BAINWOL ON CONNECTED CARS — Page 3

NewBay Media

RADIO WORLD

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NYC Radio Eyes Rooftop Prospect

New One World Trade Center pitches itself to broadcasters

BY RANDY J. STINE

NEW YORK — Management of the new One World Trade Center building in Manhattan is pitching its rooftop to radio and television broadcasters, part of its goal to establish the site as the major communications facility in New York City.

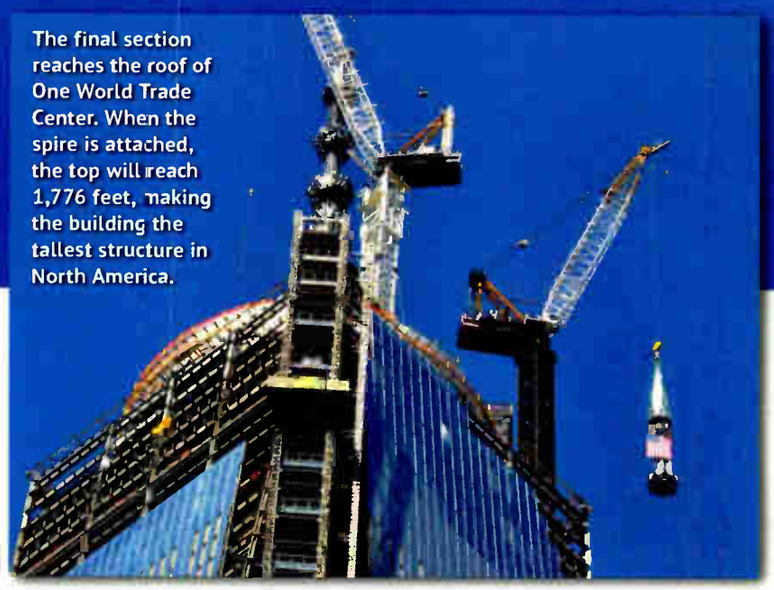
Developers of the $3.8 billion skyscraper, which reaches a height of 1,776 feet and includes a giant spire on top, hope the rooftop will serve as a successor to broadcast facilities lost in the collapse of the twin towers in the 9/11 terrorist attacks.

The Durst Organization will manage and lease space at 1WTC, which is a joint venture between the company and the Port Authority of New York and New Jersey. The rooftop has been leased to Durst Broadcasting LLC, which will run the broadcast facility.

As of mid-June, the company lacked commitments from any local radio or television broadcasters. Durst executives have been approaching broadcasters individually to determine their interest; the discussions are ongoing. A Clear Channel executive told Radio World that the company "will likely stay with our current facilities." Several other radio groups and

(continued on page 6)

Photos: The Durst Organization



The final section reaches the roof of One World Trade Center. When the spire is attached, the top will reach 1,776 feet, making the building the tallest structure in North America.

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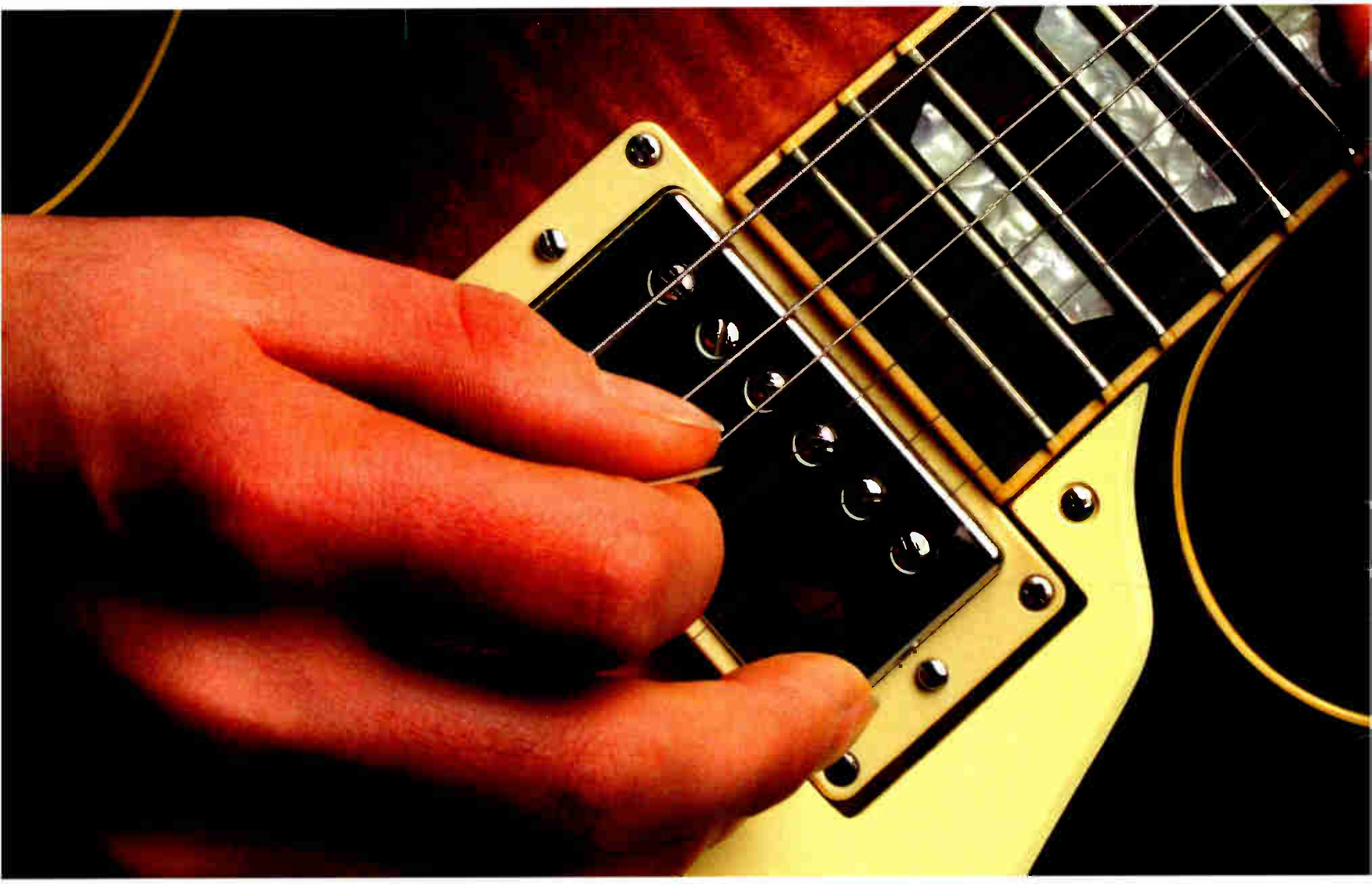

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'Connected' Car Means Different Things

Carmaker alliance details what its members see as crucial to safety and innovation

Lawmakers are focused on vehicle safety as the so-called "connected" car becomes more complicated. AM/FM and other forms of "radio" are part of the discussion.

Mitch Bainwol, president and chief executive officer of the Alliance of Automobile Manufacturers, recently testified before a hearing of the Senate Commerce, Science & Transportation Committee covering advanced vehicle technology and its implications. The alliance is a lobbying group for the auto industry and says its members account for roughly three quarters of all vehicles sold in the U.S. each year.

Mitch Bainwol, Alliance of Automobile Manufacturers

Members include the BMW Group, Chrysler Group LLC, Ford Motor Co., General Motors Corp., Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of America and Volvo Cars North America.

Here are excerpts of Bainwol's testimony.

The phrase "connected car" has become a bit of a catchall and means different things to different people.

For some, connectivity in the car is about eliminating the gap in access to people or information that occurs when commuting between point A and point B. In our digital world today, drivers and their passengers want to be seamlessly connected to the Web and all its functionality, including social media, communications, music, navigation and a range of transportation-related content. They want to be as connected in the car as they are everywhere else.

For others, connectivity in the car is about reducing the potential of crashes by getting information on real-time risk factors outside the vision of the driver — or the electronic eyes of the car. This connectivity refers to the exchange of information either among vehicles, called "V-to-V," or information between vehicles and infrastructure, commonly referred to as "V-to-I."

We believe five pillars of policy are central to maximizing safety through technology in the future:

Protect the spectrum: The first pillar is ensuring that the radio frequency spectrum now dedicated to V-to-V and V-to-I, the 5.9 GHz band, remains solely dedicated to auto communications technologies. When vehicles are driving at highway speeds, communications must occur virtually instantaneously, without delay and without interference.

The FCC is now considering whether to open this portion of the spectrum for use by unlicensed wireless devices. While we understand the potential benefits of expanding wireless access, regulators must be certain that unlicensed users would not compromise the integrity of this vital safety initiative. The FCC should maintain the spectrum for safety critical systems until thorough testing is completed and all parties are certain that the spectrum remains reliable and secure for its primary V-to-V and V-to-I purpose, and can be shared without interference.

Invest in infrastructure: The second pillar is building out the infrastructure for the V-to-I component of connectivity. Surely this will be a gradual process, but we need the vision and motivation to begin planning today. As is the case with a range of technologies, such as alternative powertrains for environmental gains, infrastructure investment is essential to achieving the maximum safety benefit and inducing buyers to purchase the V-to-I communications functionality.

Ensure consumer acceptance: The third pillar is proactively addressing consumer acceptance by addressing in advance of deployment potential public concerns. If the advent of connected vehicle technology exposes drivers and owners of equipped vehicles to loss of privacy, security breaches and/or increased legal liability in the form of automated law enforcement, we will not realize the many benefits that might otherwise be gained by its widespread deployment. Similarly, connected and

(continued on page 5)

MORE DASHBOARD

This is one in a series of articles about radio's role and future in the evolving automobile dashboard. To read other articles visit http://radioworld.com/dashboard.

True or False? Take the Rules Test

A sampling of questions from a helpful new rules guide from NAB

How well do you know FCC rules that apply to your station?

1. By law, alcohol advertising must be placed in broadcast communications only where at least 75 percent of the audience is reasonably expected to be above legal purchase age.

2. The FCC has determined that a "conversation" begins when a person answers the phone; so your station might violate the prior notification requirement even if you merely broadcast the person saying "hello" and immediately inform the person of your intention to air the conversation live.

3. Among the duties that the chief operator must perform or oversee is a review of the station log at least once per month.

4. Contests are distinguished from lotteries in that they generally have only two of the three ingredients that constitute a lottery: Prize, chance and consideration.

5. False and defamatory statements made about a group of people, naming no individuals, cannot result in a libel/slander claim.

6. The FCC has stated that broadcasting songs with drug lyrics is within the discretion of the licensee, and that whether a particular recording depicts the dangers of drug abuse or promotes such illegal drug usage is a question for the judgment of the licensee.

7. All broadcast station licensees, except for low-power TV and 10-watt noncom FMs, are required to have equipment capable of encoding EAS codes.

8. The FCC has declared as obsolete the rule provision referencing the "Fairness Doctrine."

9. Obscene material may be aired in a certain "safe harbor" window.

10. When the station cannot continue operating for reasons beyond its control, it must obtain FCC authority to be silent within 24 hours.

11. If the station remains silent for 12 consecutive months, its license expires automatically.

12. Stations may require that a person who wishes to view the public inspection file make an appointment.

13. Stations may ask for the name and address of the person wishing to inspect the file, the name of his or her organization and the reason for inspection.

14. The following is permissible as a station identification announcement at the top of the hour: "WBPE, Austin Broadcasting Incorporated, 750 on your hot AM dial, your number one rocker in Central City."

15. Station logs must be retained for five years, unless the log concerns a disaster or FCC investigation about which the licensee has been notified; in such cases the FCC must authorize destruction of the logs.

How did you do?

FROM THE EDITOR

Paul McLane

The questions in this column are derived from the publication "Radio Rules! A Guide to FCC Policies and Procedures for On-Air Staff." This booklet is published by the National Association of Broadcasters, and I recommend it highly to anyone responsible for station procedures and employees. It has been newly updated and costs $20 (less for NAB members). Find it at *www.nabstore.com*.

Answers:

1. False. Such a guideline exists but it is voluntary, not law; and the percentage is 70.
2. True.
3. False. The requirement is at least once per week.
4. True.
5. False. While laws differ by state, group defamation laws may apply.
6. True.
7. True.
8. True.
9. False. Obscene material does not receive constitutional protection and may not be aired at any time. This is distinct from "indecent" material.
10. False. The station may limit or discontinue operations for up to 30 days without further authority.
11. True.
12. False. No appointment is necessary during regular business hours.
13. False. Only the name and address may be asked.
14. False. Only name of the licensee and frequency/channel number may be inserted between call letters and city of license.
15. False. The required term is two years, not five.

THIS ISSUE

JULY 3, 2013

iStockphoto/MorePixels

AUTO ALLIANCE

(continued from page 3)

automated vehicle systems entail interactive technologies for which successful outcomes depend not only on drivers' correct response to alerts and information, but on multiple entities in both the public and private sectors correctly and consistently performing their respective portions of the connected enterprise.

Maintain vehicle affordability: The fourth pillar is keeping cars and light trucks as affordable as possible by leveraging market forces and utilizing a data-driven approach to regulation if and when needed. Today, the average age of a car is 11 years old, and we only replace about 6 percent of the U.S. car park every year. Policies that discourage the purchase of new technologies should be avoided.

Preserve technology neutrality: The fifth pillar is supporting a comprehensive approach to in-vehicle technologies. Decisions made today can produce dramatic repercussions tomorrow. We all recognize the challenge of distracted driving and how that challenge has grown as connectivity has found its way into cars, primarily through smartphones. The recently issued National Highway Traffic Safety Administration guidelines on distraction are a case in point.

In this instance, government policy calls for restrictions in functionality of in-vehicle systems without corresponding functionality limitations in portable devices. As a result, government policy will likely chill innovation and bias drivers toward the use of handheld devices, rather than integrating devices with in-vehicle systems.

So, if a driver looking for live NAV guidance is blocked from doing so while his car is in motion, he may predictably pull out his smartphone, fiddle with the keys while looking down, and retrieve the desired mapping guidance. That's the real world, and as much as we might want to wish that away, a policy that isn't comprehensive across technologies and devices and responsive to consumer needs is a policy that will produce unintended and undesirable consequences.

Successful policy will recognize behavioral realities. We have studied smartphone utilization in cars and found younger drivers are especially resistant to abandoning connectivity while driving. Attempts to modify behavior are unlikely to succeed. Rather, NHTSA has it right when it says that the number one goal in distraction policy should be to encourage drivers to connect their phones to the built-in systems which can be controlled by voice and help drivers keep their eyes on the road and their hands on the wheel.

We are living in an extraordinary moment in the history of mobility. Over the next decade, automakers will put about a billion new cars on the roads around the world — about 150 million of them in the U.S. However, given the size of the in-use fleet and the longer life cycles of today's vehicles, roughly half of the cars that will be on the road in 2025 have already been sold and put into service.

We have studied smartphone utilization in cars and found younger drivers are especially resistant to abandoning connectivity while driving.

– Mitch Bainwol

Thus, deployment throughout the fleet will be relatively gradual even though technology improvements may be rapid. And that suggests that the fleet mix of the in-use fleet will reflect a range of driver-assist technologies and connectivity for years to come.

Bainwol joined the Alliance of Automobile Manufacturers in 2001 after leading the Recording Industry Association of America for eight years. Prior to his recording industry career, he worked on Capitol Hill for 25 years, including stints as chief of staff for two U.S. senators, two political committees and several Senate leadership offices. Contact the alliance at www.autoalliance.org.

WTC

(continued from page 1)

their engineering consulting companies declined to discuss plans for this article.

If Durst succeeds, a major overhaul of FM transmission infrastructure in the city could follow — if broadcasters are willing to absorb the expense of moving. This would advance Durst's role as a major broadcast "landlord" in the market, and mean that FM broadcasters would have three prominent skyscraper platforms from which to choose.

The Empire State Building, which is 1,250 feet tall plus a 204-foot antenna, is home to the main on-air transmitters of most of New York City's FM radio stations. The historic building, which has multiple FM master antennas, also serves as home to nearly all of the city's digital television transmitters. Empire is owned by Malkin Holdings LLC. Shane O'Donoghue, director of broadcasting at Empire, declined Radio World's interview request for this story.

In a 2012 prospectus for an IPO, Empire management stated that 19 radio stations call the building home. A broadcast engineer familiar with the facilities said there are 16 stations on the Electronic Research Inc. master antenna and three on a second antenna, often referred to as the "mini-master."

Recent developments at Empire appear to indicate that officials are prepared to build a new FM combiner and three-bay antenna that would be home to all 19 radio stations, said Mark Olkowski, a broadcast engineer and former chair of the FM Master Antenna Group at ESB (see sidebar).

Nearby, a broadcast structure atop the Conde Nast Building at 4 Times Square is owned and managed by Durst. At 1,118 feet above street level, it has 14 FM transmitters and a Shively master FM antenna. The vast majority of those transmitters serve their stations as backups.

John Lyons, assistant vice president and director of broadcast communications for Durst, said the new 1WTC could accommodate all the FMs at Empire to move their primary transmitter sites.

The final piece of the 800-ton, 408-foot spire at 1WTC was lifted into place in May. The spire features three galvanized steel communication rings that will allow for placement of an array of transmission equipment, including satellite downlinks, ENG, RPU, two-way radio antennas and relay links, said Lyons.

The spire, which contains 18 sections of steel, is tipped with a stainless steel beacon. FM, UHF and VHF master antennas would be affixed directly to the spire, he said.

HOLOUP

"We are looking at a broadband FM antenna that could easily accommodate all of the radio broadcasters who lost facilities at the World Trade Center," Lyons said. Some broadcasters with extremely directional signals could be accommodated with individual antennas.

Design features for the transmission facility are complete but no orders have been placed for transmission hardware, he said.

"We are waiting to see if we get commitments before moving forward and ordering transmission line and combiners. We need to make sure the project is financially viable before moving forward. We are lining up tours for broadcasters right now. We also are meeting with several antenna manufacturers to determine who we go with."

He declined to name a minimum number of radio broadcaster commitments needed to move the project forward.

Lyons also said the FCC's pending TV spectrum auction potentially could hold up the placement of transmission equipment at 1WTC.

"That will figure into where we place antennas and where we stack them on the tower. If the TV is going on top, I prefer to do that first before we place a master FM antenna."

Lyons said the 105-story 1WTC will offer broadcast tenants a number of important elements including building engineers on duty 24/7, two megawatts of backup power dedicated to broadcasting and communications operations, 24-hour access, chilled and condensed water available for transmitter cooling, fiber and copper access lines and hydraulic lift gates at loading docks.

Stations could move into 1WTC as early as 2015, when the building begins to open, said Lyons. The next phase of the project will be building out the broadcast floor and ordering antennas once commitments are received from broadcasters.

Lyons also is promising potential tenants better coverage of their market from atop the site in lower Manhattan, thanks to the height of 1WTC.

"Broadcasters may decide to add 1WTC as a backup," Lyons said, "or turn Empire into their backup and have 1 World Trade as their primary — there are several options for them."

Since Durst controls both 1WTC and 4 Times Square broadcast platforms, scenarios could include making special arrangements for broadcasters to utilize the two sites, he said.

SEVERAL OPTIONS

Olkowski, a long-time observer of radio in the market, said broadcasters who choose to leave Empire would incur significant moving expense.

"When you add up all the hardware and building out a transmitter room, it's usually a $1 million per station at Empire, and might be similar" with a move to 1WTC, he said.

The Master FM Antenna Group at the Empire State Building owns the FM combiner and master antenna. The group requires participants to "buy in," and the money is spread among the broadcast entities that comprise the group, according to Olkowski. The group leases space from Empire to house transmitters, the combiner and master antennas.

At 1WTC, Lyons said, the master antennas, combiner mainframes and combiner-to-antenna interconnecting transmission lines would be provided by Durst, and there would be no buy-in.

"It will be really plug-and-play at One World Trade Center. Broadcasters would only sign a dual license agreement for equipment space and the antenna usage. Broadcasters would have to provide their transmitter, terminal equipment and combiner module. That's it," Lyons said, adding that broadcasters would not be asked to include a capital expenditure for the building.

Radio broadcasters in New York City use about a half-dozen broadcast transmission locations, according to Lyons. "In addition to 1WTC, Empire and 4 Times Square, CBS has a couple of backup sites on the Viacom Building and Emmis has several in West Orange, N.J."

Gauging the interest level of broadcasters in the market in 1WTC is difficult, according to Olkowski; and several broadcasters in the market did not

(continued on page 8)

The top of the spire is placed atop One World Trade Center.

The Durst Organization

EMPIRE TO GET TOUCH-UP?

Officials with the Empire State Building and its public relations firm declined to comment to RW on recent developments in the marketplace.

Longtime broadcast engineer and market observer Mark Olkowski said he has been told work on a new FM combiner and master antenna at ESB could begin by this fall. "I think this is all in reaction to the new competition from One World Trade Center," he said. "Competition is good news for broadcasters."

Olkowski conducts contract transmitter work for New York Public Radio's WNYC(FM) and WQXR(FM). He said the project was announced at a meeting of the FM Master Antenna Group and will include replacing the Alford auxiliary antenna, which is located just above the Empire State Building's observation deck. The building's backup Alford antenna is used when the FM master is turned off for maintenance.

A new FM combiner and master antenna at Empire State Building has been rumored for years, he added. "I think [Empire executives] are nervous about the new kid downtown."

Olkowski said he has not been told the cost of the Empire project.

Jeff Littlejohn, executive vice president of engineering and systems integration at Clear Channel Media and Entertainment, declined to comment about improvements at ESB. Clear Channel has five FM radio stations broadcasting from Empire.

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ACCESS 2USB

COMPLETE REMOTE STUDIO ON TWO WHEELS

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

All audio was fed to a Comrex ACCESS Portable, complete with optional mixer, which Dan used to mix the live on-air feed as the trio traversed the winding roads of Perth. How did it all work out? Absolutely flawlessly – the show went on without as much as a speed bump!

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

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

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WTC

(continued from page 6)

respond to RW's request for interviews.

Olkowski still believes the Empire State Building remains the best technical site for broadcast facilities since it is more strategically located in the middle of the New York City market. "Plus, all of the FM radio stations are already allocated for Empire. If any stations were to leave for 1WTC, they would possibly have to reduce power or go to a directional antenna."

As broadcast tenants choose between the skyscrapers, the decision ultimately will come down to performance and cost, he thinks. "If John [Lyons] can demonstrate the new antenna facility would result in as good or better coverage and signal penetration, then broadcasters will be interested in them," Olkowski said. "Anytime you can improve facilities cost effectively is good."

At least one notable broadcast owner appears to be staying put at this juncture.

Clear Channel Media and Entertainment transmits WAXQ(FM), WLTW (FM), WKTU(FM), WHTZ(FM) and WWPR(FM) from Empire. In addition, it has five auxiliary sites at 4 Times Square.

Queried about Clear Channel's plans, Executive Vice President of Engineering & Systems Integration Jeff Littlejohn replied in an email, "While the height at 1WTC is very interesting, we will likely stay with our current facilities." But Littlejohn did say the company likes the "location diversity [of 1WTC] from their other locations."

Once verified by the Council on Tall Buildings and Urban Habitat, One World Trade Center will be the tallest building in the Western Hemisphere and third tallest building in the world.

The Durst Organization

This photo shows the broadcast structure atop the original World Trade Center, destroyed in the terror attacks of 2001.

NEWS ROUNDUP

DIELECTRIC: Transmission equipment manufacturer Dielectric averted shutdown in June, when Sinclair Broadcast Group said it would buy the company. Most of Sinclair's television stations use Dielectric antennas. Sinclair Executive Vice President/Chief Financial Officer David Amy said Dielectric will maintain its Raymond, Maine, operations and many of its core senior staff. Owner SPX had announced in May it would shut down Dielectric by June 29 due to world economic conditions. The value of the deal was said to be under $5 million.

NAUTEL: Transmission manufacturer Nautel laid off 12 people, the company confirmed to Radio World. Nautel employs about 200 total. Nautel spokesman John Whyte says the company periodically reviews the skill sets of its employees, in order to plan for future needs.

LPFM: The filing window for those who want to apply for a new low-power FM opens Oct. 15 and closes Oct. 29 at 6 p.m. Eastern. The FCC has released the necessary forms and filing procedures for its upcoming LPFM window. The action marks the first major decision affecting radio under new Acting Chair Mignon Clyburn.

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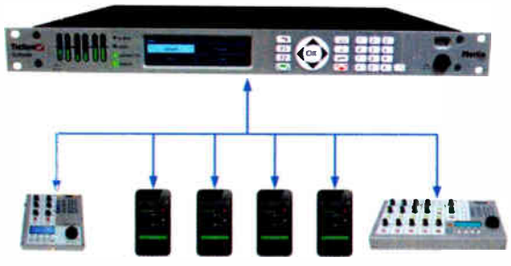

6 bidirectional mono remotes

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Grab your shades and sunblock, because these new products can dazzle! In this issue we continue our "Summer of Products" coverage. It's all about new gear that radio gear makers have brought to the beach this season.

Look for more in the next several issues of Radio World.

MORE INOMINIS FROM INOVONICS

Inovonics has several boxes to add to its INOmini line of small-form broadcast gear. All are priced under $900.

The INOmini 633 (shown top) is an FM/RDS monitor receiver. It receives standard FM broadcasts and displays and exports important RDS info for logging. Alarm tallies notify for carrier loss and audio loss. Analog L/R and AES digital line outs are included.

Similar is the INOmini 634, an AM broadcast monitor. It has a variable bandwidth selector and the same alarm and outputs as the 633.

The INOmini 514 is an FM multiplex decoder. It demodulates MPX to balanced L/R audio and has alarms for audio loss and pilot loss. There is an AES digital output on it.

In addition is the Model 610 Internet radio monitor (shown bottom), which the company says is an industry first. It decodes and displays live metadata for MP3, Ogg Vorbis and AAC formats. Alarms account for audio loss, stream loss and Internet loss. Alerts can be sent to personnel via email and/or text messages. Being an Internet product, of course, there is a remote Web interface. Balanced analog L/R and AES digital are the line outs. It was a Radio World "Cool Stuff" winner this year.

INFO: www.inovonicsbroadcast.com

DEVA DEVELOPS DB4004

The DB4004 is Deva Broadcast's second-generation digital FM radio modulation analyzer.

The system, which Deva says is the fruit of the company's experience in FM radio monitoring and FM radio measurement, features a high-resolution OLED graphic display and 60-segment LED bar graph indicators that allow the user to read the main signal parameters at a glance.

The system's processing power, the firm explains, enables measurements to be refreshed simultaneously and synchronously, thereby allowing for detailed readings of FM multiplex signal components.

The DB4004 is designed to support USB and LAN communication interfaces, which allow for remote connection flexibility and easy control. The built-in FTP system manages the files by an assigned schedule, while the collected information is centralized in a database and can be revised, played back and sent automatically to designated staff.

The band analyzer function of the DB4004 gives an overview of the FM signals available and the RF signal strength of those stations.

According to Deva, the device is a cost-effective solution for quality and continuity station monitoring. Able to monitor up to 50 FM radio stations, the DB4004 is equipped with TCP/IP connectivity, audio streaming and automatic alerts for operation outside predefined ITU-R ranges.

INFO: www.devabroadcast.com

ERI HAS NEW ANTENNAS

Antenna and transmission support specialist Electronics Research Inc. is out with the 1190 series, shown, an FM panel antenna for single-frequency directional and nondirectional applications.

An announcement notes that the "individual 1190 elements are rated to handle up to 18 kW of input power and include an integrated hybrid power divider so each element requires only a single transmission line."

ERI is also bringing in the new 955 series constant impedance ganged circulator system. The 955 "addresses the need for additional isolation in dual-input FM antennas and combining systems." It works with digital or analog FM transmitters, up to 80 kW.

Also, its 788 Series All-Pass high-power HD Radio FM analog/IBOC diplexer now has increased power handling of 49 kW and a reduced footprint.

New at ERI are additions to its AL low-power UHF TV antennas series. The new models are 2-, 4- and 6-gain models, available in horizontal, elliptical and circular polarization and omnidirectional, "Omnioid" and cardioid azimuth patterns.

And the company recently added Derek Small to its staff, emphasizing his background in the design and manufacture of broadcast filters.

INFO: www.eriinc.com

Announcing the new MOSAIC

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

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

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

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

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Logitek
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ENCO POLISHES SOFTWARE

ENCO Systems' DAD scheduling and playout system was quite the social butterfly at the recent NAB Show, and it appeared in a number of products from manufacturers such as Logitek, Nautel, Axia, Wheatstone, Studer and AEQ.

The company says these embedded DADs need no separate workstation or sound card — DAD is simply integrated right inside a control module.

And speaking of DAD, the latest iteration brings new features: an improved graphical interface, enhanced Unicode support, new playlist creation and voicetracking tools and more user-friendly additions.

ENCO has a new product called RTS, short for Radio Tracking Server. It is an automated distribution system for sending and receiving playlists and voicetracks from a radio station to remote users. According to ENCO, it requires no direct connectivity and is completely hands-off. The company says the advantage of RTS is letting "tracking talent" work from anywhere in the world.

INFO: www.enco.com

BEXT INTRODUCES FM TRANSMITTER LINE

The XL Series from Bext consists of several new, solid-state FM transmitters, available in 150, 500, 1,000, 2,000, 5,000 and 10,000 watts.

The 150 W through 2,000 W units are housed in a compact standard enclosure that's two rack units high. The 5,000 W enclosure is four units high, while the 10,000 W transmitter occupies 12 units.

A 5-1/2-inch display allows direct access to settings and readings through an intuitive user menu. Units are remote-controllable with direct access via a Web page. Individual contacts for analog remote control connections are provided.

Units come with multiple LAN connections, allowing each transmitter to function as a LAN switch and control other pieces of equipment located at the same site. Main TX/spare TX duties, and N+1 configurations are supported by the built-in firmware and dedicated connections.

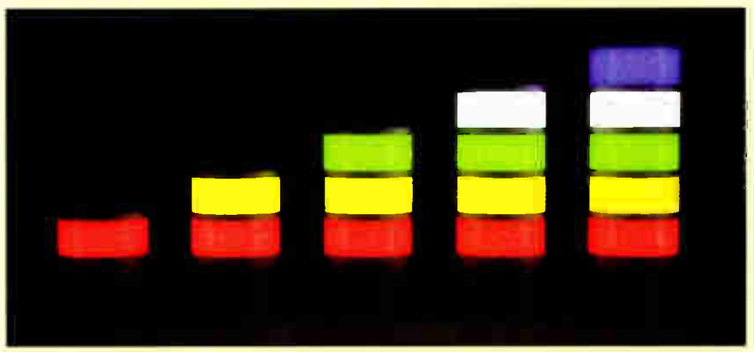
Options for the XL line include a built-in selectable stereo generator and selectable audio limiter, AES-EBU digital audio input, and programmable FSK ID keyer for auto-ID in translator applications.

INFO: www.bext.com

YELLOWTEC LITT'S THE WAY

Yellowtec's Litt is an LED signal for broadcasters who require an on-air indicator that is compatible with the company's m!ka microphone arm system.

The company emphasizes Litt's programmable light and flash patterns, bright LED technology, sleek design and easy assembly.



Each Litt has its own microcontroller with flash RAM to store settings. Connect a computer to the Litt's USB port and use the Lighthouse software to configure lighting patterns, flash modes and brightness.

The ecofriendly design uses LEDs at 50 percent of their rated power, for a 100-year lifetime at three hours of daily use, the company says. Each Litt segment is equipped with two Philips Luxeon high-power LEDs and its lens produces consistent radiance with a 360-degree viewing angle.

The Litt has a voltage range of 12–24 VDC and inverse polarity protection circuitry, along with an anodized aluminum exterior.

INFO: www.yellowtec.com

OMT iMEDIATOUCH V4.3 AVAILABLE

Automation software developer OMT Technologies announced that version 4.3 of the iMediaTouch broadcast automation suite is available.

Version 4.3 features the Music Master Nexus server interface, which provides live interaction with Music Master, featuring On-Air module "Perfect Match" rules-based live song replacement, production workflow integration and real-time reconciliation.

Additional improvements feature log scanning priority management for store/forward and manual database failover. Other 4.3 enhancements include support for Arctic Palm Live Copy, rejoin liner, fixed-time feed and an EAS closure feed feature.

INFO: www.imediatouch.com

CROWN BROADCAST UPDATES RFBA TRIPLE RECEIVER

Crown Broadcast says that the RFBA-1 AM/FM/WR triple tuner is a DSP-based product that fills the need for EAS monitoring and AM/FM translator composite output into an FM transmitter.

The company calls the RFBA-1 one of the most selective and sensitive receivers on the market and highlights its full Internet command and control. RFBA-1 has been upgraded to monitor the public service band (144–175 MHz). In addition, the RFBA can be configured with a highly accurate modulation analyzer on all three tuners. Modulation monitor shows total deviation, positive/negative deviation, L/R/L+R/L-R audio levels, stereo modulation analysis, pilot, SCA and RDS amplitude and multipath analysis.

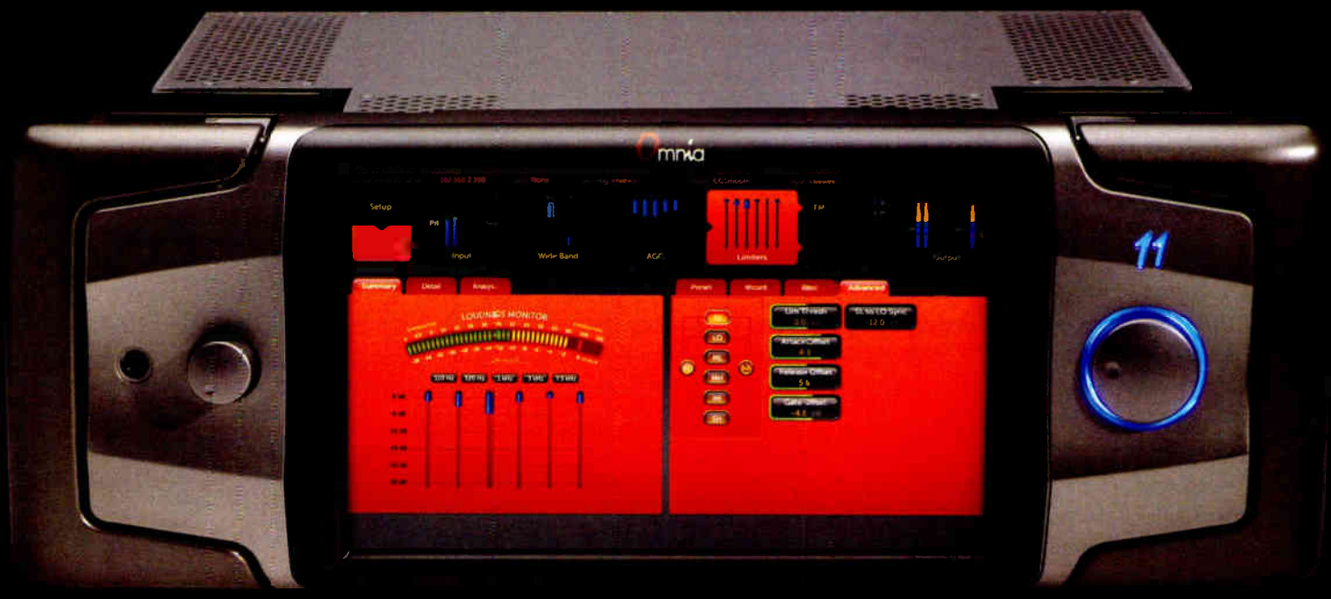
The optional modulation monitor is available for a free short-term trial to test its features and benefits.

The RFBA was developed for Crown Broadcast by design partner Chrisso Technologies, which continues technology development.

Crown also is offering a new E Series transmitter line, made by Ecreso, a result of a new agreement between the companies.

INFO: www.crownbroadcast.com

AFTER A DEMO, GMs FIND THE BUDGET FOR AN OMNIA.11



No obligation. 45 Day Demo.

Contact your Omnia Dealer for immediate delivery

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COMREX HIGHLIGHTS A VIP

The Comrex STAC VIP is a VoIP call management system for traditional POTS and cutting-edge IP systems.

The company says STAC VIP smoothly integrates legacy POTS lines with VoIP digital network technology to deliver a new way to manage telephone calls for talk shows, interviews and contests.

STAC VIP can take traditional POTS calls but it can also handle HD Voice-capable telephones and smartphones apps as well as calls from Skype users.

A rackmounted box called the "Mainframe" handles routing and processing. It is compatible with Comrex's STAC IP call screening software. The product is a winner of the Radio World "Cool Stuff" Award.

Comrex also recently posted new technical notes on its website. Titled "Wideband Smartphone Apps for Use With Comrex Access and BRIC-Link" and "Integrating the Android CSipSimple App for Use With Comrex Access Codecs," both can be found at *www.comrex.com/support/technotes.html*.

INFO: www.comrex.com

ORBAN DEBUTS FM PROCESSOR

The new Optimod-FM 8600S is an FM processor with Orban's MX audio processing technology in a 1 RU box. An HD Radio upgrade kit is available for creating an 8600S-HD.

The 8600S can be controlled via its front panel but the real depth is found using the PC remote software. Orban says that compared with the Optimod-FM 8500, the 8600S should provide "2–3 dB more high-frequency energy, greater transient impact and lower distortion."

The company also notes that a 10 MHz GPS or rubidium reference signal can be fed to the 8600S for locking the 19 kHz pilot tone to the reference.

Also from Orban, the Optimod-FM 8600 is now shipping with software and hardware support for a "ratings-encoder loop-through" that allows a ratings encoder to be inserted between the output of the audio processing and the input of the stereo encoder.

INFO: www.orban.com

CLEAR CHANNEL LAUNCHES SAT RECEIVERS

Clear Channel Satellite, in collaboration with German broadcast electronics manufacturer 2wcom, has introduced a line of satellite audio receivers, the XtremeSat media content receivers.

The MCR-100 series has a stereo analog output and an AES/EBU output on XLR connectors. The unit features eight audio-synchronized relays, two AAC formats, several MPEG choices and a seamless transition from SCPC to MCPC when needed, according to the company.

The MCR-200 series builds on the MCR-100 and adds onboard SD memory, providing DVR-like functions for playback of recorded programming and/or automatic insertion of regionalized spots.

File playback and Shoutcast streaming are stock features on the MCR-200 Series, protecting content if an outage occurs. The system is equipped for DVB-S/S2, Web management and a sophisticated network management system.

XtremeSat MCR series receivers have a two-year warranty and are available in the U.S. exclusively through Clear Channel Satellite.

INFO: www.clearchannelsatellite.com

DAYSEQUERRA'S M4DDC ALIGNS HD RADIO

The M4DDC from DaySequerra is an HD Radio diversity delay control with the company's newly developed DSPrecision DSP architecture. It also has TimeLock time-alignment algorithm for maintaining alignment with the HD Radio main program analog and HD1 signal.

DaySequerra President David Day called it a single-box solution designed to solve "one of the most nagging problems facing HD Radio station engineers," namely drift of time alignment between the MPS analog stream and HD1 audio.

Powering this processing is a Texas Instruments 1.5 GHz ARM processor. It can resolve up to a 14-second program audio diversity differential, and quickly apply the correction needed to maintain time alignment with accuracy to one audio sample, according to Day.

The unit can notify station personnel via email of the loss of TimeLock, program audio, carrier, OFDM HD Radio lock or the optional Level-Lock loudness control. An onboard Web server allows for remote operation via IP.

INFO: www.daysequerra.com

TIELINE OFFERS GENIES AND MERLINS

Tieline is expanding on its Genie and Merlin platforms.

The "Cool Stuff"-winning Genie Distribution (shown) is a DSP-based IP audio codec for multipoint audio distribution over IP networks. Tieline says it will connect six channels point-to-point, or simultaneously distribute stereo audio to up to 50 multi-unicast endpoints, or multicast to any number of IP codecs.

It features dual Gigabit LAN ports, dual redundant power supplies, IPv4/v6, and 24-bit/96 kHz audio sampling. It includes comprehensive remote control and network-wide management tools, plus Tieline's SmartStream IP management software. A WheatNet-IP version is available.

The newest Merlin is the Merlin Plus. Tieline says that Merlin Plus can be used for stereo bidirectional IP audio and full-duplex communications from the studio to a remote codec or used to create up to six independent bidirectional mono connections with IP codecs or smartphones using Tieline's Report-IT app, saving users money on codec hardware costs.

Merlin Plus includes SmartStream software for reliability over IP networks without QoS, plus simple local or remote command and control, and recallable connection configurations via programs. It now includes the Opus codec algorithm.

INFO: www.tieline.com

AXIA MAKES THE NET WORK.

Choosing an IP-Audio network? Some companies treat AoIP as if it were an RCA jack — nothing more than a way to get audio into a console. But Axia fans know that the network's real value comes when devices truly communicate.

Axia Livewire™ networks are much more than glorified punchblocks. Axia consoles integrate with a big family of more than 70 broadcast products, from 45 partners, to intelligently share audio, data and control between studio devices with the click of an Ethernet cable.

Phones, codecs, delivery systems, audio processors, profanity delays, pro audio cards and more, all form a sophisticated ecosystem. So phone and codec callers receive automatic mix-minus. Satellite feeds record unattended. Broadcast-quality intercoms can go straight to air. Shows are smoother and more error-free. And Axia is a charter supporting member of the AES X192 standards project, so your investment is future-proof.

So when you choose your IP-Audio network, choose the one with all the connections. Axia: we make the net work.

AxiaAudio.com

TUNE IN TO SHIVELY VERSA2UNE

Shively Labs won a Radio World "Cool Stuff" Award for its Versa2une (shown), a field-tunable, low-power, circular polarized FM antenna. Maximum input power is 5 kW with 2.5 kW into a signal bay, VSWR <1.2:1. Shively says that without technical knowledge or equipment, a user can tune this antenna quickly to a frequency. The Versa2une is simple to install and lightweight; it packs into a small box for shipping.

Also new from Shively is the Model 6843, a high-power, side-mount, circular polarized antenna for multiplexed stations up to 12 MHz apart. Each bay will have a 10 kW power rating. The 6843 is a branch-fed system offering directional patterns, completed on the Shively Labs pattern range. This new design is said to be ready for harsh weather environments.

The Model 6025 is a log periodic antenna. According to Shively it is designed for longevity and highly directional patterns, useful for complicated, narrow or multi-lobe FCC pattern envelopes. Including fixed attachments for stability in vertical and horizontal planes, movement is minimized on the tower. Power handling of 5k per antenna allows for arrays to meet ERP powers of up to 100 kW.

INFO: www.shively.com

COAXIAL TRANSFER SWITCHES FROM MYAT

Myat has introduced two new sizes — 7-16 DIN and 7/8-inch EIA — to its line of motorized coaxial switches.

The switches utilize a radial port configuration for orientation flexibility and installation ease. Switches are RoHS compliant. Switch drives are available in 115 VAC and 230 VAC, and the control is available in 12 or 24 VDC.

The switch actuation mechanism delivers fast switching times; multiple interlock contacts allow for easy wiring to remote control and monitoring circuits. Myat highlights its power handling capacity, low VSWR and insertion loss, and high isolation between ports. The company adds that it has seen rapid growth in demand for 7-16 DIN components and switches in particular.

Also new from Myat is an improved N+1 switching matrix for FM and television transmission sites, which helps broadcasters take advantage of frequency agile transmitter technology to provide cost-effective backup for multi-station sites. With transmitters interconnected through the matrix, a disabled transmitter can be bypassed remotely, and a frequency agile aux unit tuned to frequency and immediately switched online.

INFO: www.myat.com

RTW DEVELOPS RADIOCENTRIC METER

Audio measurement meter specialist RTW has designed what it describes as a "four-channel metering solution specifically designed for radio broadcasting."

The TMR7 TouchMonitor is a spinoff of RTW's TM7 staple touchscreen. The TMR7 features XLR inputs for handling AES3 digital audio.

RTW Director of Engineering Michael Kahsnitz said in a release, "It integrates all features required in radio production, two stereo inputs and extensive local configurability in an attractively priced package."

The main feature of the TMR7 is its 7-inch touchscreen. Separate true peak and PPM instruments as well as a vectorscope and correlator for evaluating stereo signals are available on each TMR7 input channel.

It offers several measurement schemes: EBU R123, ITU BS.1770-3/1771, ATSC A/85, ARIB along with a real-time analyzer and more.

INFO: www.rtw.de

Look for more Summer of Products coverage in upcoming issues.

ECRESO UPS FM TRANSMITTER WARRANTY TO 10 YEARS

WorldCast's transmitter manufacturing arm, Ecreso, recently announced an available 10-year warranty on its range of Helios FM transmitters.

Ecreso's 10-year warranty is supplied with FM transmitters supported by a minimum one-year subscription to its Expert Maintenance Reporting service. A proactive, subscription-based

service, EMR enables broadcast engineers to keep on top of maintenance issues, according to the company. It delivers reports on the status of key parameters such as temperature, current, voltage and on the performance and lifespan of components such as the fan and power supply of the transmitter. With detailed logging and trend analysis, the company says, EMR can identify slow-burning problems and issue warnings well in advance to allow for corrective action to be taken.

WorldCast Systems also recently entered into an agreement with Crown Broadcast under which the latter is exclusively responsible for sales, service and support of the Ecreso line in the United States. Crown sells the transmitters through its U.S. dealer base while Ecreso continues selling them internationally.

INFO: www.ecreso.com

A Solution for That Pesky iPhone Plug

Also, a tip for feeding cables through sheathing on a remote truck mast

WORKBENCH
by John Bisset
Read more Workbench articles online at radioworld.com

Kirk Chestnut works at the Entercom cluster in Kansas City. He responded to the May 22 *Workbench* column in which Michael Heim could not find a source for 1/8-inch (3.5 mm) TRRS (tip-ring-ring-sleeve) connectors used for adapting an external mic for use with an iPad or iPhone.

Kirk informs us that Mouser Electronics sells a Kobiconn brand TRRS connector. Head to *mouser.com* and search for 171-7435-EX.

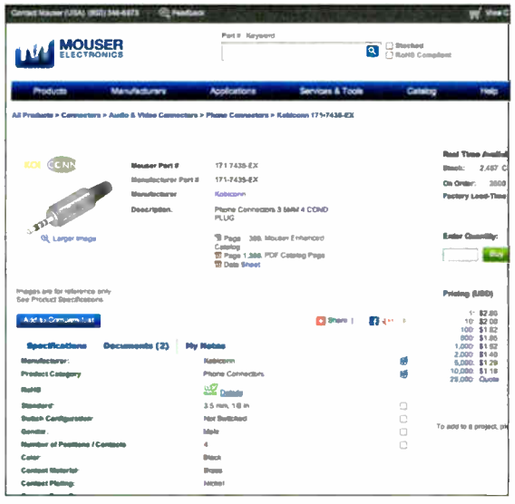


Fig. 1: Mouser carries a Kobiconn brand TRRS connector fit for the job.

He has found that the impedance at which many cell phones switch from "headphone" mode to "headset" mode (to include a microphone) is a bit higher. Therefore, he and his team have resorted to adding a 2.2k ohm resistor in series, as well as a 3.3 microfarad blocking cap for safety. Kirk adds that the 3.3-microfarad blocking cap is Mouser part number 647-UMW1V3R3MDD; it fits nicely in between the solder cups of the XLR connector.

A schematic of the adaptor cable is shown in Fig. 2. Thanks, Kirk, for a great solution, as more and more engineers press iPads and iPhones into remote service.

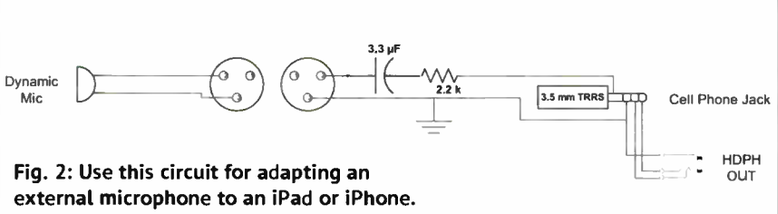


Fig. 2: Use this circuit for adapting an external microphone to an iPad or iPhone.

Reach Kirk Chestnut at *kchestnut@entercom.com*.

David Sproul, chief engineer of WMAL(AM)/WRQX(FM) in Washington, said he has enjoyed the *Workbench* discussions related to creating fun graphics for engineering projects.

Dave reports that the ChartPak film we mentioned was temporarily out of stock when he called, but he's happy to wait. As for the metallic film we discussed in March, there's a dizzying selection online. Be patient; I'll get some specific URLs from Frank Hertel for a future column.

I received a number of comments about using labeling films. Engineers still find time to home-brew circuits, and they take pride in labeling these projects professionally.

By the way, Dave Sproul passed a milestone in early June: He celebrated his 40th anniversary with the stations. Congratulations, Dave, and keep up the good work.

Dave Sproul can be reached at *david.sproul@cumulus.com*.

There must be something about 40th anniversaries.

For 40 years, Robert Gonsett, W6VR, has edited and published the CGC Communicator. He recently announced it's time for a sabbatical. Engineers all over the United States have subscribed to this free e-newsletter, but especially folks on the West Coast, where Bob is headquartered.

There must be something about 40th anniversaries.

The newsletter provided timely FCC news, inspection results and useful engineering information to West Coast broadcasters. Readers may remember seeing the CGC Communicator credited for a number of *Workbench* tips over the years. For that information, we thank you, Bob.

It turns out the circuits used to upload the newsletter are being dismantled by CGC's Internet service provider "Connectnet." So until other arrangements can be made, the Communicator will take a breather.

To drop a line to Robert Gonsett, email *rgonsett@sbcglobal.net*.

Paul Sagi, an engineer in Kuala Lumpur and a frequent *Workbench* contributor, sends a link that may be ideal for small-station management or even contract engineering firms.

WinWeb Online Office Suite is a cloud-based collection of business apps. Included are accounting software, CRM, HelpDesk and business planning tools. It's ideal for start-ups or established businesses. Google WinWeb Online Office.

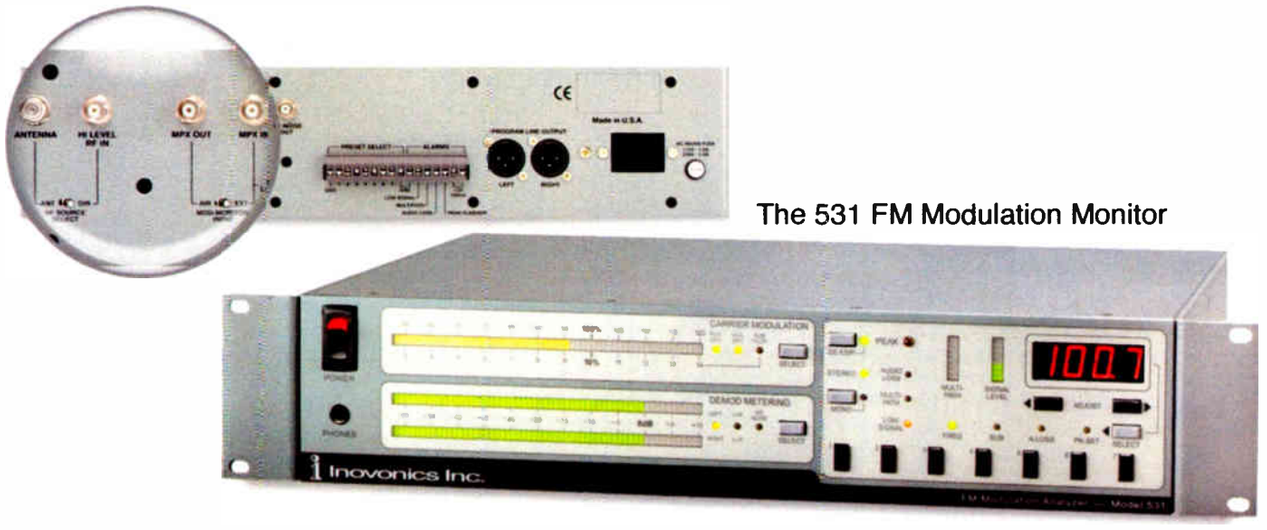
Reach Paul Sagi at *pk.sagi.92@gmail.com*.

Recently I ran into an engineer who was trying to feed cabling through conduit and found it challenging. The same is true when feeding cables through the coiled Nycoil sheathing used on a remote truck's mast.

Of course the easiest solution is to have the factory do it. But if you're

(continued on page 23)

The Engineer's 1st Choice, 2857 Times.



The 531 FM Modulation Monitor

Built for performance, designed for heavy use.

Every RF engineer spends time solving problems, a time-consuming and frustrating task without the right gear, and tools you can trust. The Inovonics 531 offers a complete set of visualization tools in a rugged chassis for fast insight into the real operation of your broadcast transmission.

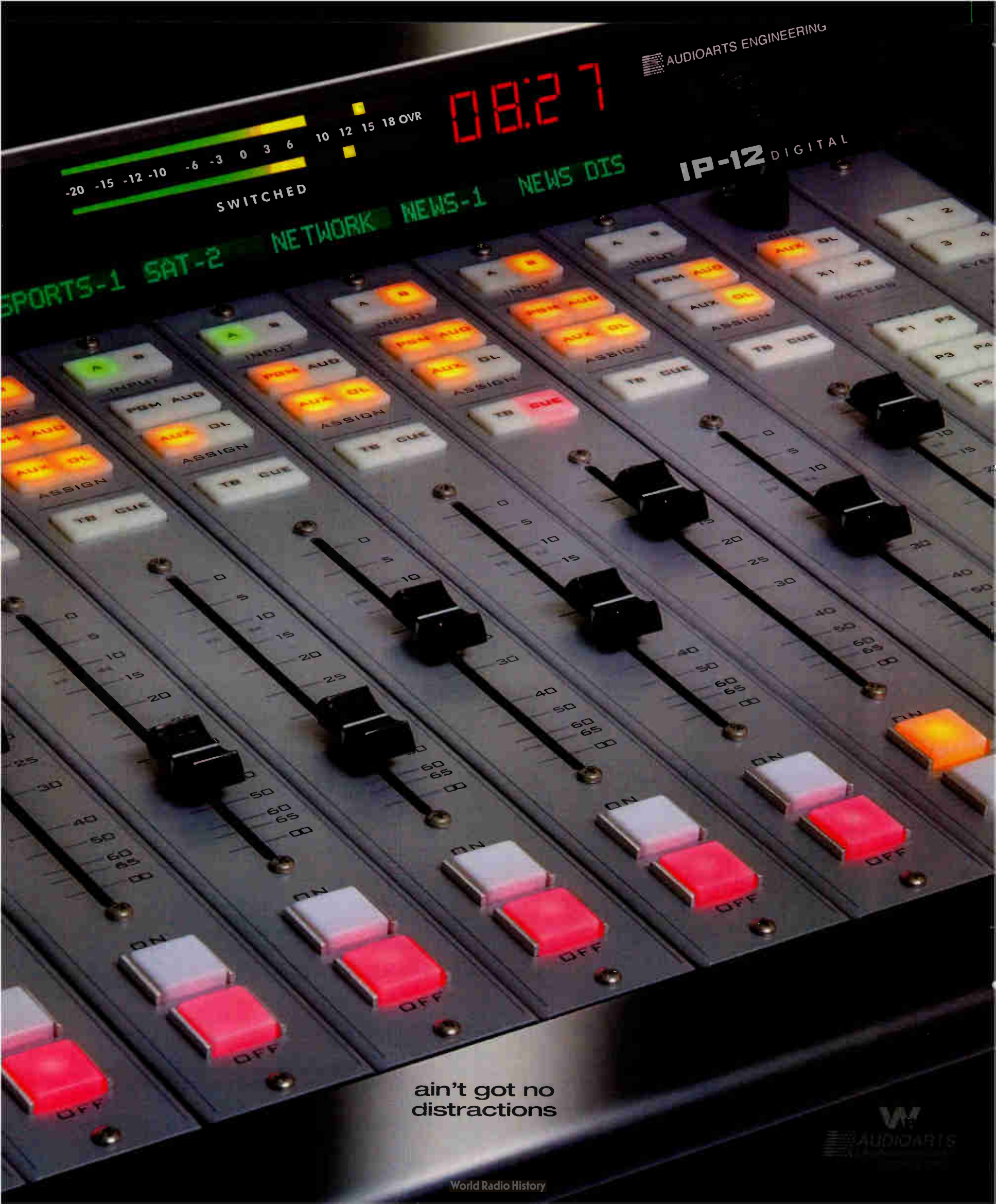
Dependable, direct input and off-air reception lets you keep a sharp eye on your total RF signal performance and essential multiplex measurements. The high-resolution LED bargraph displays are easy to read, and a "floating dot" program peak marker eliminates any ambiguity in the total-mod measurement. Off-air readings are qualified by Inovonics' exclusive multipath indicator, aiding in antenna alignment and initial station setup. Readouts of signal strength and synchronous AM noise qualify the incoming signal, and a host of alarms notify you immediately when things go wrong.

Key Features & Specs

- Standard 87.9MHz -108.1MHz tuning range in 100kHz steps.
- Inputs for Antenna, High Level 'direct' RF, and MPX signal measurements.
- Full-time display of Signal Strength and Multipath, plus Synchronous AM noise output on (BNC).
- 1% total Modulation metering accuracy with floating-dot peak display.
- Front panel metering for subcarrier injection levels: 38kHz, 57kHz **(RDS)**, 67kHz, & 92kHz.
- Composite baseband and balanced L&R line outputs.
- Through hole parts, plus 1/8th inch (3mm) thick, fan-less aluminum chassis.
- 24 hour thermal "burn in" test for each unit before shipping.
- Alarms for Peak Overmodulation, Signal Loss, Program Audio Loss and Multipath.

Get the full picture at:
www.inovonicsbroadcast.com/model/531

3year WARRANTY · MADE IN U.S.A. · CE · INOVONICS BROADCAST



THE INTELLIGENT NETWORK

Each BLADE on the Intelligent Network is exceptionally powerful... but do you know about the incredible functionality inside *EVERY* BLADE?

By now, it's a good bet you're aware of the WheatNet-IP Intelligent Network. You know about its advantages - how it's obsessively compulsive about redundancy. How it can repair itself, configure itself, run rings around the competition while still having much greater bandwidth (due to its Gigabit Ethernet throughput) - enough, in fact, to not only handle our increased functionality today, but well into the future.

So we figured it's time to let you know a little more about those boxes you plug into the Intelligent Network. The ones that contribute to its intelligence. They're called BLADES and from inception have been far more advanced than any boxes on any other networks out there. Take a look and consider how you'd put all that to work in YOUR WheatNet-IP system.

WHEATNET-IP: THE INTELLIGENT NETWORK

Wheatstone

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

Under One Roof at Last in Portland

We talk with DOE Chris Weiss about Clear Channel's seven-station move

FACILITY PROFILE

BY SCOTT FYBUSH

Some studio moves happen quickly. Others, like the recent relocation of Clear Channel's seven-station cluster in Portland, Ore., are years in the making.

"We were supposed to make the move back in 2008," says Chris Weiss, the cluster's director of engineering, "but we had trouble finding a new location."

That's an understatement, really. After struggling to find a site that met all of the stations' needs, Clear Channel ended up signing a lease, only to find out that its new landlord hadn't closed on its purchase of the building. What's more, the new location turned out to be a haz-mat site, further entangling the stations in legal battles that forced Clear Channel to extend the lease on its existing studios in the meantime.

It took several years for the lawyers to clear the way for a second attempt at a move, and Weiss says it all came together much more quickly this time.

SPACE EFFICIENCIES

Clear Channel's new home is in the top two stories of a four-story building in an office park in the Portland suburb of Tigard.

"We negotiated the lease in January of 2012, so it was a pretty quick turnaround of things, from saying yes, for sure we're doing this, to getting in here with hard hats," Weiss recalls of his busy year, which culminated in mid-October with the move of the last two stations from Clear Channel's old facility just south of downtown Portland along the Willamette River.

At about 25,000 square feet, the new facility is about the same overall size as the old plant, but Weiss says the move allowed for much more efficient use of

Shown below: A Wheatstone E-6 surface, RCS NexGen Digital software, Telos VX phone system, EV mics and Blue Sky EXO2 speakers. Twenty-three Wheatstone M-2 microphone processors serve 46 microphones in the facility.

The KEX Control Room, looking into the station talk studio. Mike Oaks is at the controls and host Mark Mason is in 'the tank.'

the space. Clear Channel's old studios had been in use since 1978, when they were built for KEX(AM) and sister station KKRZ(FM). Over the years, another AM station and two more FMs were jammed into that two-story space, while two more sister FMs set up shop in an adjacent building.

"We had a lot of hallways and stairwells," Weiss recalls of the old facility.

By contrast, the new facility was designed from the ground up for all seven stations at once. Studios for all the stations are located on the third floor, where top-40 KKRZ ("Z100") looks into the lobby and its six sisters are all lined up along an interior corridor.

"We don't have any studios on external windows," Weiss says, "which turns out to be a big cost savings, since we didn't have to triple-glaze or quadruple-glaze."

WHEATSTONE NETWORK

In addition to physical proximity, the new studios improved on the old ones in another way. Because of the changing

(continued on page 24)

In the technical operations center, each airchain has its own rack, with a Wheatstone IP-88AD Blade serving each primary chain and Aura8-IPs for backup. The racks include main and backup Arbitron PPM encoding, AirTools profanity delay, audio server and streaming audio server. About midway down the row is a rack of Sage Alerting Systems EAS Endecs.

WORKBENCH

(continued from page 18)

replacing existing cable, here's a solution.

Stretch the Nycoil sheathing out along a chain link fence, securing the sheathing with wire ties to hold it straight. The next step is to visit an electric supply house and purchase those little foam plugs that have a string attached. A shop vac, fitted with a reducer, will suck the foam plug through the sheath. A cardboard funnel secured with duct tape makes a nice reducer. Next, tie your fish tape onto the end of the string and pull the fish tape through. Tape your coax and wires into a tight bundle, secured to the end of the fish tape. Generously apply a gel wire lubricant, and pull.

The job is a little difficult getting started, but once it gets going, you'll be fine. Whether it's the Nycoil or conduit, remember to add a couple extra wires. There's no way you'll add wires later!

Contribute to Workbench. You'll help your fellow engineers and qualify for SBE recertification credit. Send Workbench tips to johnpbisset@gmail.com. *Fax to (603) 472-4944.*

Author John Bisset has spent 44 years in the broadcasting industry and is still learning. He handles West Coast sales for the Telos Alliance. He is SBE Certified and is a past recipient of the SBE's Educator of the Year Award.

PORTLAND

(continued from page 23)

equipment needs in 21st century radio. Weiss was able to make some of the new studios smaller than their equivalents at the old buildings.

"We've saved about 350 square feet from the studio that used to house the full-service AM station (KEX), since you don't need two tape decks and an overbridge anymore," Weiss says.

Instead, the new studios were built on two models: each of the five FM music stations has a similar studio with four mics and a Wheatstone E-4 or E-6 control surface, while each of the two AM talk stations has a control room equipped with an E-6 and a talk studio with a Wheatstone SideBoard controller, as well as an adjacent production studio that can also serve as a news or sports booth.

Five production rooms for the cluster each use Wheatstone IP-12 consoles. The total complement of Wheatstone gear includes 13 control surfaces, 56 WheatNet-IP Blades, 23 mic processors, and numerous panels, turrets and support gear.

Weiss says the choice of Wheatstone was one of the biggest decisions during the project. At the old Macadam Avenue studios, Clear Channel's stations had used a variety of consoles. Weiss says recent experience persuaded him that his new facility would use some flavor of audio over IP technology.

"I'd been trying to prepare and figure out a routing system for Portland going back to 2005, figuring we'd be going into a move," Weiss recalls. "When Clear Channel in Seattle went Wheatstone, my regional manager, Erik Kuhlmann, suggested I take a look at it." He was particularly impressed with redundancies built into the WheatNet-IP system.

BUILDING WITH HEADLAMPS

The studios all use ElectroVoice RE20 and RE27 mics, a choice driven by the ability to move some mics over from the old studios. Beyond the mics, everything was new, including Studio Technology furniture, Blue Sky EXO2 speakers, RCS NexGen Digital automation and a Telos VX phone system.

Weiss says the phone system turned out to be one of the learning experiences from the move; each VX Engine can handle 30 audio streams at once (caller audio, mix-minus back to the caller and/or music on hold), which proved to be not quite enough for seven stations running at full tilt, especially when KEX moved over with its news people.

Adding a second engine so that the AM stations could have their own system solved the challenge, and Weiss says it has proved to be a worthy replacement for the Telos 2101s at the old facility.

The furniture involved another construction adventure. When the building contractor failed to deliver power to the

Clear Channel's new home is in the top two stories of a four-story building in an office park in the Portland suburb of Tigard.

Architects Luckett & Farley have worked with Clear Channel on numerous studio projects. This photo sampler shows the bright, open approach to the facility, which occupies space on two floors.

studios on schedule, Weiss says Vince Fiola's Studio Technology crew went to work anyway. "His guys ended up having to install all the furniture with no power in the studio. They did it with headlamps and those portable construction lights," Weiss says, but it got finished on time.

Architects Luckett & Farley, who have worked with Clear Channel on numerous studio projects in recent years, placed the stations' tech core on the fourth floor, which also houses a conference room that doubles as a live performance studio and a large walk-out patio space.

In addition to a homebrew Asterisk-based phone system and common EAS gear for the entire cluster, the tech core houses individual racks for each station's NexGen systems and Wheatstone equipment.

BACKUPS

Redundancies at the new facility extend to the transmission architecture. Each of the seven stations has two Wheatstone Blade IP access units, a main and a backup. While the main Blade usually feeds a fiber distribution system, the backup Blade automatically connects to the backup microwave system, ensuring continuity even if the entire system breaks down.

(continued on page 26)

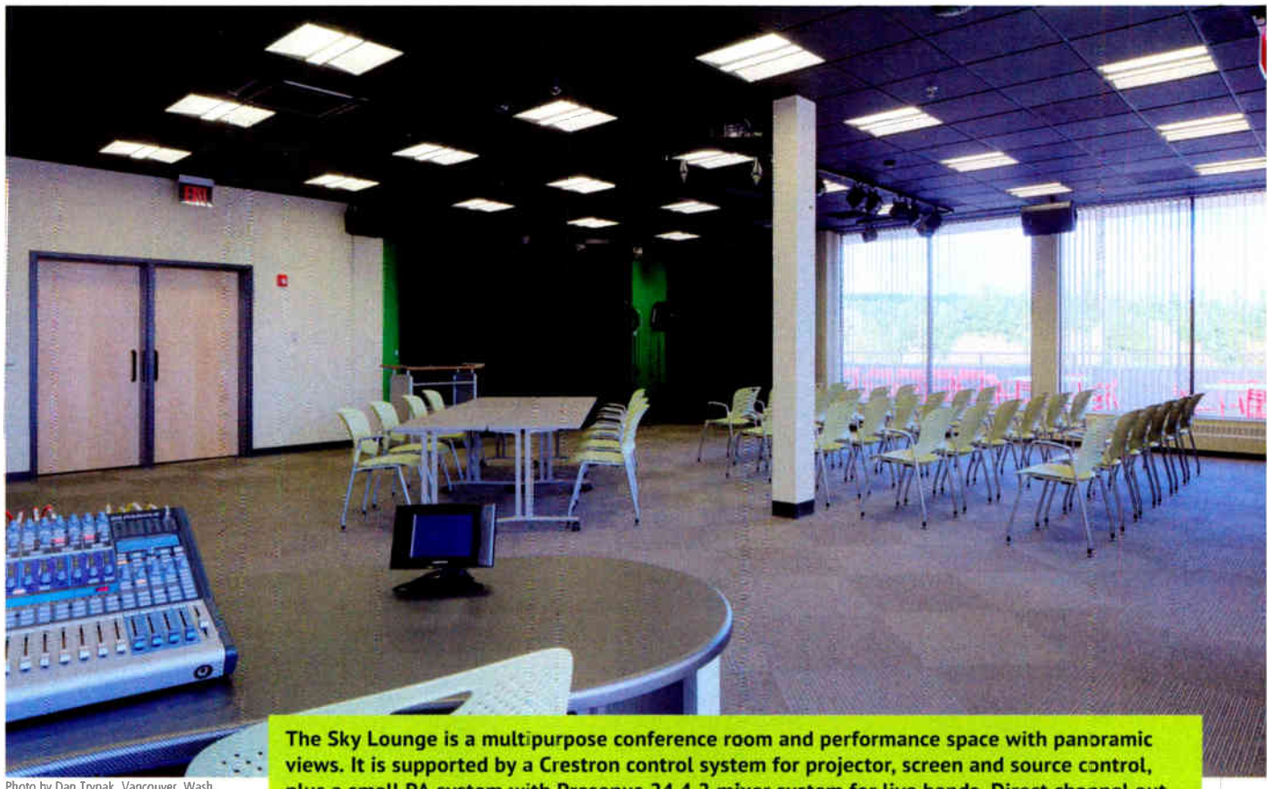


Photo by Dan Trypak, Vancouver, Wash.

The Sky Lounge is a multipurpose conference room and performance space with panoramic views. It is supported by a Crestron control system for projector, screen and source control, plus a small PA system with Presonus 24.4.2 mixer system for live bands. Direct channel outputs on the Presonus are used for 'broadcast-friendly' mixes to air. An LED lighting system, NewTek Tricaster video system and Sony HD cameras round out the multimedia presence.

PORTLAND

(continued from page 25)

In normal operation, Clear Channel's new system routes Wheatstone's audio-over-IP over fiber all the way from the studios in Tigard to the two hilltop transmitter sites that serve the five FM stations. From there, for now, a backup path then goes by microwave to the site southeast of Portland, where the two AM stations, KEX and KPOJ, are located. That reverses the old microwave architecture, which went from Macadam Avenue out to the AM site and then hopped to the FMs from there; eventually, he's hoping to get dark fiber all the way out to the AM site.

"When you start passing this stuff along other people's networks, you lose the ability to do multicasting … and you introduce latencies you don't have any control over," he says.

Whether it's dark or not, Weiss says he's sold on the use of fiber for his studio-transmitter links.

"We had already been going down that road," he says of the last few years at the old studios. Fiber serving both FM sites suffered only two outages in nearly a decade; by contrast, he says the T1 that's fed by copper to his AM site had already suffered five outages before 2013 was even half over.

BUILDING A TEMPLATE

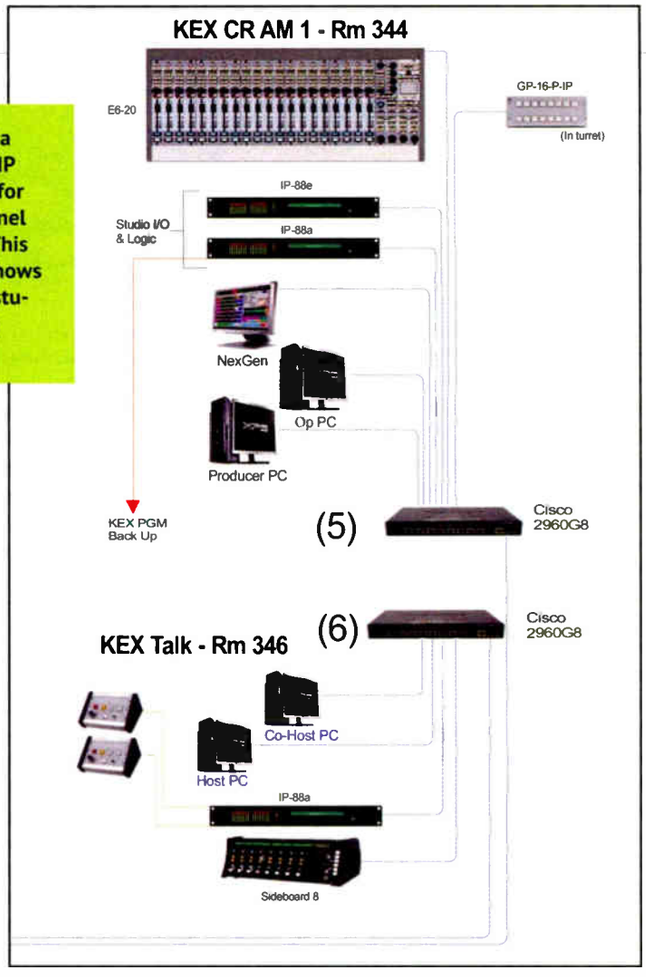
The move from Macadam Avenue to Clear Channel's new home was completed over the course of several weeks in September and October 2012, with two stations moving each week. Weiss says the five FMs, which were first to move, went smoothly, with things getting more complicated at the end of the move when KEX and KPOJ and their larger staffs relocated.

But after more than 34 years at Macadam Avenue, Clear Channel cleared out with two weeks left on the lease and some help from out of town, as Milwaukee-based engineer Steve George worked with Kuhlmann to dismantle the old studios and put usable gear in storage to be shipped eventually to other Clear Channel markets.

For a company as large as Clear Channel, Weiss says the process of working with other engineers on a big move is essential. Earlier in 2012, Weiss spent a week at Clear Channel's Sacramento cluster assisting with — and learning from — a similar move.

"Your typical market engineer might do this once in a lifetime," Weiss says, "but what did we learn as a company in this process? If we can come up with solutions that could work for 75 percent of the company, we can build templates on those, and create standards around which we can build local options."

Scott Fybush wrote about radio as "emergency infrastructure" in the May 22 issue.



Closeup of a WheatNet-IP flow chart for Clear Channel Portland. This isolation shows gear for a studio serving KEX(AM).

1664: Just what it looks like. Two tin cups and a string. But it transmitted sound!

1876: Alexander Graham Bell's commercially viable telephone.

1900: Phones become fixtures in more well-to-do and steam-punk homes.

1920: Every home is working toward having a telephone!

1936: The advent of the dial desk phone. No more asking the operator to connect you.

1963: Push buttons usher in the thoroughly modern world. Touch tones enter pop culture.

1983: The mobile phone is a reality. Plots in all TV shows get a boost!

2004: IP Telephones begin to become the staple of modem business.

2007: Smartphones are complete communications centers. AND they can sound great!

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JetStream and ROC Rock Backyard

Console engine and Logitek surfaces work together in this studio refit

USERREPORT

BY BENJAMIN VAN PATTEN
Chief Engineer
Backyard Broadcasting
Elmira/Corning

ELMIRA, N.Y. — When Backyard Broadcasting's Elmira/Corning, N.Y., group was looking to upgrade a collection of consoles that included an LPB and a Continental Mark 8, the choices were practically endless for consoles that could perform the same duties.

Selection became more difficult when reliability, functionality and expandability were considered. We also needed a console system that would be flexible enough for each studio's ever-changing role. As in most markets, optimizing studio space and time was a must. We needed each studio to be interchangeable between being live, voice-tracking and production, several times daily.

Our choices — the Logitek JetStream Mini console engine as a modern digital audio backbone, and Logitek ROC control surfaces — do this and more.

CONFIGURATION

The 2RU Mini has eight I/O card slots. Each slot accepts one of the 10 format I/O cards offered. Each of those individual cards can be configured with either eight mono (four stereo) sources or outputs and come equipped with either StudioHub-compatible RJ-45 connectors or a single DB-25 connector. They are hot-swappable, and changing the input type or switching inputs to outputs can be done quickly even with the unit online.

The mic input card, the JSM-Mic, provides four mono preamplified mic inputs with trim and phantom power, making the JetStream Mini a good choice for a standalone console as well as a networked option. The RJ-45 cards, teamed with the prewired Logilink block option, make for quick connections to a 66 block with factory-made Cat-5 cables.

Each JetStream Mini allows for 32 simultaneous stereo mix channels across one or two surfaces. The Mini comes equipped with an embedded PC and all of the Logitek software including vScreen, vRoute and vMix onboard. There is now no need for us to dedicate an external PC for programming and operations. The chassis itself has 12 inputs and 16 outputs across four DB-15 GPIO connectors. These can also be ordered prewired to a 66 block for quick integration with outside gear. The triggers can be used in tandem to make routing or mix-minus changes, even create default console layouts.

Software triggers functions in conjunction with the consoles' soft keys, and GPIs allow making changes extremely easy for an operator. Software options also include built-in mic processing, profanity delay and direct network connections to automation systems. Networking the JetStreams makes sources and destinations available at each surface. Networking consists of connecting the JetStream through a managed IGMP switch. One compatible Netgear switch costs less than $100.

To drive the JetStream Minis, I chose the ROC series consoles, also from Logitek. We are using three ROC-12s, and a ROC-18 for our air studios plus a ROC-6 for production. The console itself is simply laid out, reducing the learning curve for both new and seasoned air staff.

I was able to assign and lock inputs, bussing and mix-minuses to be exactly the same as the previous consoles. This allowed the users to have a familiarity with the console and get a feel for it without having to hunt for buttons. It also allowed time to become more familiar with programming trigger functions.

After operators became comfortable with the basic operations, and in some cases using the Penny & Giles faders instead of rotary pots, I was able to add even more functionality. One standout feature of the ROC is the OLED display on every channel. Each fader is configured with a pre-fade VU meter and channel label. The operator can now tell if the channel has audio even before they hit the cue button. Even the on/off buttons can be assigned one of 256 colors, which could make for color-coded input groupings.

ROC also has front-panel 1/4-inch and mini plugs to eliminate the need for

(continued on page 30)

ABOUT BUYER'S GUIDE

Radio World publishes User Reports on products in various equipment classes throughout the year to help potential buyers understand why colleagues chose the equipment they did. A User Report is an unpaid testimonial by a user who has already purchased the gear. A Radio World Product Evaluation, by contrast, is a freelance article by a paid reviewer who typically receives a demo loaner. Do you have a story to tell? Write to **bmoss@nbmedia.com**.

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Operations Manager

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Brad Humphries,
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LOGITEK

(continued from page 28)

adapters. Inside, the ROC uses RJ-11 cables to connect modules to the main board. This makes adding soft key and routing modules or swapping modules painless. The ROC does have an internal cue speaker, although I added a powered monitor to the cue bus for a better-sounding (and louder) cue.

The ROC dropped in easily with only three connections to the surface itself. It uses RJ-45s for power, data and headphone inputs. I color-coded these connections to help avoid confusion, should the need arise to swap consoles, to help avoid an accidental plug swap.

The console power supply has an additional 12 inputs and outputs for local sources. Without proper grounding, a static burst was able confuse the surface enough to warrant a quick reset but did not interrupt audio. The reset would realign the communication between the surface and audio engine, and better grounding practices alleviated the issue.

This Logitek system gave me exceptional flexibility with keeping a modest price and scalability for the market size.

For information, contact Frank Grundstein at Logitek in Texas at (800) 231-5870 or visit www.logitekaudio.com.

TECHUPDATES

WHEATSTONE RELEASES NEW CONSOLES

Wheatstone recently introduced the L-8 digital IP control surface, scaled for news and show production, which the company says makes it a great choice for small stations or station-within-a-station scenarios.

The L-8 is a low-profile, tabletop IP control surface with hot-swappable individual fader modules, allowing assignment of any network source to any fader. The L-8 has four output busses and eight mix-minus feeds, and includes a monitoring section, giving users full control room, studio and cue monitoring functions.

What if there's talent in one studio and a board op on a larger console in another? Wheatstone says its newly introduced TS-22 (shown) and TS-4 have the tools needed to produce a show or air a live newscast from the other side of the glass.

The TS-4 Talent Panel has functions that guest talent or regular announcers need — talkback and cough buttons, source selection, headphone amp, OLED display, headphone level control — in one small panel, with no outboard equipment required and no wiring. The TS-4 gives talent the control they need when they need it — in one IP-accessed panel, with audio and control data travelling over one cable from the network switch.

Wheatstone's larger TS-22 Talent Station has the control of the TS-4, but with additional built-in timer, studio speaker control, time-of-day clock, six scriptable soft buttons, and a six-button programmable source selector switch bank — all housed in a standalone countertop turret (also available as a flushmount panel).

These solutions are IP plug-and-play using the WheatNet-IP audio over IP network to work with other WheatNet-IP control surfaces, Blades and network devices. Using WheatNet users can change console audio and control functions by firing a salvo, or make the changes automatically through an automation system or Wheatstone's event scheduler software.

For information, contact Wheatstone in North Carolina at (252) 638-7000 or visit www.wheatstone.com.

EELA AUDIO DEBUTS D4

The Eela Audio D4 digital broadcast mixing desk is a new unit and a further development of the smaller Eela Audio D3. The broadcast logic and switching functions of the company's big S340/S440 mixing desks also are incorporated into the D4.

The D4 has 16 input faders, 32 audio inputs, 16 outputs and two color touchscreen displays. The company says that, based upon its experience, 16 faders and 32 inputs will cover 95 percent of requirements for on-air, production and television applications.

The inputs break down as eight balanced microphone/mono line inputs with 48V phantom powering; eight AES/EBU digital inputs with built-in sample rate converter on XLR type connectors; 16 stereo balanced line inputs on XLR connectors; and two unbalanced line inputs.

Channel strips have OLED indicators and an enable codec/hybrid control along with a ring detect function to signal incoming calls from hybrids.

Each output offers a studio foldback with talkback. The headphones output has a volume control and a source selector.

One of the touchscreens offers control and EQ and dynamics settings for channels with a clock while the other has meters with PPM characteristics and a source selector.

A USB port allows for interfacing with a computer.

For information, contact Eela Audio/EA Broadcast in Netherlands at +31-485-331182 or visit www.eela.nl.

STUDER HAS SWITCHER CONTROL PANELS FOR ROUTE 6000

Studer says it has low-cost hardware control panels for its Route 6000 and Studer Vista and OnAir consoles. These provide single key crosspoint switching, or the X-Y-style operation often used in master control rooms or as remote source selectors on mixing consoles.

They are available with either 32 or 64 physical switches, and can be mounted as two RU rack-mount panels or 190 mm x 80 mm DIN-size modules for mounting in mixing desks. Panels from third-party providers can often be too complex for simple cross-point or X-Y requirements, the company says.

The larger 64-key panel may be configured to provide 64 x 1, 32 x 2, 16 x 4 or 8 x 8 key per crosspoint selection, or 48 x 16, 52 x 12, 56 x 8 in X-Y mode, while the 32-key panel provides for 32 x 1, 16 x 2, 8 x 4 crosspoint and 16 x 16, 20 x 12 and 24 x 8 X-Y modes.

Studer says that normally one or two panels may be connected directly to the Route 6000 or mixing desk. If required, up to 12 control panels may be connected via a standard RJ-45 cable to a 2RU power and distribution unit. This unit combines the serial data of the control panels to a single connection to the router or mixing desk. Communication with the router or mixing desk uses industry standard RS-422 protocols. These cost-effective control panels offer a traditional alternative to screen-based designs.

For information, contact Studer in California at (818) 920-3212 or visit www.studer.ch.

Yea Networks' Elemental Decision

Axia surfaces, PowerStation engines simplify an expansion project

USERREPORT

BY ROB CHICKERING
VP Operations/Engineering
Yea Networks

DALLAS — Our project began with a conversation about replacing a 12-year-old digital console. I had some basic requirements for the console, and wanted to expand the agility of our audio systems. It evolved from there.

At the heart of this Yea Network operation was a large 26-input console in our main control room. We wanted to add a second room for redundancy as well as a room for a show, "Country Music Night," that was renting our space.

The need for a second studio was evident once we began to produce the Dallas version of "Dish Nation TV." This is a nightly, Fox-syndicated Hollywood entertainment show. After production began, we realized that we needed a second room to split off the radio show while TV segments were being taped in the larger talk studio.

I also wanted to have some sort of audio routing for our plant. I needed to create multiple submixes of the show for archiving and repurpose recording, as well as submixes and iso feeds to the six audio channels feeding TV production in Los Angeles.

I began to lay out the system on paper, which provided me an I/O count in different rooms: talk studio, control room, TOC and production. Once I had that, it was time to choose the system.

DECISION

I looked at them all and we decided on the Axia Element console system.

At the heart of the Axia Element system is a PowerStation console engine. The PowerStation provides audio I/O, GPIO and network connectivity for each studio. In the event of a main switch failure, both rooms can operate independently using audio ties for emergency use, since the PowerStations contain their own network switch.

We purchased dual PowerStations — Axia designates them as main and aux. Together these units provide four mic ins, eight stereo analog ins, two AES ins, plus six stereo line outs and two AES outs. These outs can be used for program feeds, cue, headphone amps and monitors.

Inside, the software interface for the PowerStation's I/O can be totally configured, assigning devices and names and level settings. The dual PowerStation configuration provides dual power sourcing for each unit via its interconnect cable.

Also, on the Web-based interface used to configure the Power Station, any number of source profiles can be created to specify what sources are available on what faders, as well as allowing a GPIO to be associated with every source, so no matter which fader is used, the logic is associated with the correct source. As part of this capability, mics can come up on any fader and correctly mute the studio or control room monitors.

Another great feature is that once a source is on the audio network, it can be pulled up anywhere else on the Axia network. I have sources on the talk studio PowerStation that are actually brought up and mixed in the control room. I now have 96 pairs of empty audio multipairs.

TOC audio sources were put onto the network via new Axia xNode interfaces. Their half-rack footprint makes them easy to put in tight locations, throw them on a book shelf or wall-mount them in TOC. We went with the rack-mount kits and have two units side-by-side in the TOC racks. Their connection to the audio network was a homerun to the PowerStations in each control room. If the Cisco 2960 switch fails, I'm still on the air.

We took things a step further by using Axia switches and button panels to create an intercom system. Using Axia's optional Pathfinder server software, we are able to control the audio routing from button panels at user mic positions as well as external locations like production and screener positions. The push of a button at a user position routes the mic to the right channel of the headphone destination and mutes the mic to the console.

As an example of this, we have a button on the control room console that is designated "mics off." Pushing this button provides a signal to Pathfinder and it issues a series of module-off commands to the Axia Element surface to turn off the host mics.

While many folks won't need this level of capability, the back-end flexibility of Pathfinder eliminated multiple relay interfaces on the TOC wall and under the old console.

Pathfinder can also monitor sessions on the console and provided automated routing to destinations, depending on what mode the console is in. For instance, the submix provided to the TV production team needed one mic-isolated mix while on air, and another when the show is in offline recording mode.

For multiple mixes, when you look at the Element surface, at first you see only four program assigns. Don't let that fool you. Your mix-minus capabilities are virtually limitless. As sources are assigned to the console, you can designate it as a codec. A mix-minus is created for each of those codec sources or phone hybrids.

Also, there are software Vmixes (virtual mixers) that can be created in the PowerStation to combine source feeds into a new submix.

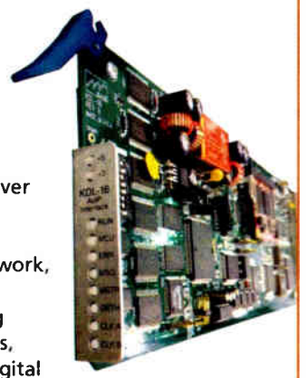
Once you get things rolling, you will see the power in the Axia Livewire IP network, made possible by the Livewire connection on many audio devices. Phone systems, external processing or ISDN codecs from a number of manufacturers are simply connected to the audio network and appear as sources on the network. I have an Omnia 8x processor — its eight three-band Omnia processors combined into one 2 RU chassis. Only one RJ-45 connector is needed for the eight stereo ins/outs for the unit. All are available to the Livewire network.

We found that the Axia Element systems can be simple or as complex as we need. We started simple and slowly began to add features once we saw what it could do. Frequently we say, "What if we ..." and Axia Element gets it done.

For information, contact Axia Audio in Ohio at (216) 241-7225 or visit www.axiaaudio.com.

TECHUPDATE

SAS SHOWS NEW SYMPHONY MODULES



SAS has added the KDL-16 and KEL-16 audio over IP modules to its Symphony Suite of networked audio products.

The SAS 32KD router is at the core of the network, managing all types of audio.

The modules mount in the 32KD unit allowing them to connect to RIOLinks, SAS console surfaces, router control panels, intercoms, audio codecs, digital delivery systems and editors.

The KDL-16 module provides audio over Ethernet (AoE) and audio over IP (AoIP). The KDL-16 module provides Layer 3 AoIP Dante and Layer 2 AoE AVB protocols. The KDL-16 provides synchronous, linear, ultralow-latency audio I/O for digital audio delivery and edit workstations, according to the company.

Using the inborn Dante Virtual Soundcard, the KDL-16 provides direct transfer of audio over a LAN using only a standard low-cost network interface card and works with both Windows and Mac. With an AVB-compliant product users get the benefit of guaranteed delivery of the signal — something no other AoIP protocol can deliver, says SAS.

The KEL-16V2 module provides compressed AoIP for long-distance communication and audio contribution over IP. The KEL-16V2 module provides AAC-LC, G.711 and sample rate conversion (SRC) to interface with all systems. It can connect across the WAN to communicate with other cities.

For information, contact SAS in California at (818) 840-6749 or visit www.sasaudio.com.

Bearcast Radio Enjoys the Harris Oasis

Univ. of Cincinnati student station takes advantage of 'Desktop Radio'

USERREPORT

BY DR. JOHN OWENS
Faculty Advisor
Bearcast Radio
University of Cincinnati

CINCINNATI — Bearcast Radio has been the sound of the University of Cincinnati since the turn of century, playing music from the College Music Journal Top 200 charts and offering diverse talk and sports programming.

Like most university radio stations, Bearcast Radio is staffed mostly by student DJs, with high turnover each semester. Unlike most university stations, Bearcast Radio is online-only, accessible at *www.bearcastradio.com* and through the Shoutcast website and mobile app.

LIVE EXPERIENCE

The station typically features live personalities from 10 a.m. to 2 a.m. during the academic year, with automation otherwise supporting playout. Recently, there has been a thirst to incorporate automation into the live DJ experience at Bearcast Radio, as well as a dire need to simplify the on-air experience through a modern console. A visit to the Harris Broadcast booth at the NAB Show proved fruitful on both accounts.

Harris Broadcast is known for its PR&E brand of consoles, but an unusual demonstration initially captured our attention. Called "Desktop Radio," the complete package included its PR&E Oasis on-air console and a WideOrbit automation system, with direct USB integration for audio and logic; as well as three microphones, monitors and other key equipment — notably its World Feed Panel, a breakout box with multiple I/O options for source equipment.

The Oasis console was alone an important upgrade. The studio had long used a Studer On-Air 2000 console, a real workhorse that offered technology quite advanced for its time. However, at six feet in length, its footprint was massive. And with 13 years on its touchscreens and on-air components, it was beginning to fail.

The Oasis consumes far less space, but its foremost benefit is the learning curve and simplicity — important given the consistent student turnover. There is no better example than the two large, horizontal vu meters. These are instrumental in training students quickly how to monitor and comprehend audio levels, and make on-the-fly adjustments to position and fade. By comparison, students had a difficult time reading the Studer meters (which were off to the right side), and often the on-air levels were too low or peaking with distortion.

Operationally, Harris Broadcast did a good job of including what broadcasters need for on-air operations, and not confusing matters with unnecessary features. The A/B switching for each fader accommodates simple expansion, and its built-in mix-minus capability will allow Bearcast Radio to expand live talk capability in the future. For now, the talk operation is fairly simple, with a single phone line for live callers and remotes, and other standard on-air sources (mics, CD players, etc.).

The automation system and the World Feed Panel are the two most interesting Oasis tie-ins. The direct USB connection pulls four channels of audio into the console, allowing students to operate in "live assist" mode with automation instead of fiddling constantly with CDs. Students can pot up four faders and automatically switch from one channel to the next for seamless on-air broadcasts.

Alternatively, the World Feed Panel enables Bearcast Radio to bring more excitement to broadcasts through live or unusual sources. This is essentially a 3RU interface panel that accommodates temporary connection of portable devices into the Oasis, such as an iPod or laptop. It accommodates all common connections, like RCA and XLR, as well as an active USB interface.

Additionally, this panel can accept high-quality audio from an Oasis output and feed it to a video camera, allowing a simple capture for a talk show with integrated video and audio. This eliminates the need to mic the talent individually, or connect shotgun mics to separate mixers and cameras. It is helpful for occasional specialty shows, such as interviews with the university president.

Moving forward, Bearcast Radio expects to add a second Oasis console to its production studio, where students can train without interrupting on-air operations — while also working to fully explore the power that the Desktop Radio solution brings to the table.

For information, contact Brian Clifford at Harris Broadcast in Ohio at (513) 459-3714 or visit www.harrisbroadcast.com.

AEQ Again Furnishes Cadena3

BC-2000D router is at the heart of the broadcaster's jump to digital

USERREPORT

BY AXEL MALDONADO
Technical Manager
Cadena3

CORDOBA, ARGENTINA — Cadena3 is a private radio station that broadcasts from the city of Cordoba to all Argentina through a network of affiliates. It is the successor of LV3 Radio Cordoba, a public broadcaster founded in 1930 with the name of LV3 Radio Aires-Córdoba(AM). Cadena3 adds to the 700 kHz historical frequency of LV3 in the province of Cordoba and south of Santa Fe with several new affiliates in the rest of the country. Today it is ranked third during the mornings.

DIGITAL

In 1992, broadcast equipment manufacturer AEQ completely equipped Cadena3 with the latest in analog broadcast technology. Thanks to the quality of the equipment, much of it is still in use today.

But times have changed and we must change with them. We in broadcast engineering management have decided to refurbish our central studios facilities with digital technology. Once again we have chosen to go with AEQ as the main supplier. The centerpiece of the project will be the AEQ BC-2000 D multiplex router.

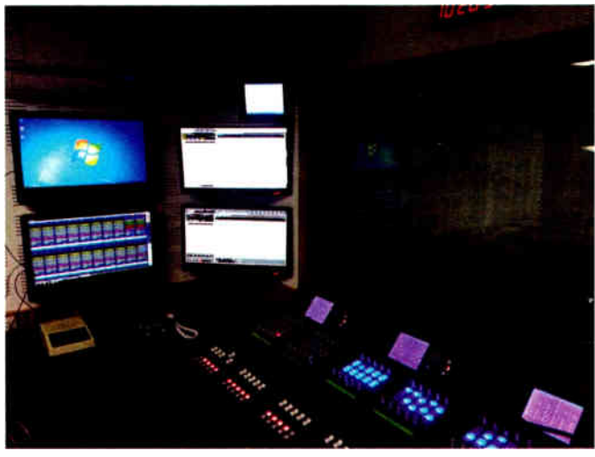
Overall, the project involves outfitting three on-air radio studios, one new master control room and a complete broadcast phone system.

The three radio studios have been equipped with AEQ Arena digital audio mixers. They are outfitted with 25 motorized faders, 28 analog inputs/outputs, eight digital AES inputs/outputs, 16 microphone inputs and a redundant power supply. To reduce wiring work, time and cost, AEQ prepared several complete cabling kits — each specific to a studio — as well as AEQ RC01 studio headphones and microphone interface boxes.

As noted, the Cadena3 master control room has been designed around an AEQ BC-2000 D digital central router. It offers 56 analog ins/outs and 16 digital AES ins/outs with a maximum size of 1,024 x 1,024. All the radio and audio signals in the central Cadena3 facility are managed by this new digital router, so AEQ equipped it with 100 percent redundancy, including dual control modules in the nodes, dual power supplies for all the chassis and numerous DSP processing modules for backup.

The BC-2000 D is controllable through any PC on its network as well as from four AEQ NCB-100 rack-mounted hardware controllers. This system offers various user profiles and access can be limited to certain access levels and passwords can keep unauthorized users out.

The interconnections between the central controller and the on-air studios uses MADI (AES10) links over dedicated optical fiber, allowing transport of up to 64 independent audio channels with digital AES3 quality. Any signal generated in any of the studios can be sent for analysis, operation, processing or distribution to practically any place/room/studio in the Cadena3 facilities building.



In addition, we had AEQ install an AEQ Systel600 phone system to manage telephone calls for broadcast use. For Cadena3, this phone system supports 20 digital independent telephone hybrids for up to 20 simultaneous on-air calls. These can be distributed and shared in real time between the various radio studios of the installation and over the MADI links without need of any additional cabling. Two touchscreen PCs and eight hardware-based AEQ SystelSet controllers for journalists and producers to control the Systel600.

For information, contact Peter Howarth at AEQ in Florida at (954) 581-7999 or visit www.aeqbroadcast.com.

Arrakis ARC-15 Finds Kindred Spirits

West Virginia broadcaster retools several stations with ARC-15 console

USERREPORT

BY JAMES L. KOWALSKI
Director of Engineering
Kindred Communications Co. Inc.

HUNTINGTON, W.VA. — With a corporate broadcast studio move being planned for Kindred Communications Co. of Huntington, W.Va., owner and General Manager Mike Kirtner, Operations Director Reeves Kirtner and I (the director of engineering) had some big decisions to make in the selection of equipment to upgrade for the present and the future. Yet we had to keep within a reasonable budget.


An ARC-15 at WDGG(FM)

The project that started early this year involved studios for our FMs, WDGG, WCMI, WXBW and WMGA, along with translators operating on 94.1 MHz and 98.5 MHz plus one booster facility WXBW-FM1 — and AM properties WCMI, 1340 kHz, and popular talk station WRVC, 930 kHz.

I have more than 43 years of experience in broadcast engineering, including many studio design and build-out projects. I worked with Mike Kirtner almost daily on ideas, designs and equipment lists. Our concerns were ease-of-operation for the jocks, equipment quality, reliability and staying within budget.

We homed in on Arrakis Systems, a company I have worked with on many projects over the decades.

The Arrakis ARC-15 console offered everything we were looking for in a console to replace our older, outdated equipment. When you're feeding a long-established 100 kW FM or a Class A FM, you want quality audio, which I believe ARC-15 offers at a good price.

The ease of installation — pretty much simply unboxing and using the Cat-5 cables provided — was a snap.

The Arrakis ARC-15 consoles we ordered came with mic preamps set, as ordered. With a complement of four mic channels, this was perfect for the three-person morning show on one of our stations. The built-in dedicated phone channel, with associated rear-deck XLR connections, interfaces well with any system.

The built-in USB computer audio sound card and dedicated pot are so useful. Our jocks love it.

Our Arrakis ARC-15s came factory-calibrated. One thing: You may want to trim the audio on any XLR input or output. Each one can be easily adjusted with a greenie from the rear of the console, which is also a consideration and convenience. No longer do you have to lift the hood to make your adjustments.

I might add, you are seeing a lot of Cat-5 cabling and RJ-45 connections these days on many consoles for interfacing with equipment and the Arrakis ARC-15 is right in line with this trend. Changing input devices to any channel is as easy as plugging in your cable.

We found the RF resistance of the ARC-15 to be exceptional.

Overall, for ease of installation and operation, with high-end audio quality and versatility, at a price that's more than affordable, the Arrakis ARC-15 is a no-brainer.

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READER'SFORUM

KEEP DRIVERS SAFE, NOT DISTRACTED

I keep hearing statements in Radio World and in other journals about how potential car buyers "want a full browsing experience in the dash," and want to be connected while driving.

It's bad enough that drivers are texting or retrieving their emails with their smartphones, and taking their eyes off the road for this. Now the carmakers are suggesting they interface with a touch-screen on the dash so they can Google the best place for sushi in Los Angeles?

As someone who used to travel heavily, I remember when car rental places began putting GPS units in vehicles. When I first interacted with one, I recall trying to look at it and drive at the same time, until I finally just wanted it to be quiet; but it kept telling me to go back to the last exit. I shut it off because I realized I was actually slowing down and not paying sufficiently close attention to the road.

I believe most modern-day consumers want their devices to stay portable and do not need the vehicle for connectivity. I recently helped someone achieve Bluetooth connectivity between their smartphone and their new vehicle, thereby allowing them hands-free operation to answer calls without taking either hand off the wheel. Now that made sense.

Funny thing about the AM/FM radio in my vehicles is that I simply press a button on my steering wheel or radio and select the station I want. That ends my interface with it. Even while driving outside the range of my presets, I need only hit the search button repeatedly to find a station that fits my needs and merrily go on my way with minimum distraction.

Rather then making vehicles with Internet-equipped dashboards, manufacturing efforts would be best served trying to make vehicles safely drive *themselves*, so the operator can watch reruns of sitcoms or browse the Net safely.

'Back to the Future's' Marty McFly would marvel at some of today's hopped-up dashboards.

After all, did not the technology experts tell us we would be in vehicles like the Jetsons' by now anyway?

Allan A. Augustyn
Director of Network Engineering
Radio Results Network
Escanaba, Mich.

ANOTHER READ ON EAS

In reading Warren Shulz's guest commentary ("It's Broke; Stop Trying to Fix It," June 5), I am glad to see that someone shares my same outlook on EAS.

We are missing the boat by not utilizing the NOAA chain of weather-alert stations. We are stuck receiving FM broadcast stations that were set up as LP1 and LP2 years ago. Some of these stations are in fringe reception areas, but that is what we are dictated to monitor.

Then, when a "nationwide alert" is generated, it is like holding a camera while looking into several mirrors: lots of distortion with multiple stations echoing at each other. Broadcasters have spent a lot of time and money to comply with the "new" EAS requirements, and results have been poor at best.

On paper it may work, but in practice, it certainly does not. States have fallen short on rewriting statewide EAS plans, and too many agencies have their fingers in the pie.

Most of my clients have "hard copy" EAS logs and everything is kept in binders. Paper and ink manufacturers are making a lot of money from people that keep hard copies. No longer do we have the small paper tapes. We have binders and binders of letter-size printouts.

So far, in 2013, one of my clients has a 4-inch binder and two 2-inch binders full of printouts, and we're only halfway through the year.

As Mr. Shulz pointed out, the EAS system is broke, and "high-tech" isn't always the best solution.

I remember watching officials on TV when Hurricane Sandy went up north. They told people to use their cellphones to call numbers for shelters or go online to specific websites, but did they not realize that most cellular coverage was down and most people in the affected area had no Internet connectivity. Nor did most people have TV in the affected areas. Some people couldn't figure why they couldn't get instructions from emergency officials on their MP3 players.

We have a lot of work ahead of us.

Joe W. Patton
Owner
Patton Communications
La Grange, N.C.

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OPINION

EAS: A Valuable Work in Progress

Broadcasting can and does deliver warnings when other means fail

COMMENTARY

BY RICHARD A. RUDMAN

I must respectfully disagree with Warren Shulz's conclusion that we should disconnect EAS from public broadcasting ("It's Broke; Stop Trying to Fix It," June 5 issue). However, Warren is correct that outmoded legacy EBS and EAS policies weigh down classic EAS and make it less than effective as a warning tool. Recent EAS changes have not fixed this.

My question to Warren: When emergencies disrupt all other means of mass communication, how will the government be able tell us what protective actions the public must take to help stabilize the national emergency condition? Arguably, networks carrying a national press conference are the best, fastest and most complete way for federal leadership to communicate with us; but what if the networks are not able to do it?

FEMA created the Primary Entry Point network using a small number of AM radio stations, with the goal of being able to reach a potential audience of 90 percent of the tuned-in public. As we now know, both day and night coverage for original PEP stations could never could come close to that goal.

However, FEMA devised PEP to work when it would be impossible to call a press conference. The broadcast engineering advisory group for PEP made sure those original few stations could do the job if the unthinkable ever really happened. FEMA has now built and commissioned a number of new PEP outlets and PEP network paths for the day we can only hope will never come.

Broadcasting can and does deliver warnings when other means fail. Broadcasting can deliver emergency public information, or "EPI," in "long form," as opposed to WEA, Twitter and Nixle — all short-form text messaging systems with little to no voice transmission capability; all very vulnerable to cell and Internet network impairment and disruption.

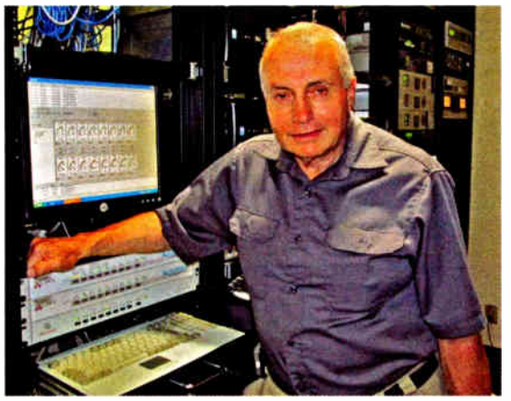
When utility power, cable and Internet services are crippled by the very emergencies they are supposed to inform us about, broadcasting has proven resilient. This resilience extends to reception since almost everyone with a vehicle still has a dashboard radio.

RANGE OF SYSTEMS

So how can we fix parts of EAS that are broken or were never built?

In 2002, a small group of warning subject experts formed the Partnership for Public Warning Inc. to address major deficiencies in all warning systems and policies of the United States.

The PPW wrote several reports. One report called for a national warning strategy — something still does not exist.



Richard Rudman: 'Most protective action warnings fail to get to the people who need them because they were never issued.'

Another report described the Common Alerting Protocol, the open, international, non-proprietary standard for origination of warnings by the emergency management community through a wide range of warning systems.

A CAP message, as envisioned by the PPW, can convey specific protective actions to help save more lives and property that far surpass what the original EAS SAME protocol could deliver over all available warning systems including the broadcast path.

CAP EAS messaging is still saddled with single-point failure, an unfortunate legacy of EBS that needs to go.

CAP also has much better built-in protections against "spoofing," a key deficiency that Warren rightly points out in legacy EAS. Local and state warnings should be delivered to all broadcast entry points using what Washington State EAS calls local relay networks. No more daisy chains!

The mastodon in the room when we talk about all public warnings is that most protective action warnings fail to get to the people who need them because they were never issued. There is a lot of research behind my statement, available on Colorado State's Center for Disaster and Risk Analysis website.

My way to fix this is to convince more emergency managers that the public warning tool is a valuable resource in the same sense that fire strike teams and emergency food and water are response resources. I have presented this idea to FEMA with some hope that this concept will become part of basic emergency management training in the National Incident Management System.

INDUSTRY COMMITMENT?

The other side of this issue is that we are losing what used to be a deep commitment by licensees to deliver warnings to the public, a pledge that was once an essential element of broadcasting public service. Maybe recent large-scale emergencies will convince those licensees that they are wrong?

All end-user warning devices, including radios and TV sets, should have direct CAP recognition built in.

One more thing. All end-user warning devices, including radios and TV sets, should have direct CAP recognition built in, and broadcast receivers (radio and TV) should store and display warnings and other emergency messages, so they do not have to appear in the program stream.

"Sunsetting" classic EAS and going to full-on CAP EAS, coupled with CAP-aware "warning appliances," are goals we should recommend to the FCC, FEMA, the Weather Service and the consumer electronics industry to help alleviate the national EAS deficiencies that Warren rightly decries. These goals can strengthen our ability to give the public timely protective actions using as many devices as possible via as many warning entry points as possible.

We should not care how people learn they are in danger; we must care if we are not doing everything possible to warn them of danger, including preserving and strengthening the broadcast entry point.

Richard Rudman is vice chair of the California EAS State Emergency Committee and a core member of the Broadcast Warning Working Group. Tune in for more of this discussion at the EAS Forum, eas.radiolists.net.

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