector on the side of the case. The OUT terminal of the OIB is connected to the interrupted line going to the load. When using transmitter power and a coaxial line is interrupted it is essential that the clip lead cables are properly grounded to the system. It is also worth mentioning that when the bridge is inserted into a coaxial line high accuracy is obtained by using coaxial adapters instead of clip leads. The instruction manual that comes with the bridge provides very clear and straightforward instructions for its general operation. It also provides an interesting explanation of the manner in which the OIB operates.

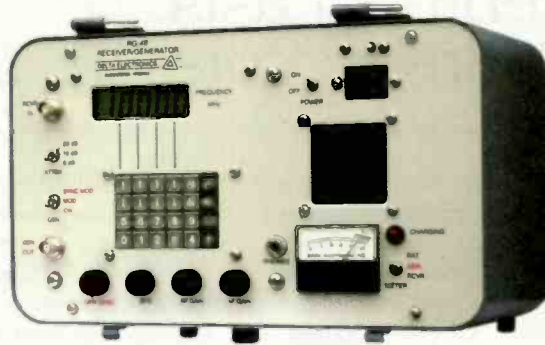
I have found the OIB-3 to be invaluable when working with antennas involving negative towers

that are returning power to the system. Negative towers are very easily measured by merely reversing the connections to the OIB. In other words the power source (transmitter) is connected to the OUT

terminal on the bridge and the RF load to the IN terminal. Bridge operation is the same as for positive towers and the measured impedance is read from the bridge dials. The operating load impedance will be read as a negative of the impedance measured. It should be

noted that the resistance dial is calibrated below zero to about 5Ω on the minus side of zero. This eases the measurement of anticipated operating resistances near zero and eliminates the need to reverse the bridge connections when measuring negative towers.

E-mail Battison at batcom@ohio.net.



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FCC approves AM station rebroadcasts on FM translators

By Harry Martin

In an effort to provide a lifeline to an AM radio, the Commission has changed its rules to permit AM stations to rebroadcast their signals on FM translators under certain conditions. The long awaited Report and Order – released many months after the anticipated adoption date – opens the door for considerable, but not universal, cross-service translation.

Under the new rules, AM stations may rebroadcast on “currently-authorized” translators in the non-reserved (i.e., commercial) portion of the FM band, provided that no portion of the 60dBu contour of the translator extends beyond the smaller of either (a) the AM’s 2mV/m daytime contour or (b) a 25-mile radius from the AM’s transmitter site. A currently-authorized translator for these purposes is one that has been licensed or authorized by a construction permit in effect as of May 1, 2009. Translators whose initial permits are granted after May 1, 2009, and those granted pursuant to the currently pending applications, which number in the thousands, will not be eligible.

will make it difficult for them to make inroads on the FM spectrum they want for expansion of the LPFM service. They worked behind the scenes to convince then-FCC Chairman Michael Copps to postpone consideration of the item.

The new rules have limitations. Not only must a translator be an existing one to be eligible, the financial support rules that apply to FM station use of translators will equally apply to AM stations, thereby limiting extension of an AM station’s service area through a translator owned by another party. As to ownership of multiple translators, while a single AM station may own more than one, the Commission will not permit ownership of more than one translator serving the same area. In this connection, the Commission warned that it will “consider it an abuse of our rules for a licensee to use two or more cross-service translators to effectively create a *de facto* FM station.” However, the Commission provided no clear indication of how it will identify such situations.

Dateline

For *noncommercial* stations in the following locations only, the biennial ownership report deadline is Oct. 1: Alaska, Florida, Hawaii, Oregon, Puerto Rico, Virgin Islands, Washington and the Pacific Islands.

Oct. 1 is the deadline for radio stations in Alaska, Hawaii, Oregon, Washington and the Pacific Islands with more than 10 full-time employees to electronically file their Broadcast EEO Mid-Term Reports (Form 397) with the FCC.

Oct. 1 is the deadline for radio stations licensed in the following states to place their annual EEO Reports in their public files: Alaska, Florida, Hawaii, Iowa, Missouri, Oregon, Puerto Rico, Virgin Islands, Washington and the Pacific Islands.

Nov. 1 is the deadline for submission of biennial ownership reports for *commercial* radio stations in all states and territories.

These changes got serious attention in 2006 when the NAB filed a petition for rulemaking proposing the idea of cross-service translation. In anticipation of the relaxation, in 2007 the Commission started issuing STAs to let some AM stations use FM translators on a case-by-case basis. Last fall it looked like the final rules were set to be adopted when an AM-on-FM item appeared on an FCC meeting agenda. But the item was removed from the agenda without explanation. LPFM interests were and are still concerned that assigning FM translators to AM stations on an unlimited basis

Reversal of \$7,000 fine for broken lock

In March 2008 FCC agents from Denver conducted an AM station inspection in their region. On their arrival, the agents found the gate lock to the tower fence was broken. The agents went to the main studio and reported that the lock was broken. Within two hours, the licensee installed a new lock and called the FCC agents to report the repair. Later, the agents interviewed the station’s contract engineers to try to find out how long the lock had been broken, but could not get anyone to say that it was for a long period. The agents also made a return visit to the site four days after the first inspection, but found that a new lock had been installed. Nevertheless, the FCC’s Denver field office issued \$7,000 NAL for the broken lock. In a rare reversal, the FCC’s Western regional director agreed that \$7,000 was excessive. Indeed, the regional office cancelled the forfeiture entirely and merely admonished the licensee. The reversal was based on the fact there was no evidence as to how long the lock had been broken prior to the arrival of the agents. The only thing that the Denver agents knew for sure was that the lock was broken when they arrived.

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

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Sun, Wind & Fuel Cells

Jumping on the bandwagon while sales are slow may produce unforeseen advantages in the future.

By Doug Irwin, CPBE DRB AMD

Even with energy prices temporarily on the wane there is still a substantial desire amongst many companies to go green and reduce their non-renewable energy usage to the extent practicable within good business practices. In other words, an investment in alternative energy sources still has to be a good investment. With sales slow in so many industries (not just the radio industry) now is a good time to be a buyer, and since energy prices are bound to rise with the end of the recession, the best time to invest in alternate energy may be now. Waiting til energy prices rise will surely give an advantage back to the sellers, thus diminishing the potential ROI.

This is not an article about getting off of the grid though – it's really more about energy conservation.

The systems I will mention typically supply on the order of 1kW of power. Unfortunately it just isn't financially viable at this point in time to generate enough power to supply the needs of a 50kW AM transmitter facility (for example). The kinds of systems in this article are grid-connected, and supplant the energy drawn from the ac power grid, at least over part of the day. Solar photovoltaic arrays, wind generators and finally fuel-cells are the types we'll cover.

You told us what you wanted. Now come see how we did.

Visit us at the NAB Radio Show in Philadelphia, Booth Number 508.

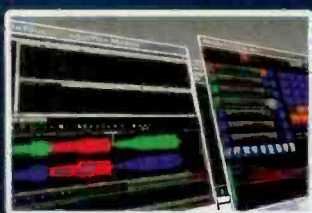


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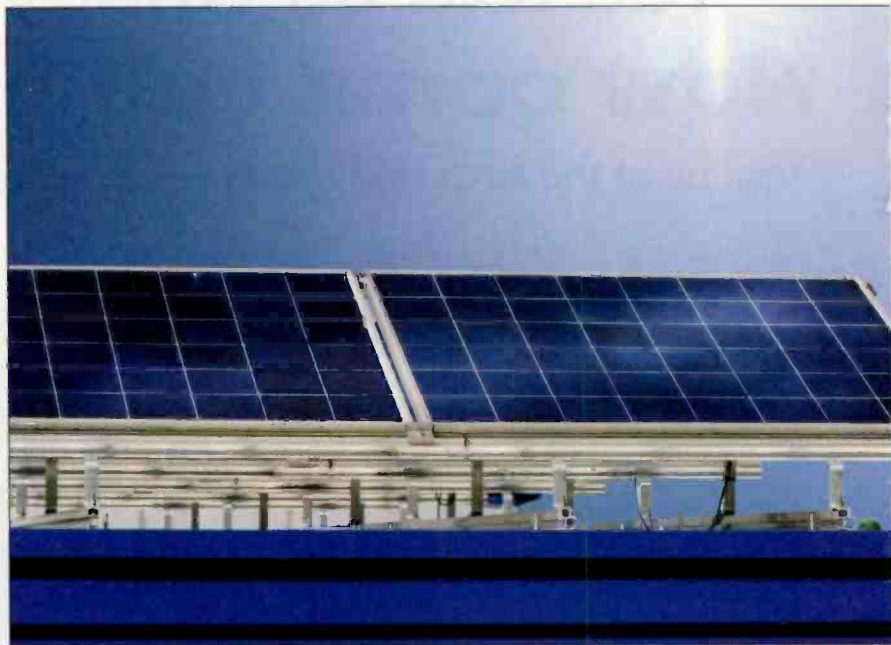
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Sun, Wind & Fuel Cells

Storing energy

Solar power and wind power complement one another because usually when the sun is most intense, the wind is weakest; and likewise, it is often windiest when the sun isn't shining. Since broadcasting is a 24-hour-per-day business, our energy needs are mainly constant over the course of the day; but even with wind and solar energy working together, their combined energy output can vary dramatically over 24 hours. For this reason it is often necessary to store excessive energy during the best times of the day, so that the excess can be used by the load during times of the day that the wind or solar power sources are at their weakest. The output of solar arrays is always dc, and used to charge batteries directly. Large inverters are then used to generate ac power for loads that require it. Wind generators come in one of two styles: those that charge batteries, like their solar cell counterparts, or those that have inverters that take dc power from an alternator turned by the blades while the wind is blowing, and then subsequently turn that into ac via an inverter. Usually that type of inverter is connected directly to the line power via a circuit breaker in your ac distribution panel. The inverter synchronizes its frequency and phase, and sets its output voltage accordingly.

Even when using wind and solar together, you would likely find times when there was simply not enough energy



Solar arrays can be mounted in many ways and can follow the sun to maximize power with solar trackers.

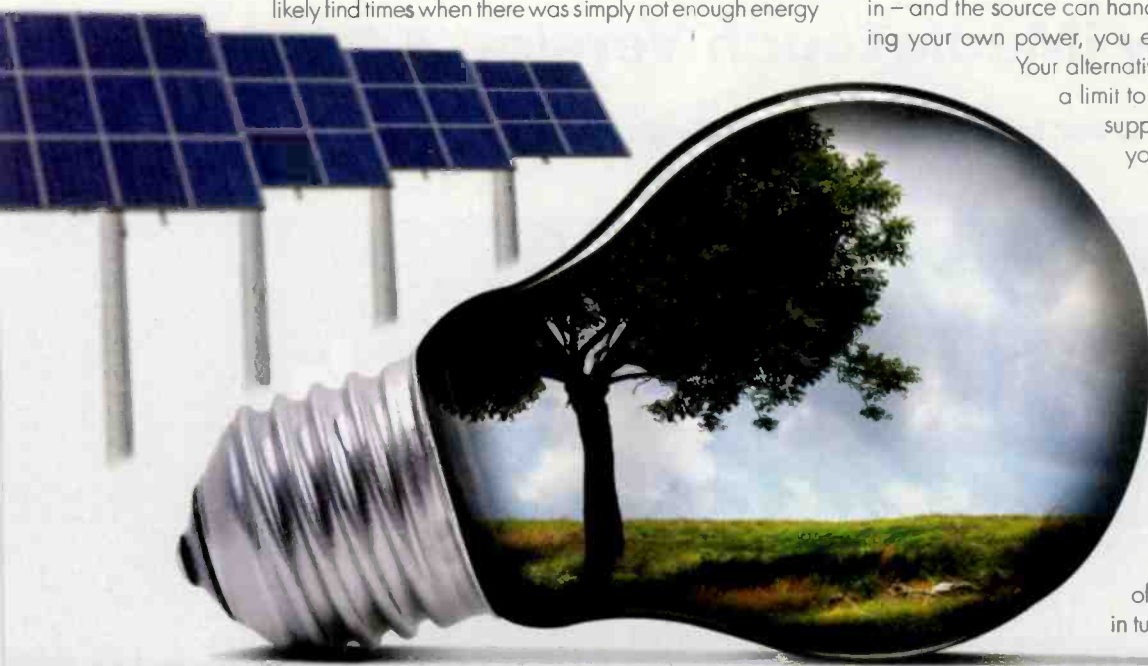
generated over the course of the day (even with batteries storing energy during the best times of the day) to remove yourself totally from the power grid; for that reason, you may want to consider a means by which you can use non-renewable (or should we call them 'remnant') energy sources, such as natural gas or propane, as a third, or backup source of power. That's where fuel-cells come in. We'll get to those a little later.

When using alternative power sources you will want to be as efficient as possible in your energy usage. We've all become a little spoiled with the ac power grid. For the most part you can just keep plugging things in – and the source can handle it. When you start making your own power, you effectively lose that crutch.

Your alternative power source will have a limit to what it can do in terms of supply, so you'll need to count your watts carefully.

Solar arrays

Flat solar arrays can be mounted in various fashions: on the roof of your building, on the roof of a parking structure, or in arrays mounted on the ground. In any of those cases the angle with respect to the ground is set to optimize the array's exposure to the sun. Typically the output voltage of a single solar panel (which in turn is made up of an array of individual cells) is on



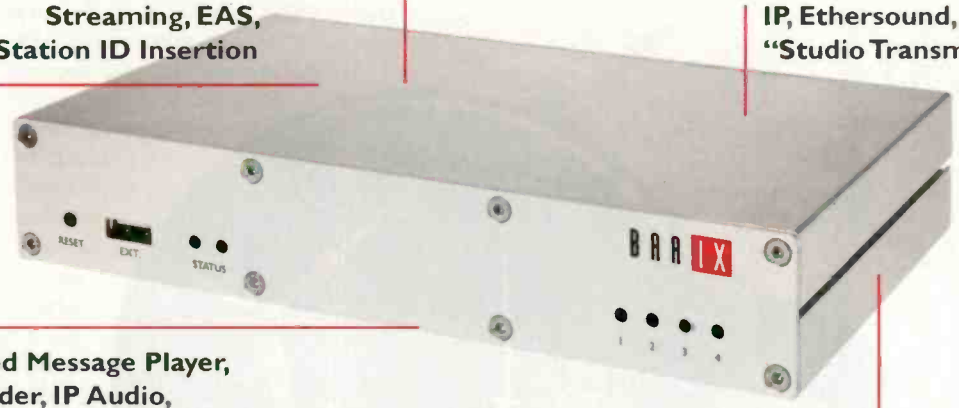


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Sun, Wind & Fuel Cells

the order of 24V; these units obviously can be connected in parallel to provide a higher current capacity. A Kyocera KD205, for example, will put out about 150W with 800W per square meter of irradiance; this is 6A at 24Vdc out. The size of this array is 59" by 39" by about 1.5". The cost of this particular array is on the order of \$1000.

I'm quite sure many enterprising broadcast engineers could develop their own systems out of building blocks such as this particular solar array.

The output of the solar array will obviously be greatest when the rays of sun are perpendicular to the array itself; simple trigonometry shows the output of the array is going to be proportional to the sine of the angle of incidence between the rays of sunlight and the array. Therefore it would seem that to maximize the output of the array, some sort of steering, to keep the arrays at the optimum angle with respect to the sun, is called for. The Premiere Power Solar Tracker is one such system that accomplishes this. Another system which does this, in a totally passive manner, is the Zomeworks Universal Track Rack. This device uses gravity and the heating power of sunlight itself to align the flat arrays for maximum output.

If you are thinking big, though, and want to generate a more substantial amount of power via photovoltaics,



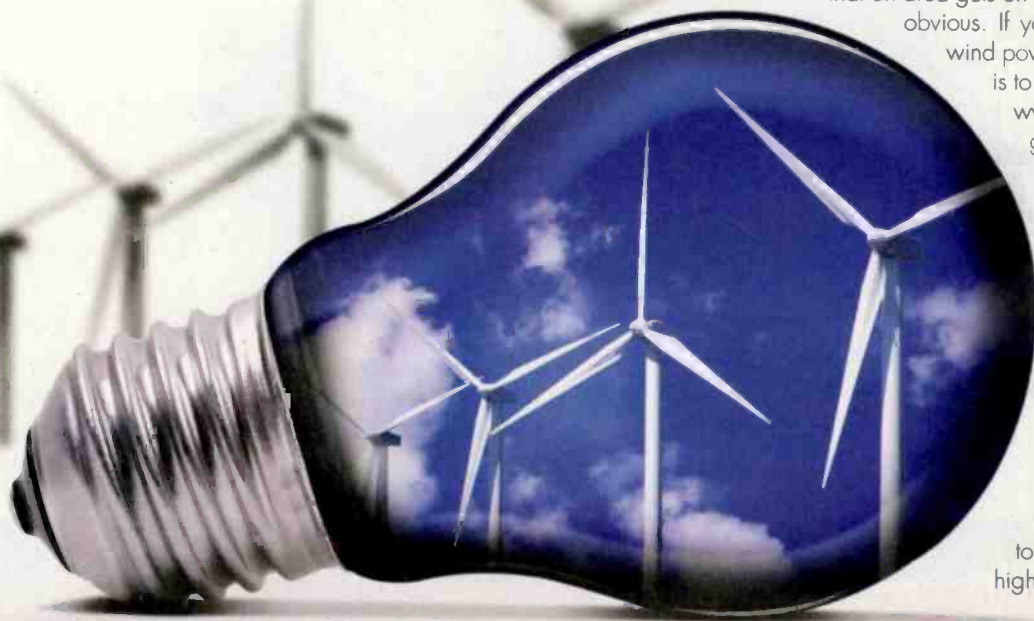
Wind turbines take more consideration than solar panels, like height, trees, noise and other nearby structures.

you might want to consider Solfocus of Mountain View, California. They make use of technology known as CPV, or concentrated photovoltaics. This system generates more power with the same amount of irradiance; additionally the system tracks the sun. You can learn more about a project that Solfocus did with KGO radio from the article *Feel the Power* in the July 2008 edition of *Radio* magazine.

Wind turbines

Recovering energy from the wind is not quite as simple as getting it from the sun. Though the sun shines everywhere every day (to some extent anyway) the amount of wind that an area gets on a day-to-day basis isn't that obvious. If you want to consider using wind power, then the first thing to do is to take a look at this website: www.windpoweringamerica.gov/wind_maps.asp. From this site you can get a very good idea about what the potential for wind power is at your particular site.

Assuming you've determined your site has good potential, there are other factors that need to be considered before you purchase a wind turbine. Wind turbines are mounted on towers, typically 40' to 50' high. They do make a certain amount of noise, and



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Sun, Wind & Fuel Cells

are negatively affected by the presence of trees and other structures nearby that make the air more turbulent. Therefore you should plan on having open land around the base of the tower (about one acre for a 40' to 50' tower is what I have been told). Obviously you should investigate any zoning restrictions that may be in place at the area in which you desire to build the tower.

Now assuming your site is perfectly suited for the construction of a tower that will be topped with a wind turbine, you need to consider the model. If you want to power a small facility then at the very least you should consider the Skystream 3.7 from Southwest Wind Power. This is a wind generator that has a peak output rating of 2.4kW at a wind speed of 13m/s. It comes in two different versions: one set up for charging batteries, and one that has a built-in inverter that allows the unit to be connected directly to the power grid via your ac power panel (240Vac single phase).

There again, if you are thinking bigger is better, consider the Excel from Bergey Wind Corporation.

This wind turbine also comes in battery charging versions as well as the version for grid-connect (240Vac single phase output requires the addition of an optional inverter). Maximum output in a 13m/s wind is 10kW. Bergey also supplies towers for the Excel, the minimum height of which is 60'.

There are great tax incentives in place now that will offset a substantial fraction of the cost of solar and wind systems. Both federal and state incentives exist, so discuss their impact with your vendor. The total incentive will vary on a state-by-state basis.

Resource Guide

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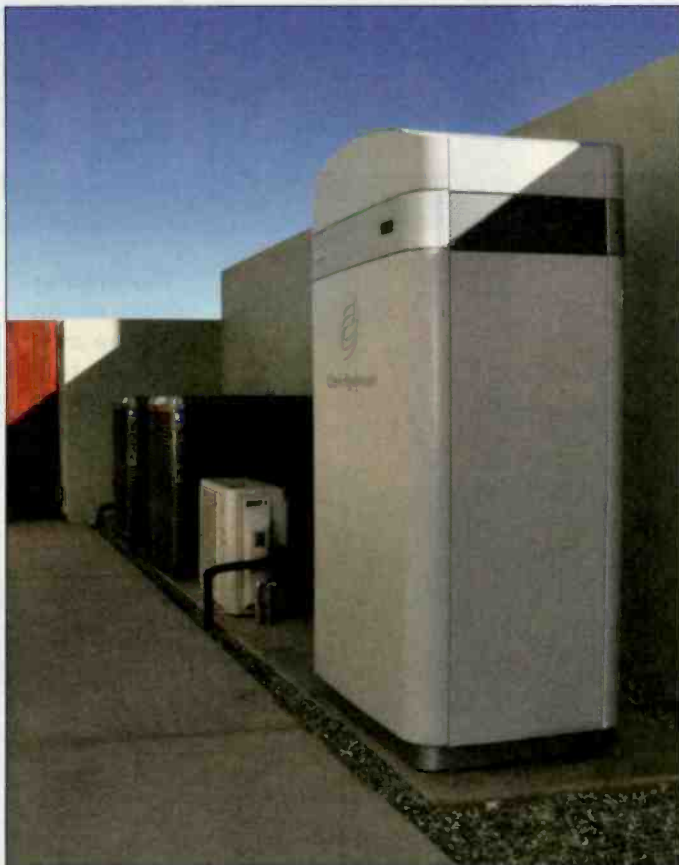
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The Clear Edge CE5 fuel cell makes use of natural gas or propane as the fuel source.

Fuel cells

Fuel cells are about to become an option for power generation. Matsushita has developed a PEFC fuel cell, using natural gas as the fuel, that will provide up to 1kW of output (single phase 60Hz). They are promising this unit will be available in the first quarter of 2010. One byproduct of the chemical process by which the fuel cell works is the creation of hot water – ideal for the home of course.

Natural gas probably would not be an option for a transmitter site, but propane certainly is. The Clear Edge CE5 is a fuel cell that can make use of natural gas or propane as the fuel source. This unit measures 34" by 26" by 65" in height, can be installed inside or out, and can provide up to 40A of current at 240Vac. It also makes hot water as a byproduct. It's a little quieter than a generator, too: 60dBA at 3'.

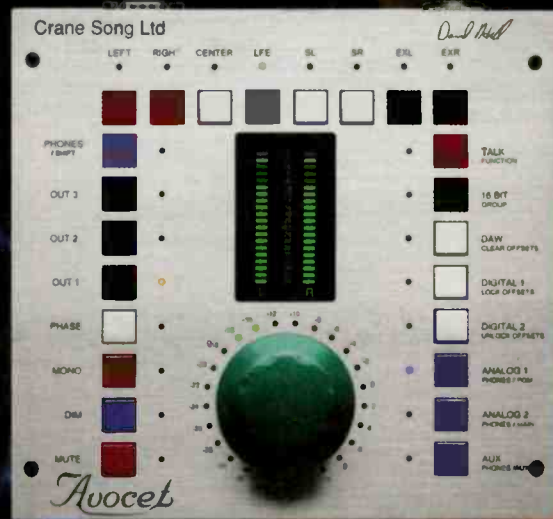
Could a device such as this be the third of a triad that will allow you to get off the grid?

By recovering energy that is freely available – either from the wind or from the sunlight that shines down on us every day – you can play an active role in the greening of the world. You'll also buy yourself a certain amount of energy independence. As far as investments go, alternative power is not that great – you can make more money with certificates of deposit. We don't know what the future holds for energy prices – but it seems more likely they will increase, rather than decrease. An investment in alternative power may pay off down the road in ways that are hard to imagine today.

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

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Move On Over



The Brother Wease studio is set up as a circular talk studio with low sight lines.

With its old location being demolished, Clear Channel Rochester trusted Lightner Electronics to get things moving.

By Matt Lightner

In September 2008 I was asked to bid the project of moving Clear Channel Rochester's seven radio stations (WHAM-AM, WHTK-AM, WDWI, WFXF, WKGS, WVOR, WROO) from the old Midtown Mall building a few blocks away to HSBC Plaza. The project was necessary since the city of Rochester purchased the Midtown Mall building to demolish it and build a new 30-story office building. As an integrator, bidding the project was a challenge because of a unique requirement: Because the city was reimbursing Clear Channel for the move, the city had to review the bids. It also wanted two different bids from each bidder. The first bid was to relocate all the existing equipment and wiring with nothing new purchased. The second bid was to relocate as much equipment as possible and provide supplemental new equipment to allow a seamless transition to the new facilities. Clear Channel required that the stations had to remain on the air 24/7 during the move except for one time slot per station between midnight and 5:30 a.m. Monday morning when they could be off the air for the move. With a facility this large and so many shared resources it was a major challenge to quote.

Before we quoted the project, we visited the site and met with Mike Guidotti, the SVP of engineering for Clear Channel's north-east region, and the local market engineers. When I arrived at the Midtown Mall building I was shocked. What used to be a mall was just a vacant building. It was sad to see. We helped upgrade the Rochester facility back in 2005, and the mall at the time was thriving.

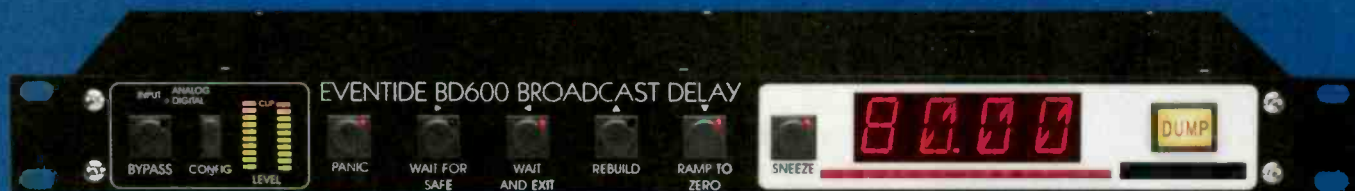
The project begins

We were informed in November that we had won the bid to move the facility. The plan we came up with was to purchase a new Wheatstone Bridge Router with necessary I/O cards, along with a new G4 console and source equipment, to move the first station without any down time. We also determined that new equipment racks, studio furniture and STL antennas were required to make the move seamless. After all of this was in place then we would be in a position to move the equipment from the old facility and keep each station on the air during the move.

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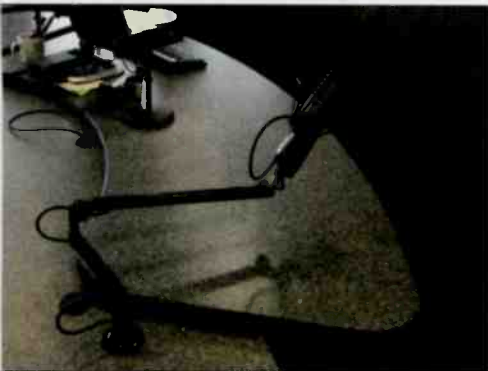
Clear Channel Rochester



Operator position, Wease studio



The three productions rooms have similar layouts. This is production 3.



Two guest mics (top) and the host mic in the Wease studio showing the low-profile design.

Our first line of work was to schedule the delivery of the Middle Atlantic equipment racks. We had a very narrow timeline when the racks could arrive because the general contractor wanted to finish the rack room on its tight schedule. We also had to schedule the loading dock and freight elevator operator to get the racks to the 16th floor. Middle Atlantic was extremely accommodating and used its own semi truck to deliver all the racks on our schedule. Fifteen of the racks were built into the TOC wall so operators could access them from the hallway. The remaining 20 racks were installed in the TOC. As soon as the racks were in place we installed all the power strips and had the racks ready for the electricians to wire power to them.

While the general contractors were working on finishing the studios we concentrated on the rack room (TOC). The room needed to allow the equipment to be installed quickly as we moved it from the old facility. We determined all the equipment going in each rack, and came up with a wire count. We decided to run at least one 25 pair CAT-3 cable to each rack punched to a Krone block in back of the rack for any logic or non-audio application. For the audio wiring we ran at least one Gepco 24-pair digital multi-pair cable to each rack. We cut the Gepco multipair cable so it was long enough to reach the bottom of each rack, then we installed the appropriate connectors for each piece of equipment. After the equipment was installed we dressed the cables and coiled the excess in Panduit mounted in back of the racks. The other end of the multi-pair cables terminated to Krone blocks on the wall.

We designed the rack room wall in CAD and plotted a very large template that showed each punch block and D-ring placement. This allowed us to pre-drill holes where each block and D-ring would mount, saving time and making it look extremely neat. The only problem with using the Gepco multipair cable is that it takes up a fair amount of space and is hard to route behind the punch blocks using the standard punch block standoffs if three blocks are stacked vertically. Our solution was to design a custom standoff bracket. The bracket has a large area to place all the cables inside and is slotted so the wires come out into the block. We had the brackets designed with threaded holes so we could use rack screws to mount the punch blocks to the brackets. The data contractor pulled one CAT-3 25-pair cable for control, and two 25-pair CAT-5 cables

for audio terminated to Krone blocks to each studio. They also pulled multiple CAT-5 cables to each studio for data and the Wheatstone digital audio network.

After TOC was finished work started on the roof. Thankfully Stephens' Media had radio stations located in the HSBC building in the past, so the roof was outfitted with a large platform and tower to mount STL dishes, and antennas. Also existing was a Patriot 3.8 meter C-band dish. This led me to believe the roof work would be easy. I was wrong.

First we had to schedule the freight operator to get all nine STL dishes (some 6') to the roof. One problem, the freight elevator stops three floors down from the roof, so we had to carry everything three floors up to the roof, including the dishes, tools, ladders etc. After all the STL dishes were installed we tested the satellite dish. When it had no signal, we found the mount was broken from the wind 300' off the ground! So we had to get a mechanical contractor to cut part of the mount, weld in new nuts, and then weld everything back together. All of this reminded us, when you're dealing with a high-rise building you will have challenges, and extra time must be planned to deal with the logistics of the building.

Finally the general contractor had the studios finished, so we worked with Vince Fiola at Studio Technologies to get the new furniture installed. After the furniture was installed I concentrated on building the WHAM studio because we had new equipment for it, while my other crews moved from studio to studio preparing each room as much as possible to install the equipment when it was brought from the old location.

Despite the best planning

At this point I guess you could say reality set in. We had so many planning sessions before we started, but as we were going through the construction we learned more and more about all the shared resources. ISDN equipment, satellite receivers, the Prophet Digital, reel to reels, etc., were all shared between the stations. I don't care how much planning you do, you always find out something the day of the move. No one said this would be an easy job.

We were finally in a position to move some of the studios. The first studios we built were the two voice-track studios using the existing Audioarts D16 consoles. We used the VT studios as temporary control rooms and ran two of the FM stations that do not have live morning shows from these rooms.

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Clear Channel Rochester

Next came time to move the studios utilizing the Wheatstone Bridge router system. Ahead of moving any equipment I programmed the system for each input and output in the studios and rack room, which saved a tremendous amount of time. As each G4 console and studio cage were moved from the old building to the new, we upgraded the firmware and software to be compatible with the new TOC bridge router cage. Next, the IP addresses were changed on each console because it was not necessarily being used on the same station as in the past. Instantly all the channel labeling and source assignments appeared on the consoles and they were ready to go. The system worked flawlessly. The only big challenge moving the Wheatstone system was the fact that we couldn't purchase a complete new TOC bridge system, only one cage, and the necessary I/O cards to move the first station. So as each station moved, we moved I/O cards and eventually the TOC router cages from the old location to the new one at a time. It took a lot of planning.

Unique elements

The morning show on WCMF is hosted by Brother Wease. This studio is going to be on local TV in the future, so in designing the studio, everything had to be low profile. Wease's mic is a RE-20 on a 309 shock mount, mounted to an Atlas Sound boom. The guest mics are mounted on mic arms from RAM systems. They are all low profile, so everyone's face is visible without a big mic and arm in front of it. We used Whirlwind HBUC headphone boxes underneath the counter



Large windows allow plenty of light into the Wdvi control room.

for the guests and talent to plug in their headphones and control the levels.

I mentioned the punch block standoff brackets we had built. I'll note that the labeling on the Krone blocks, which clearly says what each pair is for, is created in CAD. This eliminates needing to look in a document book to know what each block is for.

All the RF lines that run to the roof pass through a custom ground panel built by Harger.

For redundancy in the audio path we used Broadcast Tools SS4.1 Plus switchers on the STL inputs. Basically, we can feed each station directly from the satellite cage in the studio from the Bridge router or the automation with a push of the button. These switches also have a built-in silence sensor that feeds the Enberg panels in the WHAM studio telling the operators if any station is off the air.

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The control rooms, like WHTK, have traditional furniture layouts.



One of the voice-tracking rooms that served as a temporary air studio.

To share ISDN units and simplify routing, the previous lot of selector switches was retired and replaced with a Wheatstone rackmount X-Y controller. Station personnel can select any source to feed the remote equipment.

I could write a book about all the work and planning that went into moving the Rochester facility. I think the most downtime we had on any of the stations was 10 minutes. I must say it was a stressful job, but the end result is a very nice facility achieved on a tight schedule within budget. Clear Channel had a great team of IT people who set up all the computers and the prophet system. The local market engineers also went way above the call of duty to make this move happen. I was impressed!



All lined up in the rack room.

Lightner is president of Lightner Electronics, Claysburg, PA.

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Philadelphia Preview

NAB Radio heads back to the city of brotherly love

It's back to Philadelphia for the NAB Radio Show. This will be the third time the convention has visited the historic city, and if history repeats itself, it will be a good convention with respectable attendance. Philadelphia is an easy city to navigate, with plenty to do in the city center. The central east coast location makes it an easy trip along the coastal corridor, but it's also well-served by points farther afield.

Our convention preview has a sample of some of the technology being shown on the exhibit floor, a session timetable that includes some events outside the engineering track, and of course an exhibit hall map.

We have also provided up-to-the-minute convention information in the weekly NAB Radio Update e-mail newsletter. If you haven't received it, subscribe today at RadioMagOnline.com.

— *Chris Scherer, editor*

Modulation monitor for HD Radio Day Sequerra

M2HDSP: The M2HDSP, Day Sequerra's newest modulation monitor for HD Radio

employs the company's recently developed digital signal processing (DSP) architecture, first introduced in its M4DDM. The M2HDSP runs Day Sequerra's new proprietary Time Lock algorithm to automatically maintain perfect alignment of the HD Radio main program signal (MPS) analog and HD-1 digital audio. Using its selective off-air tuner, the M2HDSP measures the MPS analog and HD-1 digital audio diversity and generates a continuous stream of correction vectors to keep the analog and digital audio perfectly time and level aligned. These correction vectors are then sent via Ethernet to an HD Radio embedded exporter or compatible audio processor to provide the necessary adjustments to the analog audio delay.

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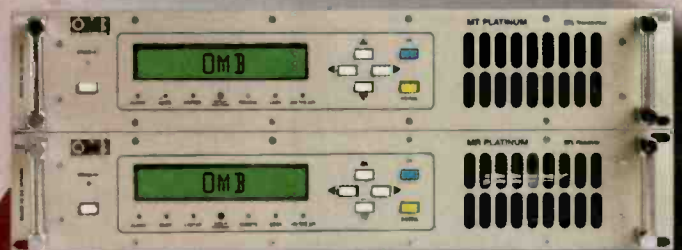
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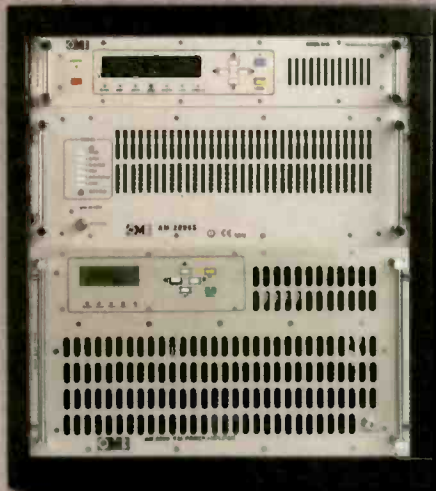
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EM 2000

Is a 2000W FM transmitter made up of the EM 25 DIG exciter (or EM 20/30 exciter) and the AM 2000 FM amplifier. AM 2000 includes eight 300W high-efficiency MOSFET technology amplifying modules, fed by 2 independent switching power supplies, which are made to withstand the working conditions. The amplifying modules work independently thanks to a power combining structure that provides high isolation between them.

EM 10000

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

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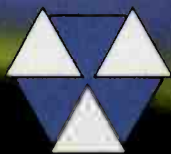
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**NAB Radio Show
booth 217**



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www.digitalalertsystems.com

sales@digitalalertsystems.com

1-801-568-0915

support@digitalalertsystems.com

1-866-268-9853

Philadelphia Preview

Console control surface Wheatstone

Sideboard: Wheatstone's Sideboard is for edit booths, voice tracking and hands-on hosts. A true console control surface, it integrates with the Wheatstone Wheatnet-IP audio-over-IP system. Sideboard's input fader strips can access any source in the entire network, with dial-up and talkback on every fader. An additional four-bank fader module can be added for a complete eight-fader mixer. Two output buses - PGM and AUX - allow for simultaneous audio-to-air and cue/mix-minus. Eight programmable pushbuttons can be used for quick monitor select or to trigger virtually any system operation.



252-638-7000; www.wheatstone.com; sales@wheatstone.com

Codec addition Comrex

Bric Remote Control: Bric Remote Control software controls multiple Access and Bric-Link codecs from a simple Windows-based interface. It allows creation of an address book that can be shared among a list of codecs. The software also creates unified connection profiles that can be shared among the codecs. Bric Remote Control software is available as a free download from the Comrex website.

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

Ethersound stagebox Digigram

Aqonda: In essence, a remotely-controllable Ether Sound stagebox, Aqonda is capable of transforming up to 16 analog audio signals into as many Ethersound channels, and injecting them into an Ethersound network. The device is available in two formats: Aqonda-8 which is 8-in/8-out, and Aqonda-16 which is the 16-in/16-out version. The inputs are switchable between microphone and line level. The preamps may be remotely controlled from any digital console with Ethersound compatibility. Finally, Aqonda is the very first device to be compatible with both ES-100 and ES-Giga. A switch located on the unit allows users to select which protocol they wish to use.

703-875-9100; www.digigram.com; input@digigram.com



Analog on-air console AEQ

Opera: Based on the BC-500 audio console, AEQ is now launching its replacement, the Opera. Opera has the same basic features as the BC-500. The modular design of Opera offers the possibility of configuring the console according to specific requirements. There are equalized microphone/line modules, stereo dual line modules, input-output modules and output modules. Using the standard configuration, Opera can be easily upgraded by adding new modules. Outstanding among the modules is the digital telephone hybrid with frequency extension and multiplex option. This modular design permits the extraction for repair or replacement of each module in minutes without influence in the on-air signal.

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

Recording software Vericorder Technology

Poddio: Poddio software transforms a smart phone into a full-featured sound editing suite. The first version was released on iPhone in February 2009. That version allowed users to record and edit news stories or music, and upload the finished audio file to a computer. The new version allows reporters to also send their completed stories wirelessly, either by FTP or by e-mail.

vericorder.com; info@vericorder.com

Broadcast database BIA Financial Network

Media Access Pro v4.3: MAPro Version 4.3 now delivers details on individual multicast/digital stations, Arbitron Portable People Meter data for available markets, and detailed band ID information. Another added feature is the ability to export counties per market and across various media. Other enhancements to MAPro 4.3 include the addition of detailed information for Low Power FMs and their unique programming. Users can single out these stations via a special search criterion. MAPro 4.3 also includes information on additional station programming (HD2 and HD3), such as formats being provided and detailed contact information at each multicast program stream. It also offers an enhanced way of viewing multiple markets simultaneously via new saved searches, making it easy to view information across markets.

703-818-2425; www.bio.com
info@bia.com

AM mobile measurement for IBOC Audemat



Navigator HD AM/FM: Audemat engineers have added AM analog and HD Radio measurement capability to this unit. This is a free release that requires the unit to be sent back to the factory. Any new unit purchased from now on will include AM/FM/HD Radio capabilities as standard. The AM module allows AM RF measurements with the display of the RF level in graphic form, AM HD Radio coverage measurements (with GPS position data) and the decoding and display of AM/IBOC data (extended HD Radio panel). The Audemat meter is for easy field surveys as well as on site/studio monitoring of all aspects of a station's analog FM and HD Radio FM/AM signals. The meter is frequency agile. It combines an FM monitor and an HD Radio monitor that works for FM and AM HD Radio signals.

305-249-3110; www.audemat.com
contact@audemat.com

IBOC FM translator Larcan

Encore Series: Incorporating TV transmitter amplifier designs and applying them to digital radio, the Encore IBOC FM Translator delivers a high-quality digital FM radio quality sound. Highly linear amplifiers and custom designed IF filtering enable optimum reception and output power in digital operation. Integrating filtering and new linear conversion technologies, the Encore Series of translators takes the digital FM signal and translates/repeats it, keeping the IBOC digital signal intact. The result is an IBOC FM translator that delivers the original analog FM signal and the digital portion of the signal together to an audience. The Encore Series is available from 25W to 250W.

303-665-8000; www.larcan.com; pPhillips@larcan.com



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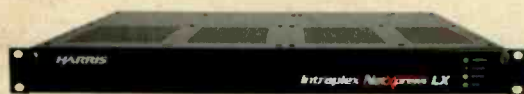
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Philadelphia Preview

Networking platform Harris



Intraplex NetXpress LX: NetXpress LX is suitable as an edge device working together with NetXpress in large, multi-site networks. Features include: flexible configuration for audio and data (choice of MPEG II layers 2 and 3, enhanced apt-X or J.41 compression, XLR AES/EBU digital and L/R analog input/output connectors), reliable IP audio transport (low processing delay, adjustable packet size) and convenient provisioning and management (SNMP network management, network statistics monitoring, event logging).

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



PCI Cobranet sound cards Audio Science

ASI54xx Series: The ASI5402, ASI5408 and ASI5416 are professional PCI sound cards designed for use in the installed sound and entertainment markets.

Using Cirrus Logic's Cobranet technology for streaming audio over Ethernet, the ASI5402 provides two channels of Cobranet receive and transmit, the ASI5408 provides eight channels of Cobranet receive and transmit, and the ASI5416 provides 16 channels of Cobranet receive and transmit. These sound cards can be connected to any Cobranet-compliant device.

302-324-5333; www.audioscience.com; sales@audioscience.com

Song data embedding Broadcast Electronics

TRE Message Manager 2.0: BE's TRE Message Manager with Jump2Go service embeds the correct Apple tags and provides the synchronization required for earmarking songs in real-time as they're played over the air.

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

Console Sierra Automated Systems

M Class: The M Class console was engineered to have the same design and ease-of-use as the Rubicon family of consoles, but costs thousands less. Its feature set eclipses most analog consoles. M Class is powered by Rio Link, the unit running SAS Rubicon consoles in New York, Los Angeles and Chicago. These boards are suited to be used as drop-in replacements for analog mixers. The optional Flex2 module will allow SAS 64000, Rio Link or 32KD owners instant connectivity to their existing routers. M Class includes A/B inputs for faders, three user-configurable output buses, an unlimited number of auto-configuring mix minus buses, dual 1/4" and 1/8" headphone jacks, full fidelity cue speaker, meters, built-in up-timer, IFB functionality, intercom capability and eight custom programmable buttons.

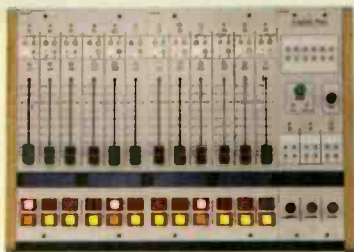
818-840-6749; www.sasaudio.com; sales@sasaudio.com

Audio codec software APT

Apt-x Scalable: This is the latest addition to the Apt-x series of low-latency audio compression algorithms for high-definition audio in broadcast, professional and consumer applications, and offers sampling rates up to 96kHz and sample resolutions up to 24 bits. Potential applications in high-definition audio for Apt-x Scalable include extended battery life in portable media players; improved streaming to wireless peripherals; optimal use of network bandwidth for dynamic mix of audio traffic in VoIP; Internet audio services such as surround-sound radio and interactive gaming; broadcast audio; and digital wireless microphones.

800-955-APT; www.aptx.com; info@aptx.com

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Logitek**



Pilot: Available in multiples of six faders (from 6 to 24), the Pilot offers full access to the sources available on a Jetstream or Audio Engine router along with simple bus selection and intuitive monitor controls. The Pilot, combined with the Jetstream Mini, provides a cost-effective way for facilities to implement IP audio routing and mixing. Features include: cue switch over every fader with built-in cue speaker; room for 16 character source names on bright, wide-angle displays; change button over every channel and central select knob for easy access to new sources; 12 user-configurable soft keys; quick route button for selection of program, auxiliary and two user-defined sources for monitoring; buckets full of mix-minus; four GPI inputs and eight GPI outputs on back of surface along with RJ-45 for connection to audio engine; simple tabletop mounting and 20W power consumption.

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KIQS, Four Corners Broadcasting, Durango, CO

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Ward Holmes, Regional Manager

WHFT, Avon Park, FL

"The tech support is a huge help. Nothing but good things to say, they've always been great & resolved any issues quickly."

Tony Scott, Program Director

WJQS, Jackson Mississippi

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

Monte Lyons, Operations Manager

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Shelly Harrison, General Manager

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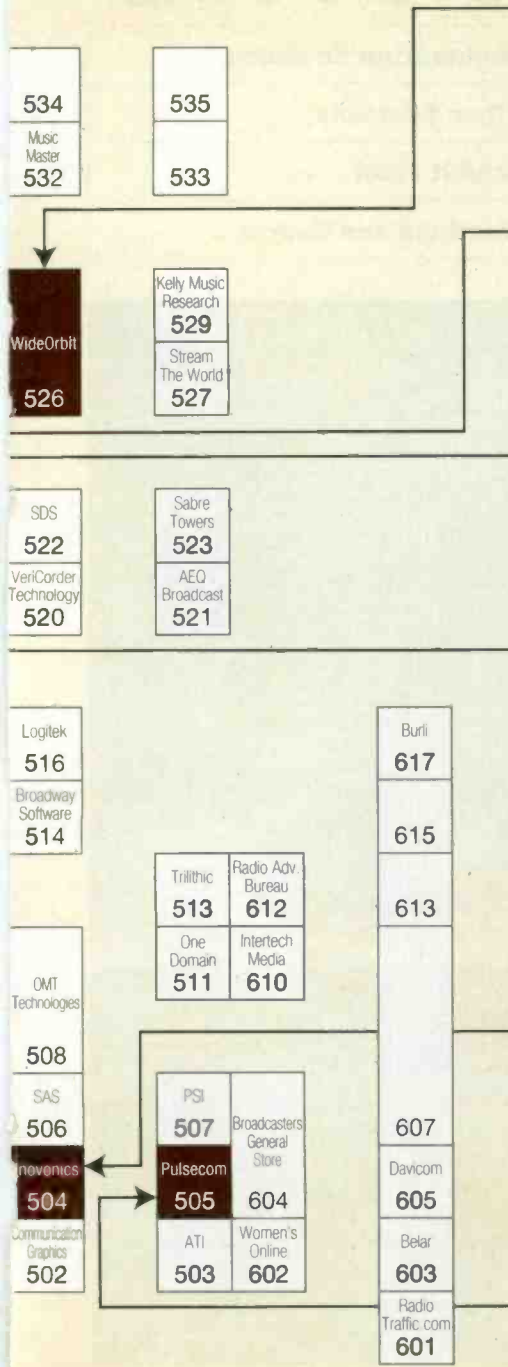
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NAB Radio Show Sessions and Events

The engineering sessions and events at this year's NAB Radio Show cover some timely topics, including the new AM proof rules, the Electronic Program Guide project, HD Radio sideband power and IP audio. In addition, there are some sessions outside the engineering track that might interest you. We have included them in this schedule grid. Most Engineering Sessions are held in room 201B of the Pennsylvania Convention Center.

| | |
|--|-----------------------------|
| | Engineering Sessions |
| | Other Sessions |
| | Exhibit Floor |
| | Meetings and Events |

Wednesday, Sept. 23

8 a.m. - 9 a.m.

Operating Under Emergency Conditions

Steve Davis, senior vice president, engineering and capital management, Clear Channel-Radio
 • Advice and tips from engineers called upon to keep their stations operating under the most adverse conditions.

9 a.m. - 10 a.m.

Tower Failures - How to Prevent Them

David Davies, director, structural products and services, ERI
 • Overview of the major causes of tower failures with advice on how to prevent a catastrophic situation.

9 a.m. - 10:15 a.m.

How Radio Can Do Video Economically and Profitably

John Potter, VP/director, Radio Training Academy, RAB
 • Learn how to inexpensively create, package, present, close and distribute the many forms of video advertising to local clients and prospects.

10 a.m. - Noon

Planning, Building and Maintaining an IP-based Radio Facility

Kirk Harnack, executive director, international business development, Telos/Omnia/Axla
 • This workshop details and demonstrates ways to plan, implement and maintain an IP audio system in a facility.

Noon - 2 p.m.

NRSC Meetings

2 p.m. - 2:30 p.m.

Electronic Program Guide Update

Moderator: Rick Ducey, chief strategy officer, BIA-Advisory Services
Panelists: Adrian Cross, software development team leader, Unique Interactive
David Maxson, principal, Broadcast Signal Lab
Skip Pizzi, media technology consultant
 • Overview of the lab and field trials of an HD Radio Electronic Program Guide (EPG) system for IBOC in the U.S.

2:30 p.m. - 3:45 p.m.

Opening Address and Digital Think Tank Super Session

4 p.m. - 7 p.m.

Exhibit Floor Open

4 p.m. - 6 p.m.

Opening Reception (Exhibit Floor)

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Thursday, Sept. 24

8 a.m. - 11:45 a.m.

Measurements and Mathematics for the New AM Proof Rules

Benjamin Dawson, president, Hatfield and Dawson

Ronald Rackley, principal, du Treil, Lundin and Rackley

- Three hours of intensive instruction will help attendees understand practical application of the Method of Moments computer modeling techniques now authorized for AM DA proofs.

9 a.m. - 10:15 a.m.

HD Radio Initiatives: Today's New Opportunities

Moderator: Bob Struble, president and CEO, Ibiqity Digital

Panelists: Don Barros, director of mobile electronics, 6th Avenue Electronics

Javier Farfan, marketing, TV, video and music business, Microsoft

Jim Loftus, vice president/general manager, CBS Radio Philadelphia

Mark Turley, media director, Pittsburgh Penguins

- Learn to drive HD Radio initiatives such as multicasting, ROI and maximizing resources available.

9 a.m. - 5 p.m.

Exhibit Floor Open

11:45 a.m. - 1:45 p.m.

Exhibit Floor Lunch

2 p.m. - 3:30 p.m.

Practical Datacasting Today

Jim Roberts, datacasting product manager, Broadcast Electronics

- Insight to enhancing current datacasting efforts and extending it to social networks and mobile devices.

2:30 p.m. - 3:45 p.m.

Tower Leasing NTR: Positioning Your Vertical Assets Online

Patrick McCamley, partner, Towersource

David Wendlandt, partner, Towersource

- Learn about generating revenue from a tower and increasing online exposure of its assets.

3:30 p.m. - 5 p.m.

Exhibit Floor Closing Party

6 p.m. - 9:30 p.m.

NAB Marconi Radio Awards Reception, Dinner and Show

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Sessions and Events

Friday, Sept. 25

7:30 a.m. - 8:45 a.m.

FCC Breakfast

8 a.m. - 9 a.m.

New NRSC IBOC Mask Measurements

Davey Maxson, principal, Broadcast Signal Lab

- Workshop outlines the details of NRSC-G201, NRSC-5 RF Mask Compliance: Measurement Methods and Practice.

9 a.m. - 11 a.m.

The IBOC Power Issue - You Have Questions, We Have Answers

Moderator: Milford Smith, vice president, radio engineering, Greater Media

Panelists: Tim Bealor, vice president, RF products, Broadcast Electronics

Jeff Detweiler, director of broadcast business development, Ibisquity Digital

Gary Liebisch, regional sales manager, Nautek

Geoffrey Mendenhall, vice president - transmission research and technology, Harris

Mike Starling, VP, CTO, NPR

Michael Troje, sales manager, Continental Electronics

- The controversial matter of HD Radio digital sideband power levels will be thoroughly aired in this panel session.

11 a.m. - Noon

Tower Sites I Have Known and Photographed

Scott Fybush, Fybush Media

- Fybush covers some of his road trips that highlight the history of radio.

Noon - 1:30 p.m.

NAB Radio Luncheon

1:45 p.m. - 3 p.m.

Digital: It Can Be Simple

Moderator: Vic Savelli, executive vice president, Archstream Media

Panelists: Chris Bell, president and CEO, Enticent

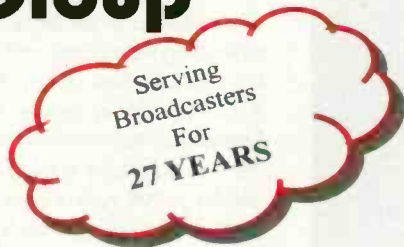
Mike Glickenhous, president and CEO, VMIX Media

Josh Ray, vice president of business development, Spatial Audio

- Investigates the tools needed to stream, podcast, mobile market, socially network and more.



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TECHtips

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Tips, tricks, hints and more

By John Landry, CSRE

Look sharp!

How many times have you gone to use the wire stripper and it wouldn't strip? Because a wire stripper must bite into the insulation before it is pulled away, the edge on it must be clean and sharp. Sharpening a hand tool requires special equipment, and usually it is easier to buy a new one. But if you're in the middle of a project or it's late at night, buying a new one may not be the instant solution.

With the use of a fine needle file more life can be coaxed out of an old stripper. First, open the jaws of the stripper and secure it in a vise. Then run the needle file in a diagonal direction across the slanted edge of the stripper, making sure the file is flat against the slant all the way. After several passes on both jaws, you should see the slant become shiny. The top edge of the jaws will now be quite sharp, and much more useful than before. This method can also be used to resurrect diagonal cutters and scissors.



The routine grind

Here's a simple re-use tip for the plastic buttons on legacy audio equipment like the old Pacific Recorders



consoles: Many of these were originally ordered with custom engraved legends on the OFF buttons. And because most of us no longer use

much of the equipment referred to on those buttons we have stuck everything from Dymo and P-Touch labels to masking tape over them as new things were connected. It is very simple to remove the old legends using a Dremel tool with the 409 cut off wheel. This allows the colored plastic to remain intact. A new legend can be put on with a clear P-Touch label or using clear plastic transfers on a laser printer.

Show your support

It can't be said enough: Computer hardware manufacturers do not understand the concept of equipment racks. While several methods of mounting these various workstations and servers have been addressed before, sometimes a specific computer just won't fit on anything you have. A simple solution is as near as a suspended ceiling. Many ceiling systems are held with 1/4" diameter aluminum rods ("Pencil rod") which are sold in 6' lengths. There is almost



always some left over in a ceiling. It is round, easily worked and flexible. I was able to mount a Dell workstation in an old Pacific Recorders cabinet by using pencil rod to support the back of it. Two small wooden blocks secure the rod to

the cabinet with drywall screws. An unintentional advantage to this mounting is that the rod will rotate as the computer is removed or installed, making it possible for one person to do it.

Ideas submitted to Tech Tips may be suitable to earn SBE recertification credits.

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

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pictured: Modulux Standard

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Platformic

By Jenny Rose Gonzalez

If a listener hears something on the radio that interests them—whether it be a station event, a giveaway, a reference to something funny that the on-air talent is wearing—the first place they are going to

go for more information is the station's website. If there is not a way for that listener to quickly and easily find what they are looking for, then it is very likely he or she will not return again. When that happens, you have lost a customer, and your website has failed.

Webmaster something to get on the site (at 6 a.m.) and then having to wait for the webmaster to arrive to work (at 8 a.m.), the producers are able to get it up themselves at the moment of reference. Radio is an extremely powerful complement to the Internet. When our on-air guys give our listeners a compelling reason to check something out on our site, we watch traffic skyrocket immediately. At BCA, we see it as our job, to not only make sure that listeners are able to find what they are looking for right away, but to also give them plenty of reason to stay on the site, and then return again and again. Platformic's tools give us the opportunity to provide content in a variety of medias, and we are currently offering content in the form of blogs, video, audio, RSS feeds and, of course, print.

Ongoing support

We have worked with Platformic for several years and the company continually upgrades the tools available to website visitors as well as backend users, and are excellent at keeping us up to date with any new products it brings to the table. This was why we initially decided to undergo the redesign of our sites; we wanted to create a site that was flexible enough to accommodate all of the company's new bells and whistles as soon as they became available, and our initial site was not built with this flexibility in mind, because we actually relied on an outside graphic designer to do the layout and not Platformic themselves. One thing I learned through this process—layout first, design second!

Platformic has launched some tremendous other sites—both radio and TV. In fact, when designing our site, I went through many of its other sites

most cases, the show's producer is responsible for making sure that any references made on-air can immediately be found on the website.

The unique needs of our radio station's website, as with other stations', are met, above and beyond, by the team of technical geniuses at Platformic. Not only has Platformic helped us design two great-looking websites, www.walrusfm.com and www.doublex1090.com, but the Platformic tool-set enables us to keep our content dynamic and current, because just about anyone can use it. Now, instead of an on-air producer sending the

Performance at a glance

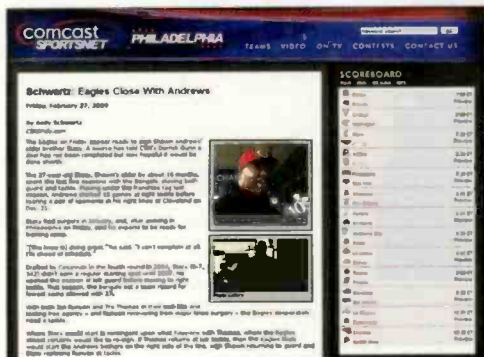
Front-end editing

Drag-and-drop video and audio encoding

Multiple user manager

Built-in RSS feed creator

Embedded content tool



my question immediately, but fixed the issue for me within minutes.

I would strongly recommend readers talk to Platformic for all website needs.

Gonzalez is director of digital media, BCA Radio, San Diego, CA.

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

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

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

and was able to pick out different elements we liked and, in turn, create a completely brand new site that fit our unique needs.

Eric Broadwater, director of professional services at Platformic was an immense pleasure to work with and was able to provide very important direction in the design of our site.

Platformic

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In regards to some specific tools Platformic offers, the Feed tools are by far my favorite, as they enable us to not only keep content organized with a neat and professional presentation, but also to present this content via many different platforms throughout the site.

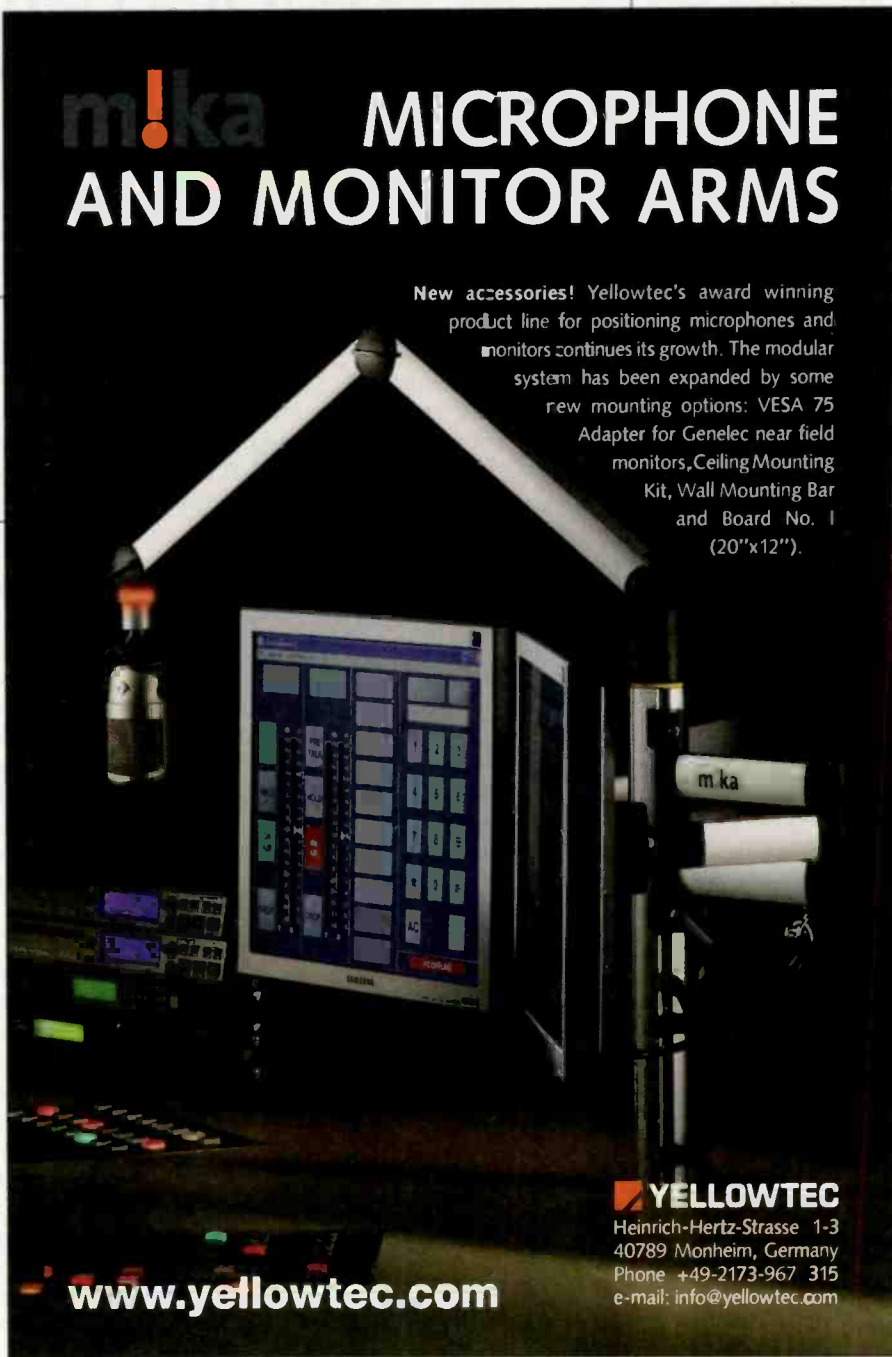
Another way for us to present content to our listeners is to capitalize on some of the relevant RSS Feeds available. Platformic's RSS Feed pull tool is easy to use and works great.

Platformic also offers a drag-and-drop video and audio encoding tool that converts all original video files to flash so any user can watch the video. It removes the need for us to convert the code to flash. This is just one of the several ways Platformic has made the back-end user's experience a lot more efficient.

And finally, one of the most important things to me when working with any company is customer service. In regard to customer service, the guys at Platformic go above and beyond. I actually had to contact Eric on a Friday night around 7 p.m. (the day before his birthday) and he not only responded to

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Audemat Relio

By Brian Urban

KUT Radio, a service of the University of Texas at Austin has been looking for a transmitter remote control to replace the existing aging and maxed-out system. We wanted a remote that was state of the art, had a graphic user interface, multi-user, IP connectivity and dial-up capability. After looking at everything on the market and demoing one unit in our shop, couldn't find something we would be happy with. Then, at the 2008 NAB Show we saw the Audemat Relio. Now this had potential: IP, dial-up, multi-level multi-user, lots of channel capacity, graphic user interface and graphic programming. As an added bonus, 32 command channels, 32 status channels, and 24 metering channels took up 5RU. We requested a demo unit from Audemat, who delivered a fully functional system, not a pre-packaged demo unit.

Relio is a simple-looking unit with exceptional capability. It has 64 digital (status) inputs, 64 digital (relay) outputs and 24 differential analog (meter channel) inputs, as well as four serial ports (selectable RS-232, RS-422 or RS-485).

Out of the box Relio must have a custom configuration installed, which is built using Audemat's Script

Script Easy

Script Easy programming starts with defining the system in the site section summary tab. Once the summary is completed, the configuration is applied. Then you can move on to the monitored equipment tab and define all the inputs and outputs to the system. Click the add equipment button, name the device and add the Digital Status, Digital Command, Analog Metering, SNMP settings and any Scriptlet for that equipment. Once all the equipment I/O is complete, move on to the cabling tab where the logical I/O is connected to the physical I/O panels. Click on Link Status for each section and Script Easy assigns each I/O to a port on the connector panel. Physical input/output ports can be changed by selecting a different port in the link to column.

Metering, command/control and status functions are defined in the script designer. This is a graphical environment where you place the various elements on a page and connect them together. There are push buttons, digital commands, status, delays, analog inputs, counters, alarms and logic gates available. These elements can be grouped together to perform any number of actions from simply turning a transmitter on or off to complex switching operations such as main/aux transmitter switching with failsafe.

Scripts can be placed on multiple pages to simplify the overall diagram; e.g. the main transmitter on one page, aux transmitter on another, transfer switch on a third. The software is capable of linking elements across pages.

Analog inputs have either three or five outputs, which can be connected to various actions from alarms to contact closures. Building temperature could be set to start an additional air conditioner at a specific temperature, and if the temperature continued to rise, start an exhaust fan and call and/or e-mail an alarm.

Systems can be grouped together so that when you dial in and enter the appropriate code, Relio

Performance at a glance

- No need for expansion modules for most systems
- Easily programmed
- Telephone control
- Web control
- E-mail notification
- 64 digital inputs/outputs
- 24 analog inputs
- Graphic user interface
- 32 command/status channels
- 24 metering channels

Easy utility. Script Easy is graphical: Drag icons out onto the desktop and connect them together to generate commands, build macros and build the user interface panels.

Because Relio is programmed via TCP/IP, the first thing is to configure the IP address/subnet mask/gateway. This can either be done using a serial cable and terminal program or by attaching a keyboard, mouse and monitor to the unit. I did get the unit to speak serial; however, for some reason it didn't like Hyperterminal at all and refused to respond. A different terminal program worked fine and I was able to program the IP address. E-mail notification, user logins, PPP dial in/dial out, phone alerts, router assignments, etc., can be programmed from the KVM interface or, once the IP address is assigned, through the built-in Web interface.

will read out each parameter for that system. You can also set a macro command to perform a function within that group. Each command is also available by individual DTMF command.

Views

View Designer is the section of Script Easy, that defines what the user control panels will look like. There are several styles of meters with customizable color schemes. Legends can be different for on and off states. About the only thing you can't do with an LED is make it blink. Function buttons are fully sizable with legends inside the button. Colors are not customizable, but the buttons do change color when activated.

Master View is the operating environment. There are two levels of access: administrator and guest. Administrators have full control of the system, while guests are only allowed to view the system. Administrators and guests can be logged in at the same time.

Script Easy and Master View are Windows applications. Relio itself runs a Linux operating system. Upgrades to Relio firmware are via USB drive. Audemat cautions that you must record all user-defined parameters and save your script to an outside device before upgrading. So when

upgrading the firmware, make sure you have all network parameters, call out lists, mail settings, passwords, etc., copied off the unit before starting the upgrade. Once the unit is upgraded, everything can be re-entered via the built-in Web interface, or by local KVM attached directly to Relio.

Audemat has been very responsive in supporting the Relio and to suggestions for improvements to system programming. They even added a few words to the built-in dictionary (you can add your own also). Relio is so intuitive that the lack of detail in the documentation isn't a real problem. Overall, I am very pleased with the Audemat Relio remote control. It isn't washing the dishes yet, but I'm working on that.

Audemat

P 305-249-3110

W www.audemat.com

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Urban is chief operator of KUT Radio of the University of Texas at Austin.

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Multicast DHCP

By John Davis, CBNT

At the rate the radio industry is going, within 10 years the most common connection on the back of a piece of audio equipment won't be an analog or digital XLR but an Ethernet RJ-45.

Besides the need to invest in a better crimp tool for the radio station, this begs the question, "How do we keep track of all of this stuff?" Thankfully, the IT world has already created a tool called Multicast DHCP, and just as IT has simplified the process of sharing printers and peripherals, radio engineers can use the same tool to share audio over an Ethernet network.

Think back to the first IP data networks put into radio stations in the early 1990s. Without enough money for a server (after all, this is radio we're talking about), PCs were connected peer-to-peer, and the engineer served as the naming authority: every time you installed a computer, you'd make up an address and write it down in a notebook so you wouldn't duplicate numbers. If you ever lost the notebook, you'd spend the afternoon walking around the office compiling the list again so you could add another piece of equipment without duplicating addresses.

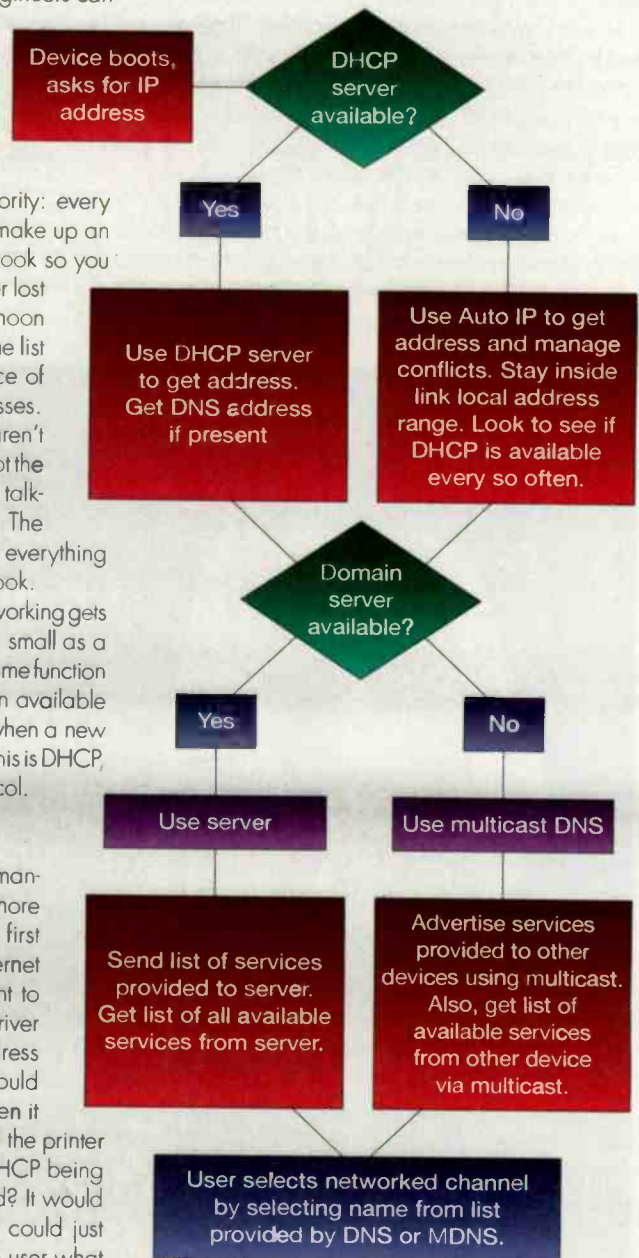
Early audio-over-IP (AoIP) systems aren't much different from the network that kept the business office and traffic department talking to each other in the early Nineties. The engineer is the naming authority, and everything is fine until you lose the magic notebook.

As time and technology march on, networking gets easier. Today, you can buy a router as small as a deck of playing cards that performs the same function you used to ask of a file server: Find an available IP address and set it up automatically when a new piece of equipment enters the network. This is DHCP, the Dynamic Host Configuration Protocol.

Not the final solution

DHCP alone didn't solve all IT's management issues as offices became more interconnected. Think back to the first networked laser printers with an Ethernet port on the back. To send a document to that printer, you needed to install a driver and tell the driver what the printer's address was before you hit print. DHCP could take care of addressing the printer when it booted up, but that won't help you find the printer when installing the driver. Plus, with DHCP being dynamic, what if the address changed? It would be a lot easier for everyone if a user could just hit print and have the computer tell the user what printers it could find.

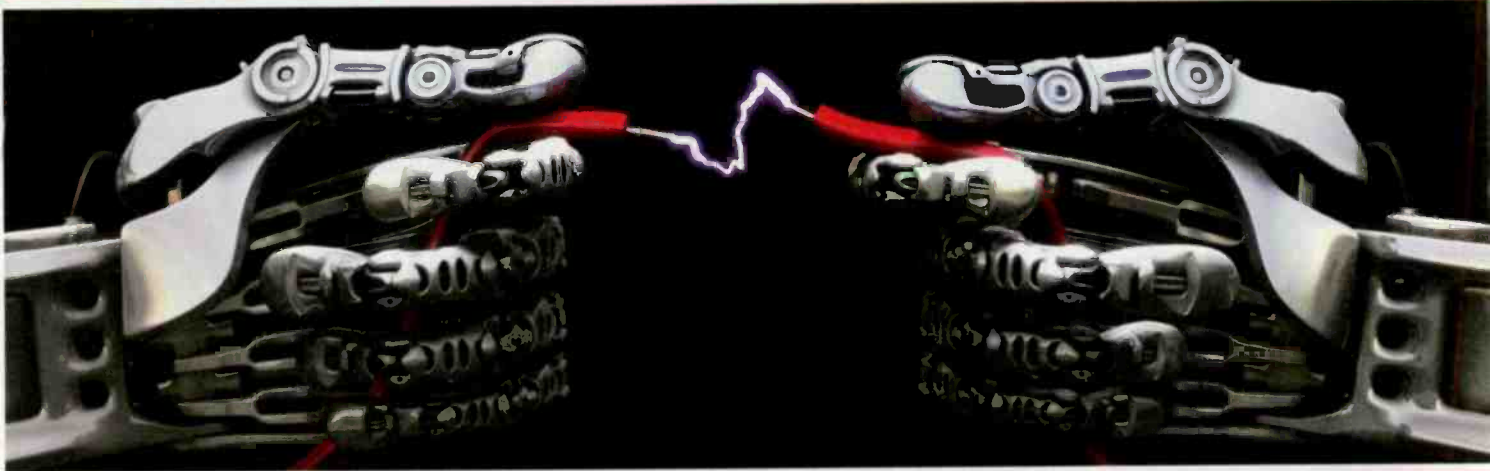
That's where Multicast DHCP comes in. Apple calls it Bonjour. Microsoft calls it UPnP (Universal Plug and Play). Collectively, it's known as Zeroconf. The end result is that you can plug in a Vista desktop, a Macbook and a Linux netbook on the same switch and see each other's shared files



Multicast DHCP and DNS logical flow

Automation

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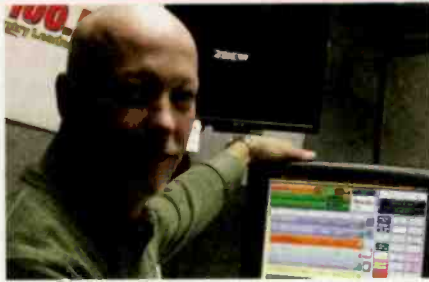


Not since Axia audio-over-IP was introduced to the broadcast industry have we at BGS been so excited! It is with great enthusiasm we'd like to invite you to take a look at the new Op-X Radio Automation delivery system for any single or multi-station cluster. Op-X works seamlessly with Axia IP-Audio networks or as a stand-alone system.



"The merging of traffic and music logs takes a mere :30 seconds, making it among the easiest I have ever worked with. Once you get used to your adjustable personal color scheme, everything is pretty easy to follow. The best part about this system is the LACK of "dead-air" or "hangups" during automation. PD's will breathe a sigh of relief at this. Another thing that stands out is the absolute ease with which you can build your personal hot keys for each air talent. If you organize your show properly ahead of time and know where you are going, this system will make your show much easier and let you concentrate on *sounding good* on the air."

~ Jim Franklin, Program Director
WVBO, Appleton/Oshkosh - Wisconsin



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~ Leslie Whittle, Program Director
KRBE, Houston - TX

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without a lengthy setup process, and all three of those machines can see the printers on the network without fuss. It just works.

If a modern home or office network can virtually set itself up, why can't an IP audio network? Using the same principles of Multicast DHCP, it can.

Three technologies come together to make everything happen: link-local addressing, Multicast DNS, and DNS Service Discovery.

Link-local addressing, also known as AutoIP, is how a device assigns itself an IP address when there isn't a DHCP server around to hand it an address when it starts up. This is needed for two scenarios: very small LANs where communication is desired without the overhead of running a DHCP server, and a safety net for devices to continue to communicate while the DHCP server is down.

they cannot communicate with other subnets or the Internet. This is because its link-local address is only guaranteed to be unique on the local network.

Of course, in a radio station, users prefer to look for audio with sensible names such as "ISDN 1" and "Air Monitor" instead of IP addresses such as 192.168.3.200. Plus, with addresses changing dynamically, it's critical that ISDN 1 is always ISDN 1 and not CD 1 after addresses were reassigned. Multicast DNS manages this for us because users are looking for services instead of IP addresses.

Put in practice

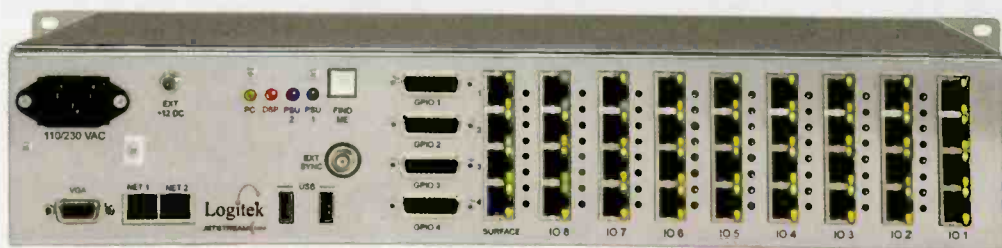
In an IT context, let's say we have a printer in the sales office. Over time, it wears out and you replace it. In a Multicast DNS environment, you plug in a new printer and give it the same name. It's a different piece of hardware, it has a different address on the network, but you don't need to change 30 different PCs, because when someone in the sales office goes to print, he sees his printer automatically.

That list of printers with human-friendly names such as "Sales Office"

and "Newsroom" is Multicast DNS in action. Like the global DNS system that translates Internet IP addresses into friendlier names like www.radiomagonline.com, Multicast DNS translates those names into IP addresses without needing to maintain a large DNS server.

In a radio station, we're dealing with streaming audio sources. When a device enters the network, it asks what else is out there and compiles a list of other streams. When the other devices ask what is out there, it replies in kind, and it gets added to their list of streams.

Think of an instant messaging system. When you want to chat, you're not interested as much



The Logitek Jetcast Mini uses Multicast DNS and Multicast DHCP to identify network resources.

When a device starts and cannot contact a DHCP server, it randomly pulls an address from the link-local pool, which is 165.254.1.0 to 165.254.254.255. Because there is no central authority keeping track of the addresses used, the machine must test to see if the address it chose is in use. If it passes the test, it announces to the world what it is and what its address is; if it fails, it picks another address at random and starts the process again. If a DHCP server joins the network, machines will then ask it for a new address and let it keep order from that point forward.

Machines that receive link-local addresses can only communicate with each other on the local network;

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APPLIED TECHNOLOGY

in who all of your friends are as you are interested in who is available to talk right now and when they are no longer available. There isn't always a server keeping track of which friends are online; your computers can do it directly with Multicast DNS.

Rather than requiring an engineer to enter audio sources and their related IP address by hand, modern IP audio systems use Multicast DNS to keep track of what streams are available and where they are located automatically.

A common myth about Multicast audio systems is that a Multicast DNS component uses too much bandwidth on the network and ultimately interferes with the audio streams. That's not the case. Just as an office filled with PCs and other peripherals doesn't grind to a halt from the multicast traffic, a radio station using a modern IP audio system will continue to run. Because all devices are listening to the same multicast channel, they hear the same answers. When the first device asks for a list of sources, the others listening will take the answer that the responding device gives and use it to fill in whatever they do not have. This

keeps redundant information from being transmitted repeatedly.

The final leg of the stool is DNS Service Discovery. Multicast DNS fills the need for small systems to operate without adding a domain server to the facility. However, in a large studio complex, a domain controller will make things easier to manage. If a Multicast DHCP AoIP system finds a suitable DNS server, it will use it. If it's not there (or if it's down) the system can function using Multicast DNS. Like link-local addressing, Multicast DNS offers both a safety net in large facilities and simplicity in small ones.

The key is that we are browsing for services, not addresses; the user knows the equipment by name and not IP address. Addresses can change, and even the equipment can be repaired or swapped out, but every time someone looks for a source, they'll get the audio they're looking for.

Thanks to networking principles proven in the IT world, Multicast DHCP simplifies IP audio networks and makes them faster to install and easier to maintain.

Davis is in Tech Support for Logitek Electronic Systems, Houston.



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by Erin Shipp, associate editor

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617.423.9004; www.cakewalk.com

Audio test application Audio Precision

High Speed Tester 2.0: HST tests output level, frequency response, interchannel phase, distortion, noise in the presence of signal, crosstalk and DC offset against user-defined limits in just 1.5 seconds. The simplified user interface is optimized for high volume testing with clear pass/fail results and user instructions. A log file is automatically generated ready to be e-mailed for trend analysis or an FFT can be saved for detailed troubleshooting.

800-231-7350; ap.com; sales@audioprecision.com

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Wireless mic system Sennheiser Electronic



2000 Series: The 2000 Series includes rugged products for a wide range of wireless applications. Handheld and body-pack transmitters with single or twin receivers are available for stage, broadcasting and installed sound applications. For monitoring, professional users can combine the diversity receivers of the series with single or twin monitor transmitters. The series features switching bandwidth of up to 72MHz, in which up to 64 compatible frequency presets are available for microphones and up to 32 for monitoring systems. It has a wide audio frequency response (25 or 80Hz to 20kHz).

860-434-9190; www.sennheiserusa.com; lit@sennheiserusa.com

Sound effects software Blastwave FX

Search Engine: The Blastwave FX Search Engine comes bundled on select Blastwave FX sound effects hard drive products. The search engine provides three key functions: Search (Google-style text search, browse by category), Audition (rapid-fire playback, keyboard control), and Drag n' Drop (to any audio/video application on Mac or PC). The Search Engine integrates with popular audio and video applications such as Pro Tools, Logic, Avid and Final Cut Pro.

www.blastwavefx.com; info@blastwavefx.com



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NEW PRODUCTS

www.RadioMagOnline.com

CD duplicators Disc Makers



Reflex Daisy Chain Series:

The Reflex Daisy Chain Series offers all the capabilities and quality of the standard Reflex Series with the added ability to connect up to hundreds of towers together—all operated by a single source. Reflex towers integrate industrial-grade DVD/CD burner drives, and each includes a beefy 320GB hard drive that stores up to 63 full-size DVD images. The 7-drive units have a throughput of 56 DVDs or 105 CDs per hour, while the 10-drive units can turn out 80 DVDs or 150 CDs per hour. The Daisy Chain Series allows users to mix 7- and 10-drive models, and because the duplicators are not drive dependent, users can add additional units when the need arises.

856-661-5532; www.discmakers.com
andre@discmakers.com

Speaker cables Hosa Technology

SKO-200: Available in lengths from 3' to 100' and featuring popular terminations to connect to a wide range of speaker products, the SKO-200 Series speaker cables provide superior signal transmission for today's most demanding audio projects. Designed for bi-amping and high-current applications, the new SKO-200 Series speaker cables are the perfect choice for commercial, stage and touring sound projects. Hosa's new SKO-200 Series speaker cable consists of four 12 AWG oxygen-free copper (OFC) conductors. The result is a robust cable that offers minimum resistance.



714-736-9270; www.hosatech.com
lee@hosatech.com

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The Model 81094 is the first in a series of Internet/Intranet accessible Advanced Wattchman® Wattmeter/Alarm systems that will monitor both forward and reflected power in two transmission lines with only one controller. Unlike previously available systems that needed one controller for each transmission line, the Advanced Wattchman® will monitor two lines (4 ports). The front panel display shows power on both systems simultaneously. Operating conditions may also be displayed on a PC from any location on the Internet/Intranet.

It is designed to work with a series of specialized line sections from 7/8" to 6-1/8" and standard Coaxial Dynamics elements for either analog or digital applications.

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

NEW PRODUCTS

Unidyne microphone Shure

55SH Series II: The latest version of the 55 SH Series II Unidyne microphone is called the Super 55 Deluxe. It features a high-output, vocal-friendly sound with supercardioid polar pattern and a robust shock mount. The new model continues to use of the royal blue colored silk screens featured on early vintage models. The Super 55's features include a tailored frequency response for natural vocals and speech; neodymium magnet and output transformer for increased sensitivity; high gain-before feedback and excellent off-axis rejection; an internal shock mount that minimizes handling noise and ensures quiet operation; and a rugged die-cast chrome casing.



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

Quietpoint noise-canceling headphones Audio-Technica

ATH-ANC7b: The ATH-ANC7b Quiet Point active noise-cancelling over-ear headphones have 85 percent noise-cancellation but incorporate a number of improvements from the previous model. The ear cups have been redesigned for greater comfort. The headphones are supplied with two 1.6m and 1m detachable cables, and offer easier battery access. With Quiet Point technology, a miniature microphone in each ear cup detects environmental noise, and a corresponding sound-cancelling signal is applied. The headphones fold flat for storage.



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

Remote display RTW Radio-Technische Werkstätten

30010: The Remote Display 30010, a dedicated 8.4-inch VGA monitor featuring function keys situated below the display screen, further enhances the ergonomics of the Surround Monitor 11900. It also controls the instrument functions of the Surround Control 31900. Connected to the VGA connectors, the Remote



Display 30010 allows the user to remotely visualize all instruments, options, and measurement values of the units.

+49 221 709130; www.rtw.de

Integration

[in-ti-grey'-shuhn] - noun

1. an act or instance of combining into an integral whole.

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but it wouldn't tell the whole story.

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NEW PRODUCTS

www.RadioMagOnline.com

by Erin Shipps, associate editor

Tamper resistant 22MM push-buttons NKK Switches



YB2 Series: The YB2 Series of 22mm pushbuttons is offered in both illuminated and non-illuminated models. Features for the pushbuttons include tamper resistant, flush mount, panel seal and super low profile. The dust-tight and splash-proof panel seal design protects the YB2 series against low pressure jets of water from all directions and meets IP65 of IEC60529 standards. At

1.8mm, these pushbuttons have one of the shortest above panel dimensions in the industry. The YB2 Series exhibits a short behind-the-panel body measuring only 24.5mm. In addition, the series has a tamper resistant 19mm actuator with a distinctive long stroke and user-friendly actuation.

480-991-0942; www.nkkswitches.com; sales@nkkswitches.com

Automixer Symetrix



Automix Matrix 780: The Automix Matrix 780 provides 12 channels of auto mixing with eight sub-mixes and comprehensive DSP, innovatively controlled by one of the easiest-to-use interfaces in the industry. The automixer features filters, equalization, compression and feedback elimination into gating or gain-sharing auto-mixing, with full control over number of open microphone (NOM) counts and priorities. Four line inputs include filters and equalization with automatic gain control for devices such as CD and DVD players, TV audio or an additional mixer. Sub-group or mix-minus mixes may be dedicated to specific tasks such as recording, archiving or broadcast, and may be routed to up to eight unique locations, each with EQ and limiting.

425-778-7728; www.symetrixaudio.com; sales@airtoolsaudio.com

VGA line/driver receiver Altinex

DA103-217: The DA103-217 line driver/receiver amplifies video and sync signals when deployed as a line driver and, when installed as a receiver, the unit's integrated equalization and gain controls make it possible to recover degraded VGA signals. With its compact form factor, it can easily be placed out of sight. The DA103-217 fixes smeared video, unstable sync, low image contrast, and mismatched resolution between a laptop computer and a video display. When used as a line driver, the DA103-217 amplifies video and sync signals and transmits them more than 150' over VGA coaxial cable while maintaining 1600x1200 resolution. Individual adjustments enable users to improve image quality and compensate for decreased contrast level.

800-ALTINEX; www.altinex.com; solutions@altinex.com



Rack-mount UPS/power conditioner Furman Sound



F1000-UPS: The F1000-UPS rack-mount uninterruptible power supply/power conditioner provides battery backup, power protection, voltage regulation, and line noise filtration. It features a 12A capacity with 1000VA

battery backup to prevent data loss and allow orderly shutdown of connected equipment in the event of a power outage. The first UPS system to feature Furman's advanced non-sacrificial SMP surge/spike protection circuit, Extreme Voltage Shutdown (EVS), and Linear Filtering Technology (LiFT), the F1000-UPS provides professional-level protection, filtration and backup. It is fully programmable via RS-232, USB or LCD front panel interface. The front panel interface also displays valuable system and diagnostic information such as battery time remaining based on current load and voltage input/output.

707-763-1010; www.furmansound.com; info@furmansound.com

NEW PRODUCTS



Solid-state microphone system Blue Microphones

Bottle Rocket Stage One: The Stage One Bottle Rocket is a transformerless, solid-state microphone system. Fully compatible with the Bottle Caps, the same interchangeable capsule system used with Blue's Bottle mic can be used for an array of tonal characteristics and pickup patterns. It comes with Blue's B8 capsule as well as a custom shockmount and wood storage box.

818-879-5200; www.bluemic.com

Suspension windshield Rode

Blimp: The Rode Blimp is a complete windshield and shock mounting accessory, designed to accommodate the NTG-1, NTG-2 and NTG-3 shotgun microphones in addition to the NT4 stereo microphone and most third party shotgun microphones up to 325mm (12-3/4") in length. The Blimp's main housing is based on a 10-frequency geodesic dome, with a triangular cross-section that allows the part to be injection-molded in one piece. This geometry creates a high open-area ratio that greatly improves the acoustic transparency while maintaining robustness and physical protection for the microphone. The end-domes can be easily removed by twisting off, allowing easy access to the microphone. An oversize thread allows



easy and intuitive reattachment of the domes, avoiding clip systems that are difficult to use and vulnerable to breaking. Inside the dome structure are two infinitely adjustable suspension hoops that allow for superior mounting and shock absorption for a wide range of microphones. Four styles of microphone clip are supplied to allow for maximum compatibility.

877-328-7465; www.rodemic.com
usasupport@rodemic.com

UPGRADES and UPDATES

Audio Precision has released the AG52 analog generator, a new hardware option for the APx Series of audio analyzers. (www.ap.com)...Middle Atlantic Products has added Building Information Modeling (BIM) 3D models of its racks, cabinets and enclosures to Autodesk's Revit platform. (www.middleatlantic.com)...Audiofile Engineering has released version 1.1 of Fire, its field recording app for the Iphone and Ipod Touch. The app adds varispeed playback, multiple VU meter styles and adjustable input gain. (www.audiofile-engineering.com)

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NEW PRODUCTS

Multichannel VU meter SM Pro Audio

VU8: The VU8 is a multi-channel passive VU meter and headphone monitoring system designed for use as an all-purpose audio level indicator. The VU8 provides simple and immediate multi-channel visual metering. The unit's metering channels are completely passive and allow for peak or average metering configuration. This ensures not only that signals remain clean and unaltered by any possible interference, but that signal levels can be visually represented precisely as intended. A selectable headphone monitor output is also provided for immediate monitoring of any of the available eight channels.



+61 3 9555 8081; www.smproaudio.com; sales@smproaudio.com

Digital wireless headset system HM Electronics

DX300ES: The DX300ES wireless headset system for live event and remote broadcast production crews supports hands-free, two-way digital communication, with interfacing for two audio channels for external radio or intercom communication. Unique to the industry is HME's new Spectrum Friendly technology, which prevents frequency conflicts by enabling the user to select all or part of the 2.4GHz operating frequency range: low, high or full band. Ideal for frequency-congested markets, the DX300ES is a digital spread spectrum system with no license requirements.

858-535-6060; www.hme.com



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The screenshot displays the SkimmerPlus software interface. It features a menu bar with 'File', 'Actions', and 'Help'. Below the menu are several panels: 'Closures' with a list of 10 items (Closure 01 Pin 21 to Closure 010 Pin 32), 'Decks' with two active decks (Deck #1 - WVBO wav and Deck #2 - WVBO mp3), and 'Events' with a radio schedule for 99.5 the wolf. The schedule shows times from 05:59:49 to 15:49:46. A calendar for July 2009 is also visible, highlighting the current date as Thursday, July 30, 2009.

NEW PRODUCTS

Active speakers Behringer

E1220A, E1520A: These two-way, 400W active speakers feature a proprietary 1" HF driver, long-excursion 12" or 15" woofers and on-board signal processing for ultimate

system control and speaker protection. The trapezoidal wood enclosure allows for flexible PA applications including variable stacking and arrays and stand-mounting on 35mm poles.

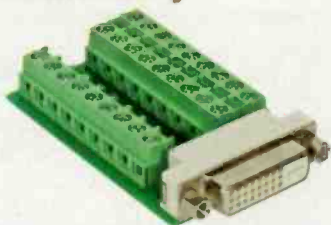
The same design lends itself to floor-monitor use as well. Rear input and control panel features balanced XLR and 1/4" inputs, a balanced XLR thru output for connection to multiple active speaker systems or arrays, two-band EQ and speaker input gain setting. Power is provided via a standard IEC ac mains inlet, external fuse and heavy-duty power switch.

877-672-0816

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DVI-D dual link field termination connector L-com Global Connectivity



DVIDDLFT: The DVIDDLFT field termination connector provides an easy and convenient way to perform field termination of any DVI-D Dual Link cable. Separate connection points are provided for all 24 positions of the connector. The terminal block design with set screws provides reliable electrical connections utilizing no special tools. Additionally the terminal block area is clearly marked making proper termination virtually foolproof.

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Status Sentinel™ Web-based Three Input Module
 The Status Sentinel is a full-featured; Ethernet based data acquisition device with three optically isolated status (digital) inputs. The Status Sentinel may be monitored over the Internet using a web browser.

Temperature Sentinel™ Web-based Quad Temperature Module
 Equipped with one SPDT relay and the ability to communicate with up to four digital temperature sensors and one optically isolated contact closure input. It can be controlled and/or monitored over the Internet.

WebSwitch Remote Power Switch
 The WebSwitch™ is an ideal solution for instant remote reboot or remote control over the Internet! WebSwitch™ offers two power outlets, which can be independently controlled using a web browser or web-enabled mobile device.



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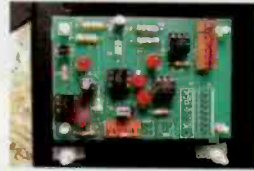
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| 2 KW | 2004 | Crown FM2000E, solid state |
| 5 KW | 1991 | Harris HT5 |
| 14+5 KW | 2005 | BE Fmi1405 (IBOC) HD, solid state |
| 20 KW | 2005 | BE FM20S, solid state |
| 20 KW | 1985 | Harris FM20K |
| 27.5 KW | 1984 | Continental 816R-4B |
| 30 KW | 1994 | Harris HT30CD |
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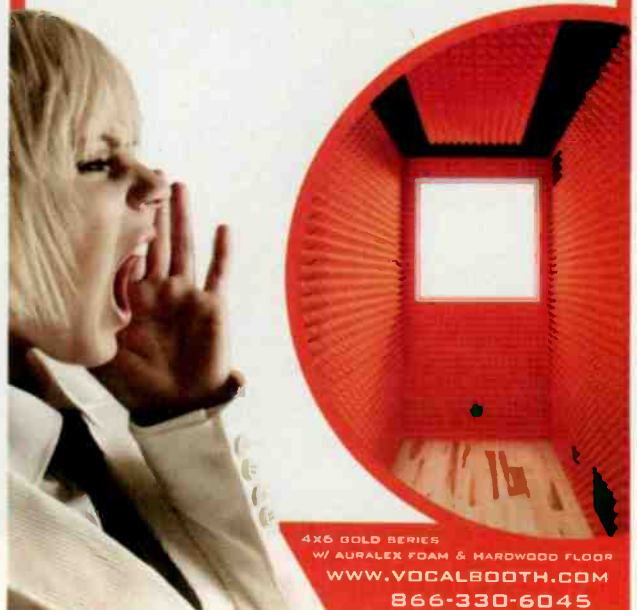


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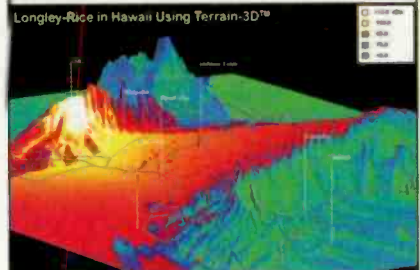
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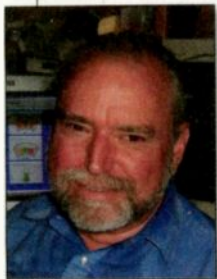
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Contributor Pro-file

Meet the professionals who write
for Radio magazine.
This month:
Field Report, page 46



Brian Urban
Chief Operator
KUT Radio,
University of Texas
at Austin
Austin, TX

Urban's first broadcast
job came in 1975
at a 50KW ND/DA2
AM, where he helped

rebuild the directional antenna array. After that he worked in TV full time and then moved to transportable satellite uplink operation. Tired of the road, he moved to Dallas to work for a broadcast consulting engineering company to prepare AM/FM TV allocation analyses and applications for construction permits and licenses. He then went back to school to earn his MSEET while he managed the labs for the engineering technology department.



Written by radio professionals
Written for radio professionals

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by Erin Shippo, associate editor

That was then



Lowell Blanchard

WNOX was the eighth radio station to sign on the air in North America and the first in Tennessee, according to Ed Hooper, author of *Knoxville's WNOX*. Its AM signal could be heard as far south as Daytona Beach and as far north as New York City in the day of uncluttered airwaves. It helped write the book on radio broadcasts and productions with programs like the "Mid-Day Merry-go-round" and the "Tennessee Barn Dance." *Knoxville's WNOX* is the companion book to *Knoxville's WIVK* (see Sign Off in the August 2008 issue of *Radio* magazine) and loaded with a number of old photographs from the 1930s to today. Check out the September online content at RadioMagOnline.com for a link to purchase this book. Also if you're near Knoxville, be sure to attend the Dec. 5, 2009, launch party at Barnes and Noble from 12 p.m. - 4 p.m. It will feature a host of people connected to the legendary station.



Bernie Quayle, control room

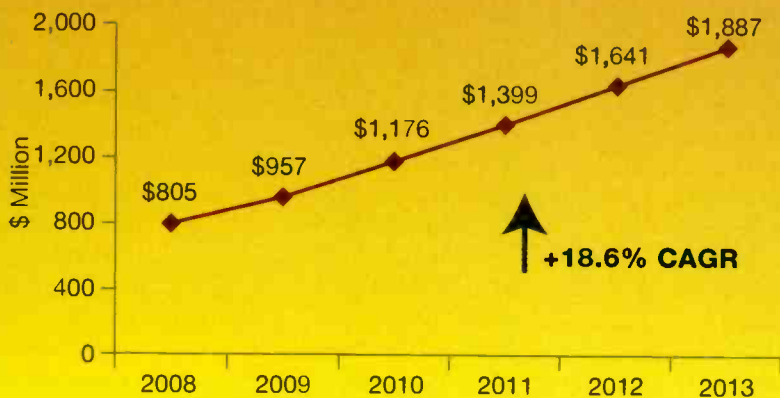


The crowd on Gay Street waiting for the "Mid-Day Merry-go-round" to open.

Sample and Hold Broadcast showing progress in Internet revenue

According to new research from BIA Advisory Services broadcasters are showing signs of progress by developing Internet revenue for their stations. Based on industry-wide surveys conducted by BIA, through public company documents, and discussions with industry owners and insiders, BIA estimates radio and television stations collectively drove approximately \$805 million in online dollars, equal to 7.3 percent of the \$11 billion local online advertising money spent in 2008, as reported by BIA subsidiary The Kelsey Group. This breaks down to \$342 million for radio and \$463 million for television in 2008. BIA projects the broadcasting industry's online revenue will climb to as much as \$1.9 billion by 2013 if the industry continues its transformation to multiplatform solutions.

Radio and Television Internet Revenues



Source: BIA's Media Access Pro



Traffic Director Hubert Carter in the old days



Spike Jones (front, left), Country Music DJ Hall of famer Eddie Hill (front, center) and others

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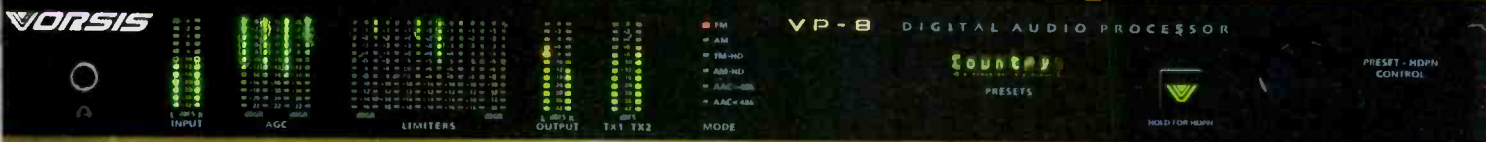
One of the important features of AARCNET is that it integrates standard analog and digital consoles onto the network instead of using expensive network based digital mix engines. You can therefore integrate consoles that you already own into the system. This makes repair and maintenance easy, and your console isn't dead when the network crashes. Most importantly, AARC-NET is world standard Cobranet audio networking, not a custom one-of-a-kind network.

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