BEST OF SHOW WINNERS — Pages 13–20

NewBay Media

RADIOWORLD

JUNE 8, 2016 | The News Source for Radio Managers and Engineers | $5.00 | RADIOWORLD.COM

Paul Schafer Was a Father of Radio Automation

Also was an early innovator in remote control systems

BY JAMES O'NEAL

Courtesy Rob Schafer

Paul Schafer

Paul Schafer, who is called a father of radio programming automation technology, died this winter in Bonita, Calif., following complications from a fall. He was 90.

Schafer spent virtually his entire life in broadcasting, receiving his first FCC license as a teenager in 1942 and being hired to do on-air work the same year by WJOB in his hometown of Hammond, Ind. The following year he moved on to Fort Wayne's WOWO where he had a chance to ply his engineering skills. After time out for World War II military service in the U.S. Army's Signal Corp. division, he joined WANE in Fort Wayne, dividing his time between equipment maintenance, selling time and pulling air shifts. He eventually left Indiana for Virginia, where he was employed as chief engineer and assistant manager at Norfolk's WNOR.

Schafer's big career break came in 1951 with a move to California and employment at the network level as a summer relief engineer with NBC's

(continued on page 3)

#BXNNTOJ **********AUTO**SCH 3-DIGIT 856
#0009383 1# RDWA 0009383 E1603
TOM MILLER 049-1SDL
ASSISTANT CHIEF ENGINEER 000004473
KGHN
2033 S AUGUSTA PL
TUCSON AZ 85710-7905 P0002

Tower Assets Bring Broadcasters Quick Cash

iHeartMedia made the big splash selling sticks, but it is far from the only one doing so

BY RANDY J. STINE

iStockphoto/fatido

WASHINGTON — Radio broadcasters continue to unlock the value in their towers by selling off the valuable assets and generating large amounts of cash.

Industry experts say selling wireless infrastructure is a way for broadcasters to monetize holdings and to give them additional cash to invest in new technologies, or perhaps in some cases, keep lenders at bay.

Meanwhile, high demand for tower space from wireless, broadband and data providers continues to drive up the prices of towers. Broadcast towers are selling at multiples of cash flow 12 to 16 times, said media brokers familiar with such deals, and upwards of 20 times cash flow for towers with cell sites. Those rates have climbed in the past few years.

Those same brokers report that the overall market for radio stations remains soft, with perhaps multiples of five to seven times cash flow at best.

STABLE MODEL

Observers say towers can provide revenue and profit growth within a stable business model so long as

(continued on page 6)

Logitek Networked Console Systems

Everything you need for on-air or production.
Powered by Logitek's Dense Node Architecture.

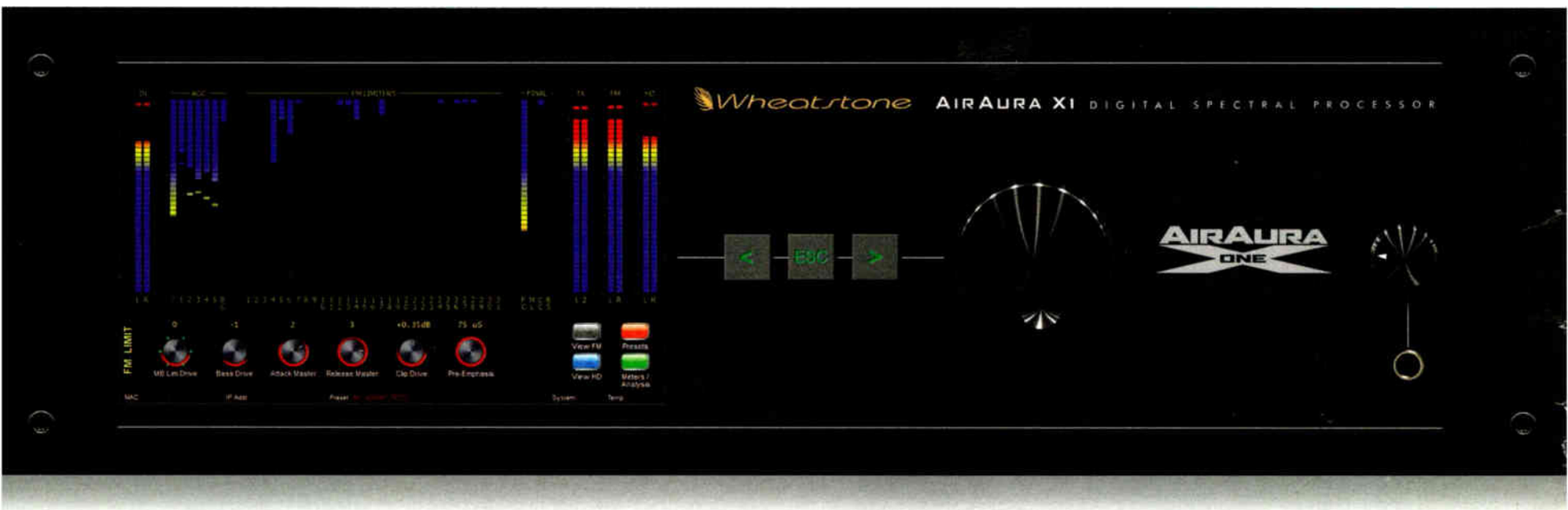
Mosaic Digital Console

800.231.5870 www.logitekaudio.com

World Radio History

THE INTELLIGENT NETWORK

SONICUS MAXIMUS
COSTICUS MIDIMUS



Golden Ears Sound at a Midrange Price

We've put a whole new army of advanced audio control algorithms behind the touchscreen of this new processor. Make a simple adjustment on the screen, and complex control scripts go deep into processor parameters, making multiple interrelated adjustments to push the sound in the direction you want it to go.

A library of supplied presets keeps everyday users in safe territory, while the advanced professional GUI lets experienced "golden ears" refine the sound as much as they want.

AirAura X1. It's where you'll find your signature sound.

AIRAURA ONE

THE ALL NEW AIR AURA X1
DIGITAL SPECTRAL AUDIO PROCESSOR

AirAura X1 is the recipient of NewBay Best of Show Awards from Radio World and Radio Magazine

2016 BEST of SHOW Radio

2016 BEST of SHOW RADIO WORLD

Wheatstone
BROADCAST AUDIO PERFECTIONISTS®

phone +1-252-638-7000 | wheatstone.com | sales@wheatstone.com

World Radio History

RADIOWORLD
Vol. 40, No. 14 June 8, 2016

Next Issue of RADIO WORLD June 22, 2016
Next Issue of ENGINEERING EXTRA June 15, 2016

Website: www.radioworld.com
Email: radioworld@nbmedia.com | Telephone: (703) 852-4600
Business Fax: (703) 852-4582 | Editorial Fax: (703) 852-4585

For address changes and subscription renewal, please visit radioworld.com and click on the "Subscription" button. To submit letters or story proposals, to request writer's guidelines, or for other editorial matters, email the editor at radioworld@nbmedia.com.

EDITORIAL STAFF
EDITOR IN CHIEF, U.S. Paul J. McLane
GEAR & TECHNOLOGY EDITOR Brett Moss
TECHNICAL ADVISER Thomas R. McGinley
TECHNICAL EDITOR, RWEE Rich Rarey
PRODUCTION EDITOR, RWEE Karen Lee
CONTRIBUTING EDITOR Emily Reigart
CONTRIBUTING EDITOR John Bisset
WEB EDITOR Michael Balderston
EDITORIAL ASSISTANT Cameron Vigliano
INTERNATIONAL EDITOR IN CHIEF Marguerite Clark
LATIN AMERICA EDITOR IN CHIEF Rogelio Ocampo

EDITORIAL CONTRIBUTORS
W.C. Alexander, Susan Ashworth, James Careless, Harry Cole, Ken Deutsch, Mark Durenberger, Charles Fitch, Christopher Friesen, Harold Hallikainen, Craig Johnston, Alan Jurison, Paul Kaminski, John Kean, Peter King, Larry Langford, Mark Lapidus, Daniel Mansergh, John Merli, Laura Mir, Jim Peck, Mark Persons, Stephen M. Poole, Carl Lindemann, James O'Neal, Tom Osenkowsky, Rich Rarey, John Schneider, Randy Stine, Richard Strickland, James G. Withers, Tom Vernon

ADMINISTRATION & PRODUCTION
PUBLISHER John Casey
EDITORIAL DIRECTOR Paul J. McLane
PRODUCTION MANAGER Karen Lee
ADVERTISING COORDINATOR Caroline Freeland

AUDIENCE DEVELOPMENT
CORPORATE DIRECTOR AUDIENCE DEVELOPMENT Meg Estevez
CIRCULATION MANAGER Kwentin Keenan
ASSOCIATE CIRCULATION MANAGER Michele Fonville

SUBSCRIPTIONS
Radio World, P.O. Box 282, Lowell, MA 01853
TELEPHONE: 888-266-5828 (USA only 8:30 a.m.–5 p.m. EST)
978-667-0352 (Outside the US) FAX: 978-671-0460
WEBSITE: www.myRWNews.com
EMAIL: newbay@computerfulfillment.com

CORPORATE
NewBay Media LLC
PRESIDENT AND CEO Steve Palm
CHIEF FINANCIAL OFFICER Paul Mastronardi
CONTROLLER Rick Ng
VICE PRESIDENT OF DIGITAL MEDIA Robert Ames

VIDEO/BROADCAST GROUP
EXECUTIVE VICE PRESIDENT Carmel King
VICE PRESIDENT / SALES DIRECTOR Eric Trabb

ADVERTISING SALES REPRESENTATIVES
US REGIONAL & CANADA: John Casey, jcasey@nbmedia.com
T: 212-378-0400, ext. 512 | F: 330-247-1288
US REGIONAL: Michele Inderrieden, minderrieden@nbmedia.com
T: 212-378-0400, ext. 523 | F: 301-234-6303
EUROPE, AFRICA & MIDDLE EAST:
Raffaella Calabrese, rcalabrese@nbmedia.com
T: +39-320-891-1938 | F: +39-02-700-436-999
LATIN AMERICA: Susana Saibene, susana.saibene@gmail.com
T: +34-607-31-40-71
JAPAN: Eiji Yoshikawa, callems@world.odn.ne.jp
T: +81-3-3327-5759 | F: +81-3-3322-7933
ASIA-PACIFIC: Wengong Wang, wwg@imaschina.com
T: +86-755-83862930/40/50 | F: +86-755-83862920
CLASSIFIEDS: Michele Inderrieden, minderrieden@nbmedia.com
T: 212-378-0400, ext. 523 | F: 301-234-6303
LIST RENTAL: 914-925-2449, danny.grubert@lakegroupmedia.com

Radio World Founded by Stevan B. Dana

Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by NewBay Media, LLC, 28 East 28th Street, 12th Floor, New York, NY 10016. Phone: (703) 852-4600, Fax: (703) 852-4582. Periodicals postage rates are paid at New York, NY 10079 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 282, Lowell, MA 01853.

For custom reprints & eprints please contact our reprints coordinator at Wright's Media: 877-652-5295 or NewBay@wrightsmedia.com

Globe graphic ©iStockphoto.com / Edward Grajeda

Copyright 2016 by NewBay Media, LLC.
All rights reserved.
Printed in the USA

SCHAFER

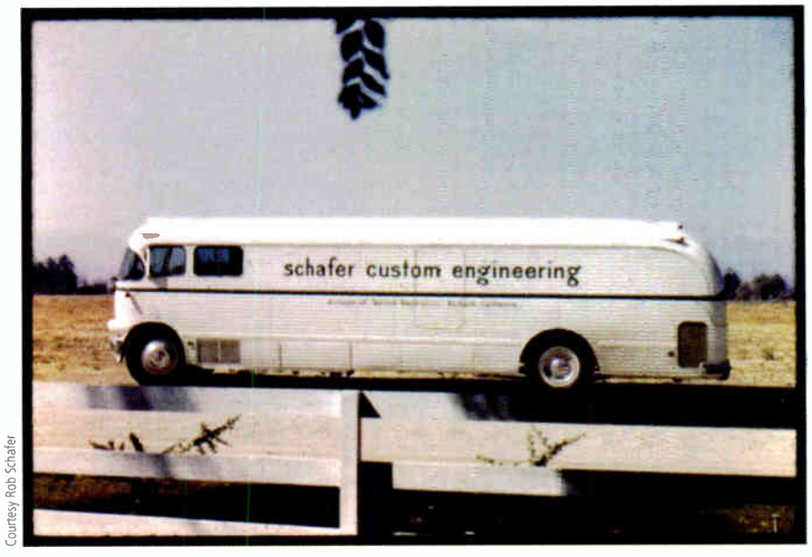
(continued from page 1)

Hollywood broadcast operation. He worked with some of the biggest movie and radio talent of the day at NBC and later remarked that he had had a chance to be involved in "the last of the golden years in radio."

Schafer received the Radio Engineering Achievement Award from the National Association of Broadcasters in 2002. He is shown with NAB's Lynn Claudy.

PIONEERED TRANSMITTER REMOTE CONTROL

It was during his stint at NBC that the FCC began to relax rules on transmitter operation, allowing certain classes of stations to operate without an operator at the transmitter site, as long as a licensed engineer could control and monitor operations from the station's studio location. With the assistance of another NBC engineer, Bill Amidon, Schafer soon devised a remote control system that met commission requirements, and installed the first such unit at Oakland, Calif.'s KROW in 1953.



Courtesy Rob Schafer

One of the Schafer mobile automation system showcases used to demo the product outside of trade shows.

The introduction of this product marked the beginning of the Schafer Custom Engineering business. (Later the name was changed to Schafer Electronics.)

A few years after the launch of the remote control system, the National Association of Broadcasters used it in an extensive field testing program to test the viability of remote control for additional classes of radio stations. The NAB ultimately convinced the FCC to further relax rules governing operation of broadcast transmitters.

FIRST RADIO PROGRAM AUTOMATION

In 1956, Schafer was approached by the owner of KGEE in Bakersfield, Calif., to see if he could devise a system to provide overnight programming content without the involvement of a human operator on duty, thus allowing the station to further economize on operational expenses, as transmitter control and logging had already been remoted by Schafer.

The delivery of a package built around Seeburg jukebox 45 rpm record changer mechanisms and some Ampex reel-to-reel tape decks for playback of commercials and station IDs marked Schafer Electronics' entry into the program automation business. This first system would be considered crude in comparison to later automation packages delivered by Schafer, but it marked the launch of a completely new technology in the broadcasting industry.

Schafer and his engineering staff went on to develop increasingly more versatile and sophisticated program automation systems, including the model 903 that appeared in the 1970s and became an industry standard. His name became synonymous with radio automation and his client base eventually grew to more than 1,000, with systems installed at radio operations all over the world.

Schafer's automation systems were marketed by Collins Radio, Gates (later Harris and now GatesAir), RCA and others, as they had no similar products of their own. Schafer Electronics' latest creations were a big part of the NAB Show for many years. However, Schafer was aware that not all broadcasters were able to attend such trade shows and outfitted several busses and motor homes with his systems and went "on the road" to demonstrate the value of program automation to management and engineering staff at smaller stations across the United States.

Schafer sold Schafer Electronics in 1968, but launched a new business the following year, Schafer International. In the mid-'80s he founded a third business, Schafer Digital, which was involved in the development of PC-based program automation and traffic systems.

STEREO FM VALIDATION

Schafer was tapped by the FCC in the 1960s — when AM radio was still king — to assist the commission in proving the worthiness of FM to broadcasters through some intensive field testing of the newly-adopted U.S. FM stereo broadcasting standard. (Part of the testing involved transmission of a stereo

(continued on page 5)

World Radio History

Meet OPIF, Your New Online Public File

FROM THE EDITOR

Paul McLane

If you are a station manager, you will soon become very familiar with a new FCC acronym: OPIF.

We've been learning more from the commission about compliance with its new public file requirements. We've been reporting about this at *radioworld.com*. Here's a summary containing info from several recent articles by RW's Susan Ashworth, Emily Reigart and me.

Recall that in January, the commission mandated that radio broadcasters must move from keeping public inspection files at the studio and instead post those to an online database, with timetable to follow. Now the commission has set those dates and made the new Online Public Inspection File, or OPIF, available for preview in a demo version. This beta site will be available through June 24 and provides an opportunity to practice.

Access it at *https://publicfiles-demo.fcc.gov/for-broadcasters/*. Any files you upload will be deleted before the system officially goes online. (See my note at end about the log-in procedure.)

Commercial radio stations in the top 50 radio markets that have five or more full-time employees are the first required to use online filing (along with satellite radio, certain cable systems and DBS providers). If that's you, you must commence using the real new database on June 24, and then will have six months to place your existing public file documents into the online file, i.e. by Dec. 24. Existing political file material is exempted.

A second wave of broadcasters has more time. This includes all NCE radio broadcast stations; commercial radio broadcast stations in the top 50 Nielsen Audio markets with fewer than five full-time employees; and all commercial radio broadcast stations in markets below the top 50 or outside all markets (as well as certain cable providers). If you are in this group, you have until March 1, 2018, to place your public file materials online, again exempting existing political files; and as of that date, you must begin placing all new public *and* new political file material in the online file.

Note that for now, commercial broadcasters must continue to keep the public's letters and emails in their local files, as well as copies of current joint sales agreements. But the FCC separately has opened comments on a proposal to eliminate the correspondence file requirement entirely; it clearly is moving toward a future when broadcasters will no longer have to open their physical doors to anyone who demands to see a public file.

Television broadcasters have been subject to online file requirements since 2012; but as of June 24, they too will use the new expanded OPIF rather than the existing online broadcast public inspection file, or BPIF. In moving from that older system, the FCC says it has made technical improvements to help with uploading of documents and management of files, including implementation of an API that can be used to connect the new system to third-party web hosting services. It also finished its transition to cloud-based computing for managing the database and made other technical tweaks.

P.S. About logging in to the beta Online Public File:

You will need a facility ID and passcode to sign in. The telecom attorneys at law firm Fletcher Heald & Hildreth recently blogged about this and noted that some radio stations may not have a passcode. They offered guidance: "At the main login screen for the test OPIF system, if you do not already have a passcode, click on the 'Sign in to Owner Dashboard' link immediately below the login blanks. That will take you to the 'Owners Sign In' page." There you will need your FCC Registration Number and your FRN password. After entering those, you should see all stations associated with that particular FRN, as well as each station's facility ID number and FCC-assigned alphanumeric and case-sensitive passcode. Once you have the passcode, go back to the main login page and sign in using the facility ID number and passcode.

Confused about all this? The commission has posted information online to explain it all at *https://publicfiles-demo.fcc.gov/*. To help broadcasters get up to speed on these changes and demo the system, the FCC planned a live webinar; we were waiting on details as I write this. You can also ask for help at 877-480-3201 or online via *https://esupport.fcc.gov/request.htm*. And of course, when in doubt about any public file matter, check with your station legal counsel.

Hold onto your listeners.

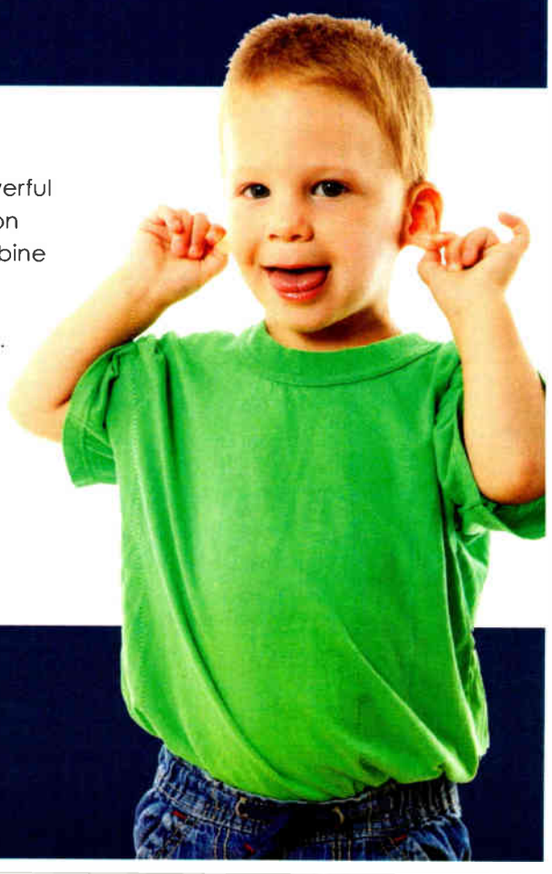
Stay on the air with ARC Plus Touch and SNMP Plus.

Now it's easier than ever to connect to remote site equipment with SNMP Plus – the powerful new SNMP Manager inside the ARC Plus Touch. Connect to any SNMP enabled device on your LAN or WAN. Map SNMP data directly to ARC Plus meter and status channels. Combine SNMP with traditional parallel I/O in comprehensive automated functions.

With ARC Plus Touch and optional SNMP Plus you get total control of your remote facility. Call now for more information.

Buy an ARC Plus Touch and get SNMP Plus and AutoPilot® free.

Now through June 30, 2016.



BURK TECHNOLOGY

www.burk.com | sales@burk.com | 978-486-0086 x700

World Radio History

THIS ISSUE

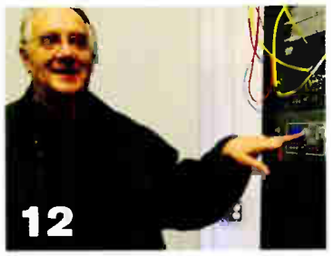
JUNE 8, 2016

NEWS

Paul Schafer Was a Father of Radio Automation 1
Tower Assets Bring Broadcasters Quick Cash 1
Meet OPIF, Your New Online Public File 4
News Roundup 5, 8

FEATURES

Create Your Own Mobile Toolshed 10
Who's Buying What 12



2016 BEST OF SHOW 13, 14, 18, 20

BUYER'S GUIDE

Burk ARC Plus Scores in Green Bay . . . 22
Tech Updates 23, 26, 27
Farm Journal Radio Relies on Report-IT 24
BSI Simian Remote Shines With Island 92 24
What's "App" With the Future of Broadcast? 26
Comrex Helps Retirement HQ 27

OPINION

Reader's Forum 30

SCHAFER

(continued from page 3)

audio pair by satellite.) According to Schafer, the NAB also had a hand in the testing and demonstrations, as that organization believed that the U.S. FM stereo standard should be adopted worldwide.

He was honored with the NAB's 2002 Engineering Achievement Award and authored a chapter on remote control for one of that organization's Engineering Handbooks. Schafer was also the owner of a number of radio stations. His family included five children

A private ceremony to celebrate Schafer's life is planned for June 18.

For much more on Schafer's life, see our 2002 profile at radioworld.com/schafer.

Courtesy Rob Schafer

Schafer poses with one of his transmitter remote control units in a 1950s photo.

NEWS ROUNDUP

A roundup of headlines from Radio World's NewsBytes. Subscribe at radioworld.com *under "Subscribe to email newsletters."*

The date of the next regional IPAWS EAS test was pushed back. It involves California, Colorado, Idaho, Montana, Oregon, North Dakota, South Dakota, Washington and Wyoming. It was moved to Wednesday, June 15 to avoid an earthquake preparedness exercise called Cascadia Rising. ...

Separately, the FCC extended the deadline for the public to comment about changes to EAS. The new deadline is June 8, with reply comments due July 8. Manufacturer Monroe Electronics was the first to ask, saying the industry needed time due to the "sweeping scope" of the rulemaking. Several broadcast organizations filed similar requests. ...

A circuit court decision took the FCC to task for not moving more decisively to improve diversity. It charged the commission with not adequately defining "eligible entities" to encourage additional minority and female ownership. "[The FCC] must make a final determination as to whether to adopt a new definition," the court wrote. "If it needs more data to do so, it must get it." Petitioners included the Multicultural Media, Telecom and Internet Council, Prometheus Radio Project and the National Association of Broadcast Employees and Technicians. ...

More news on page 8.

The Easiest Way to Design Custom
Front Panels & Enclosures

You design it
to your specifications using our FREE CAD software, Front Panel Designer

We machine it
and ship to you a professionally finished product, no minimum quantity required

- Cost effective prototypes and production runs with no setup charges
- Powder-coated and anodized finishes in various colors
- Select from aluminum, acrylic or provide your own material
- Standard lead time in 5 days or express manufacturing in 3 or 1 days

FRONT PANEL EXPRESS

FrontPanelExpress.com

World Radio History

TOWERS

(continued from page 1)

wireless network providers continue to invest in their infrastructure.

Those familiar with the tower marketplace say in most cases broadcasters sell their towers and then maintain occupancy through favorable long-term leaseback terms programs. One tower industry veteran said, "It's easy for broadcasters to negotiate favorable lease terms as part of the original sale."

For instance, in 2015, iHeartMedia closed on a $370 million deal to sell hundreds of radio tower properties to Vertical Bridge. In a press release, iHeart said the sale was structured as a sale-leaseback transaction and didn't affect operations of its radio stations. When the agreement was announced late in 2014, iHeartMedia President/CFO Richard Bressler said the transaction would allow the broadcaster to "optimize our balance sheet and maximize liquidity."

Vertical Bridge is a privately held tower consolidator headquartered in Boca Raton, Fla., that has been aggressive in its pursuit of broadcast tower assets. It was founded in 2014 by executives with Global Tower partners.

Later last year, Townsquare Media announced the sale of 43 towers and property for approximately $22.8 million, also to Vertical Bridge. The sale included a 35-year leaseback agreement. Townsquare said it retains ownership of more than 250 towers.

Townsquare Chairman and CEO Steven Price said at the time, "We are very excited to complete this transaction, which will allow us to unlock capital sequestered in non-strategic tower assets at an attractive valuation level."

This year, Vertical Bridge acquired another 200 or so radio broadcast towers from Alpha Media, including some that had been owned by Digity when Alpha acquired it. Vertical Bridge CEO Alex Gellman said then, "It would be challenging to site these towers today ... Since these towers have not yet been marketed to wireless carriers, they offer attractive new collocation opportunities. Our broadcast partners will also benefit from the height of these towers as they will provide good relocation options relative to the 600 MHz auction repacking process."

Media broker Michael J. Bergner was quoted recently by Above Ground Level magazine as saying, "If you're a broadcaster and you've got a tower to sell, the bell is ringing now." In his view, some stations have not maximized their tower assets from an income standpoint, while tower companies may be better equipped to do the job through marketing and adding tenants. He told the magazine the most active buyers have been Vertical Bridge, CTI Towers, SBA Communications and American Tower.

Other broadcasters, including Cox Media Group and Beasley Broadcast Group, have recently sold off some tower assets. Beasley sold a tower in Augusta, Ga., for $1.3 million in December, according to the broadcaster's 10K U.S. Securities Exchange Commission filing.

Dave Siegler, VP of technical operations for Cox Media Group, said Cox sold all but one of its towers in 2015 to InSite Wireless Group, a tower operator that owns more than 1,200 wireless communications tower sites.

"Selling the sites did generate some cash, but it also allowed us to now focus on our content. We believe it's really the most important part of being a broadcaster," Siegler said. "The distribution of that content and dealing with the hardware is no longer our focus."

Siegler said Cox, which signed a leaseback agreement with InSite, doesn't see any downside to selling its towers. "We will look to maintain a good relationship with InSite and be aware of maintenance issues to make sure the sites are being cared for," Siegler said.

Cox Enterprises, the parent company of Cox Media, has an ownership interest in InSite Wireless Group, Siegler said.

Several groups contacted by Radio World, including Emmis Communications and Cumulus Media, declined to discuss their long-term broadcast tower plans, but industry observers believe many others are exploring sale options.

Cumulus is selling off two AM sites with large amounts of acreage in exchange for a cash infusion.

The process of selling its KABC(AM) tower property in Los Angeles has not been completed as quickly as the company originally had estimated but could fetch an estimated $125 million. Selling off its 75-acre tower site for WMAL(AM) in Washington, D.C., is expected to net the broadcaster another $75 million. Cumulus likely will close those two sales in the next 12 months, according to the company's first quarter financial report filed with the SEC.

Selling the sites did generate some cash but it also allowed us to now focus on our content.

– Dave Siegler, Cox Media Group

VERTICAL VALUE

Some observers view the Cumulus moves as an outgrowth of its serious debt burden; yet similar land and tower deals are being pursued by broadcasters big and small.

AM sites in particular have long been considered juicy sales targets because of the land under them, which often has been surrounded by development since the AM towers were built. Observers say sales of very large parcels of AM tower properties will likely remain the exception.

The Cumulus deal "is a pretty unique situation that is not possible for most AM stations," said Larry Patrick, managing partner of Patrick Communications, a media brokerage firm. "We do occasionally find an AM operator that has a large transmitter site and can sell of a portion of it. But, given that many people do not want to live next to a tower field, these sales only happen occasionally."

In many cases though, it's not the horizontal land but the vertical real estate that is valued.

Standalone broadcast towers that have long-term leases with broadband and cellular companies like Verizon and AT&T are popular with potential suitors because they provide consistent tower income, Patrick said.

"Towers are a stable, predictable and generate significant cash flow margins. And they do not require FCC approval so sales can move forward quickly," Patrick said.

Patrick, whose firm has brokered such tower deals on behalf of broadcasters on a regular basis, said in some cases, companies like AT&T simply approach broadcasters and ask to buy the tower they are leasing.

"In one case, a client had a tower with two 100 kW FMs on it and an AT&T cellular antenna structure. AT&T offered to create a long-term lease for each FM station at only $500 a month total, thus providing an incentive for a future buyer to step into a below-market rate, while paying our client $1.5 million for a 500-foot tower," Patrick said.

He also knows of a former broad-

(continued on page 8)

World Radio History

WHERE COULD YOU GO...

...IF YOU HAD ACCESS?

© 2016 Comrex Copyrights

NEED ACCESS?
CONTACT US:

1 800 237 1776
info@comrex.com

NOW YOU CAN GO TO EVEN MORE PLACES

ACCESS codecs now feature CrossLock™ VPN Technology for superior reliability from even more remote locations. With the ability to use multiple data networks simultaneously, CrossLock gives you not just a **redundancy mode** but also a breakthrough cellular **bonding mode** with the industry's most advanced Adaptive Management Engine, plus a whole new suite of improved BRUTE (BRIC UDP Transmission Enhancement) tools.

ACCESS 2USB
WIRELESS CODEC FOR AUDIO OVER IP

CrossLock VPN

Learn more at www.comrex.com

COMREX
BROADCAST RELIABLE

World Radio History

TOWERS

(continued from page 6)

cast company that sold its stations but retained about 30 towers in a number of mid-sized markets. "They are generating huge profits and have very little concerns with operating."

The demand for vertical real estate — driven by cellular and wireless data communications — happens to coincide with a need for many radio broadcasters to generate cash to help pay down debt, observers said.

Doug Ferber, CEO of DEFcom Advisors, a Dallas-based media broker, said some in the radio industry may be struggling financially but wireless infrastructure management is profitable.

Broadcasters "selling non-core assets in some cases, especially to service debt, can be the first sign of the apocalypse. So, generally, radio companies selling their towers can be a sign of financial struggles but not operational struggles. Individual towers are producing substantial amounts of cash flow," Ferber said.

But of course not every tower is a huge money-maker, Ferber said, because as in most real estate transactions, location is everything.

"A lot of radio towers are not suited for telecom tenants either because of location, for example on top of a mountain, or capacity limits. Therefore these types of broadcast towers will not attract the sensational prices that a telecom designed tower near a busy roadway would," he said.

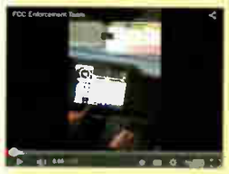
Comment on this or any story. Email radioworld@nbmedia.com.

More Radio, More Voices

Make Radio World part of your day every day. Visit our website for great web-only Radio World content, including the following recent posts and stories:

Students Can Love Radio — Mark Maben at WSOU(FM) Seton Hall University says audio is enjoying a renaissance among young listeners. "High school students are now actively seeking us out, looking for the chance to learn the craft. These students have done their homework." Visit *www.radioworld.com/maben.*

From the FCC, a Cautionary Note About Experimental Licenses — A licensee of experimental AM booster stations in Puerto Rico was denied a request to set up another one because "nothing new or groundbreaking" would be achieved. See *radioworld.com/experimental.*



Things You Might Not Have Seen — Contributor Dan Slentz writes an occasional blog feature called "Off the Beaten Path" about oddities he finds online to interest Radio World readers. How about a video from behind the wheel of an FCC direction-finding pirate hunter? See *http://tinyurl.com/rw-slentz.*

WHAV Radio Going Back to FM — Station President Tim Coco talked about returning the station to the FM dial, and a fundraiser that brought back some station legends. See *radioworld.com/whav.*

Stockphoto/Big_Ryan LO

NEWSROUNDUP

FCC Chairman **Tom Wheeler** said he is committed to issuing a quadrennial media ownership review draft by the end of June. ...

The day is closer when commercial stations no longer must maintain any kind of physical local public files or give people access to them at studio facilities. The commission issued an NPRM asking whether it should continue to require stations to maintain letters and emails from viewers and listeners in a paper inspection file. The change ultimately is expected to win approval. **Commissioner Ajit Pai** said, "The very words 'hardcopy,' 'paper' and 'inspection file' are enough to make an increasingly digital citizenry yawn." In January, the commission had ruled that radio must move most of its public files online, but correspondence files are not part of that. ...

Microsoft opted to remove the free FM Radio app from the latest version of its Windows 10 Mobile phone operating system. Some observers used words like "disappointing" and "short-sighted" in reacting but cautioned against reading too much into it. Third-party apps that use FM radio will continue to operate on the Windows 10 Mobile phone operating system, as well as apps like Pandora and iHeartRadio. ...

The **House of Representatives** passed an FCC reform bill that would require the commission to publish changes to its rules within 24 hours of adoption, with a caveat for dissenters. The bill is not considered controversial. ...

Keith Warner, long-time engineer in the Chicago area, died at age 60. He was former chief engineer for WILV(FM) and had worked for Bonneville and Hubbard stations during his career. He was also an active ham.

World Radio History

The remote revolution is coming

2016 BEST of SHOW RADIO WORLD

Broadcast ViA

USB Cellular | Wi-Fi | IPv4 IPv6 | SIP | ISDN | POTS

The days of complicated configurations are over:

Intuitive touch screen menus
Simple to connect
Built-in Wi-Fi and dual USB cellular ports
Optional ViA ISDN & ViA POTS interface modules
Includes tough protective road case
Fuse multiple IP networks together with Fuse-IP (IP Bonding)
Includes SmartStream PLUS redundant streaming

ViA

Join the #ViARevolution

sales@tieline.com

www.tieline.com

317-845-8000

Tieline®
The Codec Company

World Radio History

Create Your Own Mobile Toolshed

Also, a pop quiz: Do you know what this little gizmo is used for?

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

Nothing is more frustrating for an engineer than having to search frantically for specific tools needed to complete a job. Most of us have a tool kit or bag where we store gizmos, but if you service multiple stations or transmitter sites, you may keep tools in your vehicle. That's fine, but being more organized can make finding tools or parts easier — especially important during an emergency.

Tom Van Gorkom is the engineer for the Radio Esperanza Network of stations in Edenburg, Texas. Tom was faced with this question of organizing tools and parts, and came up with the custom cabinetry seen in Fig. 1.

The cabinet keeps tools and meters where Tom knows he can find them, helping him to do his job more efficiently. While the vehicle is in motion, the drawers are kept locked by the vertical wooden slat, shown in Fig. 2. Remove the slat, and you have full access to the drawers.

Smaller plastic parts drawers can hold parts like connectors, wire ties and other common components. The small plastic bins can be stored in the cabinet drawers.

Fig. 1: A multi-drawer cabinet mounted behind the front seat provides storage for the busy broadcast engineer.

Fig. 2: A wooden slat locks the drawers in place when the vehicle is moving.

If you maintain multiple facilities, you need to work smarter (and harder). Time spent rummaging through cardboard boxes or bins in the trunk or truck bed just cuts down on your efficiency.

Tom also sent in a photo for readers to identify. It is seen in Fig. 3, with a closeup of the end of the device in Fig. 4. Can you ID this tool? Send your answers to *johnpbisset@gmail.com*.

Fig. 3: A useful tool for engineers; can you identify it?

Fig. 4: A close up of the "business end" of the mystery tool.

Projects and contract engineer Greg Muir is a frequent contributor to this column. Greg is a principal with Wolfram Engineering in Montana. He writes that a few years ago, he purchased a Weller WPA2 self-igniting Pyropen butane-fired soldering iron for use on the kind of "quick" field projects where you don't want to drag out an AC-powered soldering iron, let alone try to find an outlet to power it.

The purchase price is significant (in the $120–$150 range), but well worth it, because you always have instant heat available for soldering and shrinking tubing.

Greg's Pyropen has seen only a few dozen uses over the time he has owned it, mostly for small projects (installing XLR connectors).

Recently Greg needed to install two more connectors, so he pulled it out to complete the job. The first connector job went fast, but when he tried to ignite the iron for the second one, it would not light.

(continued on page 12)

World Radio History

For Challenging Reception Scenarios

AARON 650

FM REBROADCAST / TRANSLATOR RECEIVER

Features

- Unique Software Defined Radio (SDR) front-end
- Unparalleled sensitivity, selectivity, and RF shielding
- Total control over bandwidth blend & multi-path mitigation with Manual Reception Processing
- Built-in Band Scanner™ and MPX, FFT
- No Dead Air—audio failover to SD Card or Web Stream
- Dynamic Web Interface for remote control & monitoring

Remote Web Interface

Cleaner Audio
SDR Design

Reception Tools
For Total Control

Audio Protection
No Dead Air

Rear Panel

MADE IN U.S.A.

3 year WARRANTY

CE

INOVONICS BROADCAST

Better Radio Since 1972

sales@inovonicsbroadcast.com
phone: 831-458-0552

World Radio History

WORKBENCH

(continued from page 10)

A call to the Weller service department found that use of conventional cigarette lighter butane fuels will clog the catalytic burner assembly in the iron, rendering it useless. Greg said Weller does not caution about this issue in its accompanying instruction sheet — due to "liabilities," according to the service rep on the phone. But the rep instead recommended "triple refined" or similar butane fuels, which apparently do not contain the contaminants found in the conventional fuels.

If you have experienced this problem, a possible remedy to regain use of the iron is to exhaust the conventional fuel and then refill the iron with the better grade. Next, take the iron outdoors, open the valve but do not ignite it, and allow the new fuel to pass through the catalytic burner until the supply is exhausted. This may or may not clean up the burner assembly.

When Greg inquired about what to do if this remedy did not work, he was told to buy a new Pyropen. That seemed a little excessive; but Weller has an exchange program in which you can take a photo of your Pyropen, email it to their service department, and they will send you a replacement unit for $75. In Greg's mind, this cost is still steep, but it beats buying one at full price.

He inquired about obtaining a replacement burner assembly. According to a customer service representative, the company does not sell that part, again due to "liabilities."

Not one to give up easily, Greg did a web search for Weller part number WPAB. This produced numerous sources that provide the part, including Weller, apparently! Prices range in the low $20s for this item.

If you haven't enjoyed the freedom that a gas-fired soldering iron can provide, you're missing a great tool for today's broadcast engineer. Thanks, Greg, for the detective work.

Contribute to Workbench. You'll help your fellow engineers and qualify for SBE recertification credit. Send Workbench tips to johnpbisset@gmail.com.

WHO'S BUYING WHAT

Engineering Director Chris Murray spec'd and installed all of the equipment.

McKenzie River Broadcasting's KEQB(FM) of Coburg, Ore., recently made some big changes. The station switched to a regional Mexican format and changed its call sign (previously KSHL), as well as its facility.

"La Que Buena" set an overall budget of $100,000 for equipment, automation and equipment replacement.

The project involved new satellite, new automation, refurbished console, processing, remote control, fiber-optic cable runs, new routers and fiber-to-data converters, backup power, antenna switch, GatesAir FAX5K solid-state FM transmitter, backup transmitter, feed line and antenna, and ductless heat pump.

Decisions about transmitter and exciter, solid-state, and inputs for back-up audio were all deemed critical, according to Doug Tharp of equipment dealer SCMS, who provided all of the equipment at the station's studio and RF facility.

Has your station made any purchases lately? Send Who's Buying What news to radioworld@nbmedia.com.

World Radio History

2016 BEST of SHOW RADIOWORLD

Congratulations to winners of the Radio World Best of Show Award at the NAB Show. Participating companies nominated new products and paid an entry fee; winners were chosen by a panel of radio broadcast engineers. To learn about all nominated products, visit the Awards tab at *radioworld.com* and see the Best of Show Program Guide.

All Photos by Jim Peck

JumpGate Hybrid Radio System

The JumpGate Hybrid Radio System brings hardware and services for creating interactive radio. It features the industry's first RDS2 encoder, as well as JumpGate 3data processing and online tools to manage content, configure and monitor broadcast systems. Allen Hartle, center, and Seth Stroh celebrate with RW's Paul McLane.

Wheatstone AirAura X1 Digital Audio Processor

An impressive touchscreen processor in the midrange price point, it is suitable for broadcasters in medium-sized and smaller markets. The X1 gives you the algorithms of Wheatstone's high-end AirAura X3 with a newly designed PC and front-panel user interfaces. Use the library of presets or get fancier with those "golden ears" of yours. Shown are Mike Erickson, Steve Dove and Jeff Keith.

DEVA Broadcast Band Scanner 2

This is an FM and modulation analyzer, RDS decoder and GPS receiver so you can do signal coverage surveys from the USB port of your Windows PC. It assesses FM broadcast band congestion and measures RF level, MPX deviation, left & right audio levels, RDS and pilot injection levels. Measurements are stored in a log file that can be converted into KMZ format and visualized in Google Earth. You can view playlists of competitive stations, as well as save and export them into an Excel file. Todor Ivanov accepts.

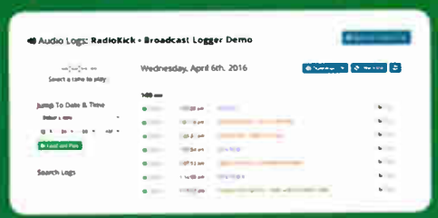
BROADCAST LOGGER

Turbocharge Your Audio Logs
Indexed, Searchable, and In the Cloud

Welcome to Cloud Logging

Broadcast Logger is the new way to capture, store, and manage audio logs in the cloud.

Whether it is for legal, compliance, aircheck, or archival purposes, Broadcast Logger is the safe and simple way to tackle logging.



Export Audio with Ease

Our export tool allows you to select one or more parts of your audio logs, both by metadata and time of day, to quickly combine into a single audio file and send it anywhere it's needed.

With one click the audio can be emailed, downloaded, or published directly to another platform or other podcast tool.

It's easy enough for all staff, including both programming and sales, to be able to use!

Indexed and Searchable

Quickly find what you need with logs indexed by metadata and date.

Schedule Your Free Demo at www.BroadcastLogger.com

2016 BEST of SHOW RADIOWORLD

2016 BEST of SHOW Radio

World Radio History

All Photos by Jim Peck

GatesAir IP Link MPX

Aimed at STL applications, the codec is intended to solve the problem of transporting analog FM composite multiplex signals over IP networks. Suitable for those who lack network bandwidth to distribute full AES192 digital FM composite signal. Rich Redmond does the honors.

Broadcast Logger

Capture, store and manage audio files in the cloud for legal, compliance, aircheck or archives. It also logs your metadata. Base package is $125 per month for commercial stations with steep discount for educational and non-profits. Don Landels, Brian Frankson and Curtis Machek log in.

Inovonics INOmini 638 FM/HD Radio SiteStreamer

Monitor six sources of FM and HD programming via the internet. Tune-in, switch modes, listen remotely via streamed audio, receive email or text alarms. Supports "round robin" sequencing of pre-set channels. Ben Barber, Josh McAtee, Gary Luhrman, Zach Calden and Jim Wood join Paul McLane.

Lawo R3LAY

R3LAY is a virtual radio studio with AES67 interface, analog and digital I/O and 4- or 8-fader virtual mixer. Tuck a touchscreen laptop loaded with the software into its backpack, with an OnAir 4 audio interface, a mic and headset, and you're ready for news, sports, remotes. Optional plug-ins add capabilities like voice processing, final audio processing, stereo declipping, profanity delay and other functions — a first step toward cloud-based radio studios, according to Lawo. Clark Novak was with Paul McLane.

Tieline ViA

This portable remote audio codec delivers more IP choices and backup options. Connect using dual LAN Ethernet ports or two USB modems, or use its Wi-Fi module. Insert an optional POTS or ISDN module to connect over alternative network transports. Configure primary and backup connections over different network transports as required, or use them as your IFB circuit. Features Fuse-IP data aggregation and SmartStream Plus dual redundant streaming software. Shown are Dawn Shewmaker, Jake Daniluck, John Lackness, Paul McLane, Will Mclean, Charlie Gawley, Anthony Sizer and Glenn Davies.

Audio-Technica BP40

AT's new large-diaphragm dynamic broadcast microphone uses floating-edge construction and optimized capsule placement to ensure commanding vocal presence in close-up vocal work. Use it on the air and for overdubs, post-production, podcasting and other broadcast applications. Humbucking voice coil prevents interference from studio monitors and other electronics. Hypercardioid polar pattern and switchable 100 Hz high-pass filter. Street price $349. Gary Boss and Jeff Simcox are with Paul.

World Radio History

Beautiful. Smart. Hardworking.

The Fusion Console from Axia®

A trifecta of design, technology, and support from the guys who invented AoIP.

Intelligent features like automatic mix-minus for phones and codecs, built-in talent talkback, source EQ and voice dynamics, 99 Show Profile snapshots, and Custom Source Profiles with detailed control over every input deliver the fastest, most error-free talent workflow ever.

Super-sharp OLED channel displays. Machined metal work surfaces with rub-proof markings. Optical encoders. Aerospace-grade switches. Premium faders rated for millions of flawless operations. Fusion's elegant design sets off any studio.

And Axia backs you with the industry's only 5-year warranty, 24/7 Support, and the experience gained from having more than 7,000 AoIP consoles on the air.

Brains, beauty, or backup? Choose all three.

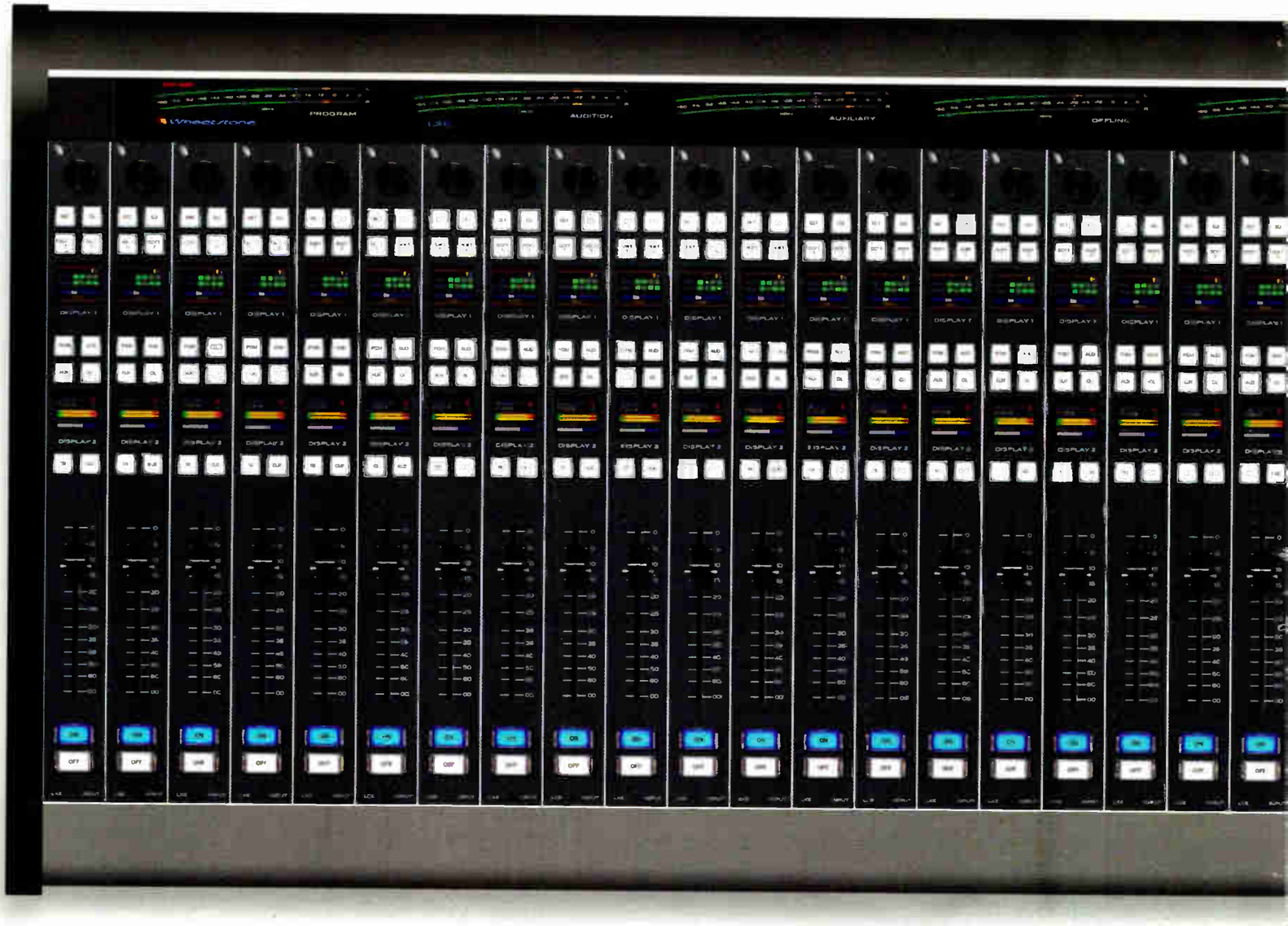
Broadcasters General Store | AXIA THE TELOS ALLIANCE

(352) 622-7700 | bgs.cc | TelosAlliance.com

©2016 TLS Corp. Axia®. The Telos Alliance®. All Rights Reserved. F16/16024

World Radio History

LXEvolved



The Evolution of LX Radio Control Console

Wheatstone's new LXE console brings control surface configuration to a new level. Going far beyond the usual "any source to any fader" network concept, the LXE is a fully flexible control interface, where every switch and rotary control is programmable to perform any desired function. This means console architecture is completely customizable to client requirements, and limitations to functionality are no longer a factor. Physically compact, the LXE is available in several different form factors including countertop, countertop sunken, and split frames (split sections are not confined to one room, they can actually be in different studios).

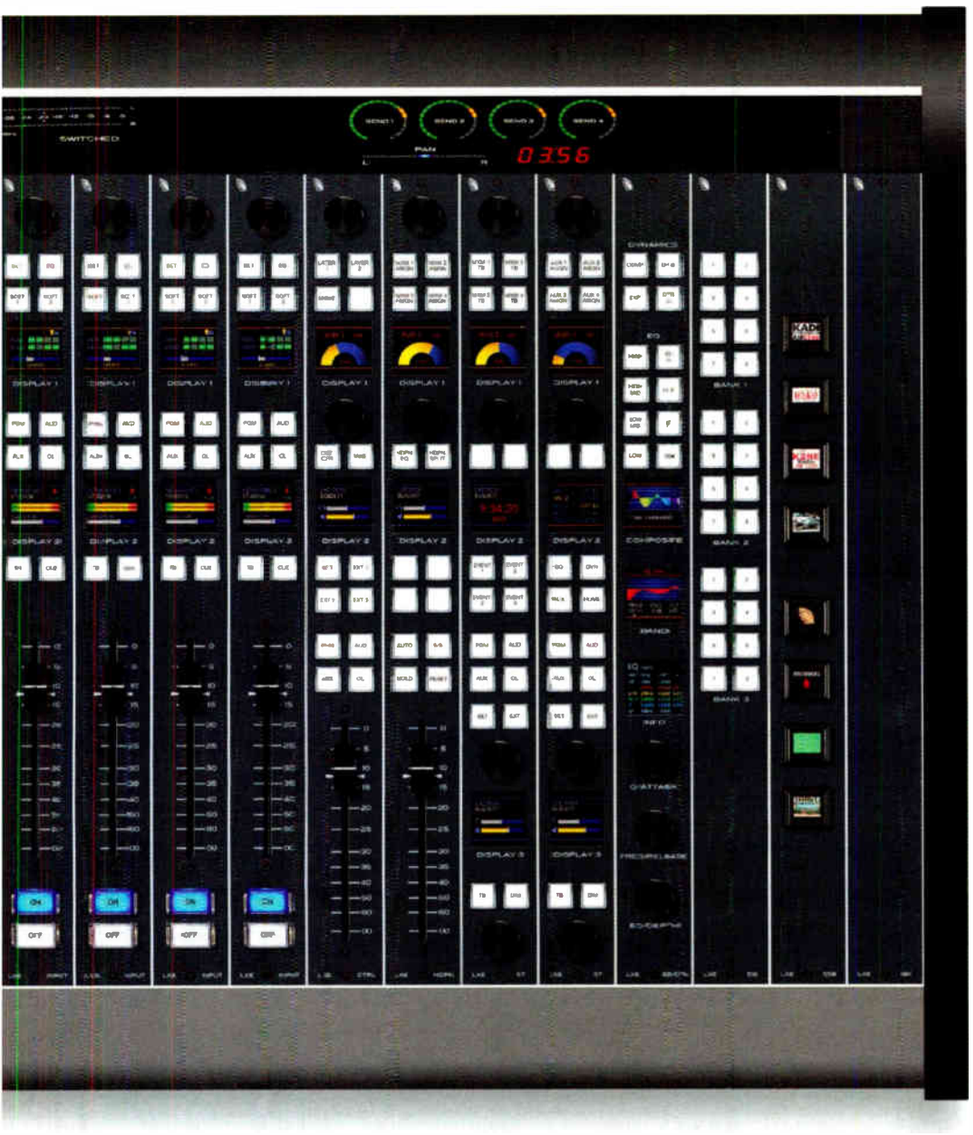
Any Way You Want It

ConsoleBuilder software allows every switch on the surface to be programmed for function, mode, and even color (switches are RGB led illuminated). In fact, built-in software allows every button to be scriptable, letting you create powerful macros for as many controls as you want. Multiple full color OLED displays on each panel keep pace with ongoing operations, and event recall allows painless one touch console reconfiguration at the press of a button. With its inherent control flexibility and ability to access thousands of signals (sources and destinations are limited only by the size of the network) the LXE takes facility work flows and audio control to a new level.

LXE is the recipient of NewBay Best of Show Awards from Radio World and TV Technology

World Radio History

THE INTELLIGENT NETWORK



The World At Your (Motorized) Fingertips

The LXE can have up to 32 physical motorized faders, with full DSP processing available on all 32 channels. Surface(s) interface seamlessly into the WheatNet-IP Intelligent Network, and utilize BLADE-3s for audio, control and associated logic data flowing on single CAT6 interconnecting cables. The system can ingest and convert virtually all audio formats: analog, microphone, AES/EBU, SPDIF, AoIP, MADI, SDI and even AES67. Loudness metering, phase control, and full EQ/Dynamics are included.

All New Graphical User Interface

LXE's new GUI is has pre-built screens for everything you normally use – metering, clocks, timers, dynamics, EQ, assigns, and more. All are touch-screen accessible with gestures you're used to using on your smart devices. And, the GUI is just as customizable as the LXE surface. Using our ScreenBuilder-LXE software, you simply drag and drop objects and define their functions via a simple wizard interface. You can store multiple custom screens, if you like, to go with your custom LXE setups.

THE ALL NEW LXE BROADCAST AUDIO CONSOLE

Wheatstone
BROADCAST AUDIO PERFECTIONISTS®

phone +1-252-638-7000 | wheatstone.com | sales@wheatstone.com

World Radio History

All Photos by Jim Peck

WorldCast Manager SNMP Monitoring Tool

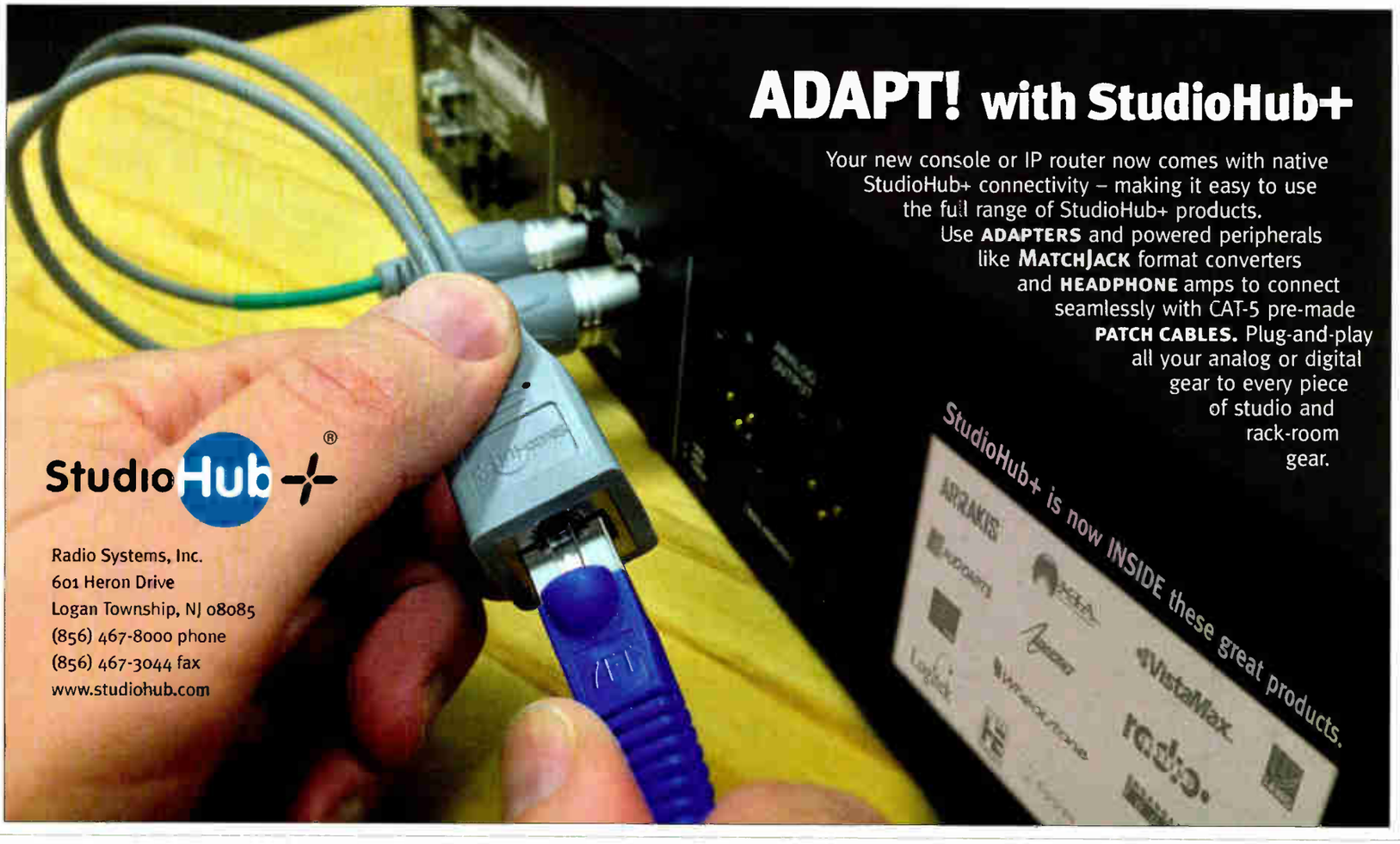
This simplifies the monitoring of all SNMP-based devices from any manufacturer, not just WorldCast's. It can be deployed to monitor an entire broadcast site or multiple sites. The PC-based application provides status and alarms of all connected units in a unified display as well as access to the unit's own web-based control interface. Getting connected are Kevin Campbell, Nicolas Boulay, Christophe Poulain, Paul McLane, Tony Peterle and Grégory Mercier.

Wheatstone LXE Digital Audio Mixing Console

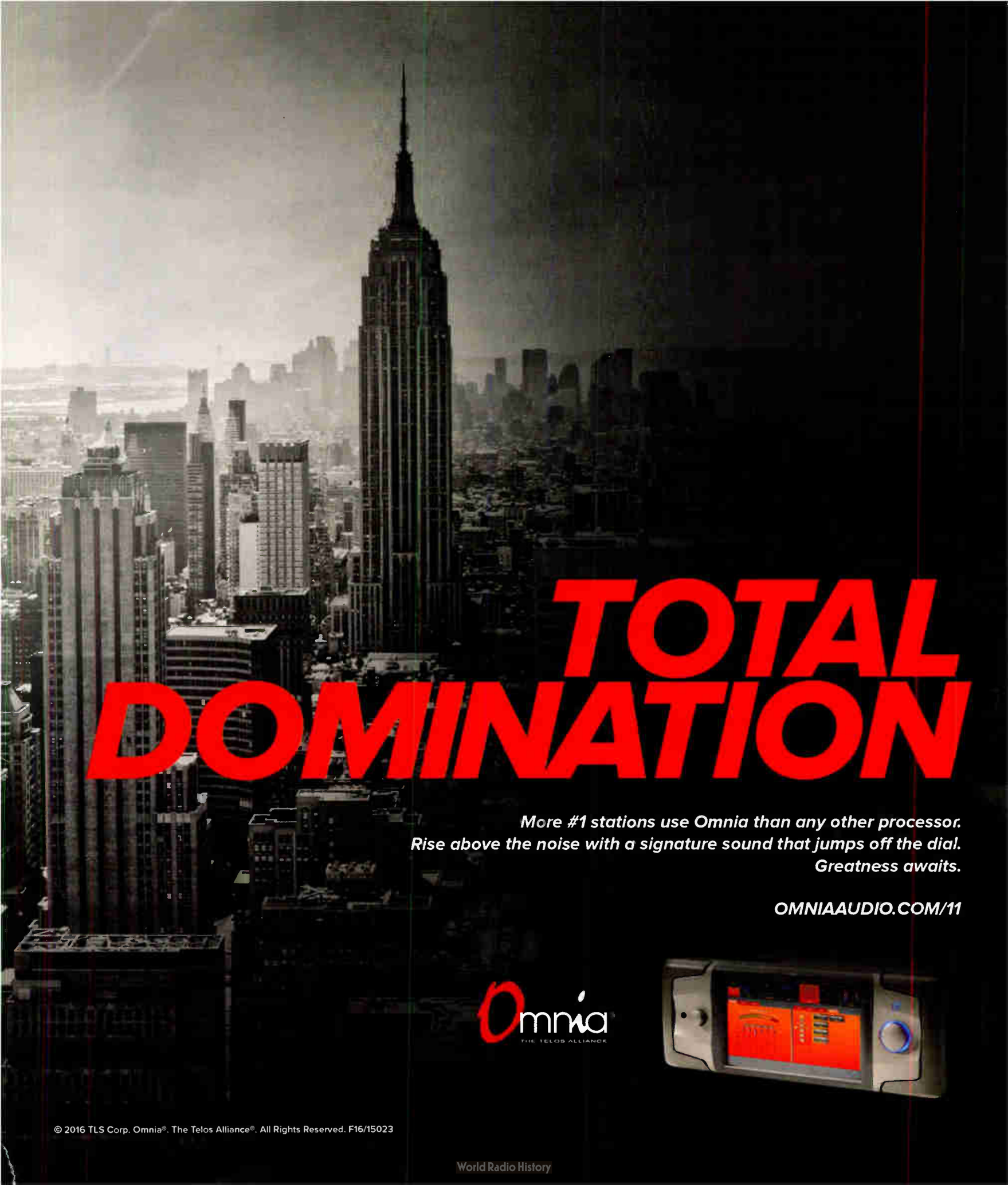
"Configurable" is the operative word — not just any source to any fader, but every switch and rotary control is programmable to perform any function using pulldown configuration software. Control function, mode and even color on the LED illuminated switches. Every button is scriptable, letting you create macros. The LXE is available in several form factors including countertop, countertop sunken and split frames; you can split frames between studios. Metering, phase control and EQ/Dynamics are included, as well as pre-built touchscreen GUIs. It is available with or without a meterbridge. Shown are Darrin Paley, Paul McLane, Jay Tyler, Kelly Parker, Steve Dove and Dave Breithaupt.

NeoGroupe NeoScreenerSmart (for Tablets & Smartphones)

NeoGroupe makes applications to manage calls for talk shows; this new offering is an iOS/Android app that runs on tablets to give control to your remote hosts, who can put calls to air while screening continues at the station. Whatever the screener types appears on the tablet. Philippe Halin takes home the hardware.



World Radio History



© 2016 TLS Corp. Omnia®. The Telos Alliance®. All Rights Reserved. F16/15023

World Radio History

All Photos by Jim Peck

Orban Optimod-FM 8700 Audio Processor

A new flagship FM processor for the Optimod line. Ravenna AoIP I/O (AES-67 compliant); 192 kHz AES3 digital composite output; dual digitized SCA inputs; hot-swappable PC server-grade dual redundant power supply with automatic failover; new program-adaptive subharmonic synthesizer for punchy bass. Jay Brentlinger and Bob Orban tolerate Paul changing the settings.

The Selector Cloud From RCS

This new service for radio and webcasters provides secure access via a username and password, allowing the user to perform music scheduling functions such as library management, clock-building, policy setting, log editing, transfer to the automation system and analysis. One library can be used across an unlimited number of stations; data is secured and backed up constantly. Philippe Generali, left, introduced it.

InSoft HDVMixer

Add video with this add-on server that runs separate from your automation. Studio camera switching is automatic through GPIO triggers or vox activation. Video can change based on mic fader on/off and automation commands. Cameras can zoom in automatically on the person talking. Current track, performer and other metadata can be displayed as an overlay, up to 35 layers. Accommodates up to nine video sources such as RTSP network player, auxiliary video deck, camera sources, remote desktop grabber, Skype, etc. The system supports Smartphone H.264 feeds connecting to its built-in RTMP server, handy for remotes. Alex Bonello accepts.

BW Broadcast ModMon Encore

It's a combo mod monitor MPX decoder, metering device and test set, with two inputs each for FM and MPX so you can meter four sources at once, switching with a front button. BW Broadcast's men in black Rob Kidd, Andy Linton, Brendan Lofty and Ricardo Da Silva gives thumbs up in the SCMS booth, with Paul.

PRODUCT SPOTLIGHT ADVERTISEMENT

Audio-Technica BP40 Large-Diaphragm Dynamic Broadcast Microphone

Audio-Technica's new BP40 broadcast vocal microphone offers a rich, natural, condenser-like sound from a large-diaphragm dynamic design. The 40 mm diaphragm features patented floating-edge construction that maximizes diaphragm surface area and optimizes overall diaphragm performance, while the humbucking voice coil prevents electromagnetic interference (EMI).

With rugged construction and stylish, waveform-inspired design, the BP40 delivers clear and articulate reproduction. Optimized capsule placement helps maintain a commanding vocal presence even at a distance, while the multistage windscreen provides superior internal pop filtering. See the BP40 review on *www.radioworld.com*. U.S. estimated street price $349.

www.audio-technica.com

pro@atus.com • 330-686-2600

World Radio History

Networkable Consoles
PRICED SO AFFORDABLE
they're irresistable

The Flexiva Oasis is a high-value standalone audio console for on-air and radio production applications. Simply connect microphones, source equipment and audio monitors directly into the Flexiva Oasis console and be on the air.

Flexiva Oasis allows facilities to cost-effectively and easily migrate from analog to digital whenever they're ready. In addition to capabilities for all necessary audio and logic components, Flexiva Oasis provides both analog and digital outputs enable facilities to connect to modern STLs and studio infrastructures.

*this is for the 8-channel

GATESAIR

GatesAir Flexiva Oasis Networkable Digital Console
starts at $3800.*

Call SCMS for more information

1-800-438-6040

www.scmsinc.com

SCMS INC.
YOU KNOW WE KNOW RADIO

Latin America 760-650-1427	**West Coast** 818-398-7314	**North Central** 573-478-3737	**Mid-West** 844-436-4327	**North-East** 315-623-7655	**Pro Audio/South-East** 877-640-8205	
Western Mountain States 303-674-6566	**Central** 315-623-7655	**Southern Gulf** 866-205-6905	**TV and Video Products** 702-566-4194	**Mid-South** 877-391-2650	**Bradley Division** 800-732-7665	

World Radio History

Burk ARC Plus Scores in Green Bay

Ease of use, constant intro of new features is relevant to Relevant Radio

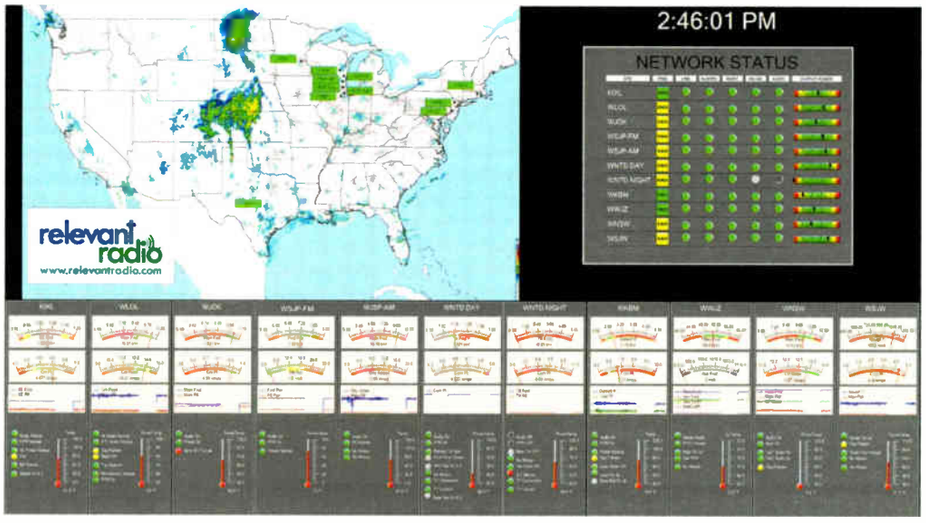
USERREPORT

BY ANDY DISTERHAFT, CBRE
Director of Engineering/Operations
Relevant Radio

GREEN BAY, Wis. — In today's world, with today's technology, it seems broadcast engineers are expected to be on top of issues at their stations before everyone else even knows about them. I find myself in that situation more often than not. With the workload not getting any easier, we look for tools that can help, especially with remote control.

One tool I use to help me stay connected to my transmitter sites is the ARC Plus from Burk Technology. The latest in remote control systems from Burk seems to have all the new things you'd like and the same older features you can expect. I like the email alerts and the mobile-friendly web access. Yet, when the internet goes down at a site, I can still dial-in through the POTS line. I've even used the POTS line to dial in and restart the internet.

If I'm at the office, I use the AutoPilot software on my PC to connect to all of my sites at once and get a quick snapshot of what is going on everywhere. The custom view builder allows me to put the critical status and meters from each site on one screen. When I'm out of the office, the web interface gives me an easy way to access each site through the internet on my smartphone or any browser. From there, I can check the alarms and run macros. The web interface includes a mobile version that works well on both Android and iPhones, from my experience.



Screenshot of Burk AutoPilot customized for Relevant Radio network operations.

AUTOMATIC

Doing transmitter logs by hand has become a thing of the past for my stations. Each week AutoPilot emails me and the stations' staff a custom built log for each station. It highlights any out-of-tolerance meter readings and displays any status changes in an easy-to-read report.

Installing the system was fairly simple. If you've installed one of the older Burk remote control systems, you'll find there is a lot more IT work to be done. Programming the unit was easy with the AutoLoad Plus software. Macros are now done using drop-down menus, basically eliminating errors in programming syntax.

There are a number of useful accessories available to interact with the ARC Plus. In the past, most remote control systems were limited to meter and commands. I use the Plus-X AC-8 with eight remote-controllable outlets to cycle the power on many devices remotely. The Plus-X EM32 Environmental Monitor is a great add-on with temperature, flood, motion and smoke alarms. It sure is nice to have those sensors when you need them. I've personally averted disasters with the flood and smoke alarms installed at sites with the EM32.

Bottom line, this product works. I would recommend it to any station wanting complete remote control over their facilities. Burk continues to add to and improve its products. They just rolled out SNMP capabilities. I've just started to test that, but I'm excited to see what new features this will bring and what new devices will be able to communicate with the ARC Plus.

For information, contact Matt Leland at Burk Technology in Massachusetts at (978) 486-0086 x700 or visit www.burk.com.

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.**

DEVA® BROADCAST

Available in stock from Broadcast Depot, Call: 800-313-7592
www.devabroadcast.com

World Radio History

TECHUPDATES

RCS PUTS PLATFORMS ON THE ROAD

Broadcast software developer RCS provides apps to take all of its main software platforms on the road.

The company's keystone product, GSelector music scheduling software, has Selector2Go (shown). For that app the data flow is kept small to enable fast performance, even on mobile networks like 3G. RCS says Selector2Go gives users core scheduling, schedule editing functionality and essential analysis details of rotations in the palm of a hand.

The automation platform Zetta has a mobile sidekick, Zetta2Go. Using a tablet or smartphone a user can view and fire hot keys for a station, from a laptop or remote desktop a user can control much more. A desktop internet browser can display logs, hot keys and the segue/voice track editor allowing the user to voice track empty voice track slots in the log, edit the segue of the voice tracks and fire hot keys from a hot keys bank.

The company's Aquira traffic software is the latest to go mobile with Aquira2Go. Incorporating the benefits of touchscreen technology, the interface simplifies tasks, improves accuracy and productivity, allowing the account executive to deliver professional service to clients.

RCS' mobile apps operate on most PC and Mac computers as well as most smartphones, tablets and e-readers, including the iPad and iPhone.

For information contact RCS in New York at (914) 428-4600 or visit www.rcsworks.com.

ENCO IS INTO ENCLOUD

ENCO says that its enCloud Suite includes remote voice-tracking for off-site audio production, remote content manipulation, remote control and flexible iOS and Android apps to simplify live newsgathering and contribution from the field.

ENCO has recently added its new iDAD-Live application to the enCloud suite.

This allows journalists to stream audio from their iOS device, in real time, to a DAD automation system for playout.

ENCO's iDAD and enDroid applications allow news reporters and announcers to record, label, transport, and now stream audio directly to ENCO automation systems, with ENCO's Interchange utility enabling a secure connection between the two worlds.

The company adds that ENCO Remote Voicetracking software allows broadcasters to voice-track programs from the field using a Windows or Mac web browser, iPad or PC without a VPN requirement.

Additionally, ENCO's latest Weblib2 application provides browser-based access to playlists and libraries, and allows staff to modify, upload, download and audition new and existing content.

For information, contact Ken Frommert at ENCO in Michigan at (248) 827-4440 or visit www.enco.com.

World Radio History

Farm Journal Radio Relies on Report-IT

Tieline smartphone codec app brings live reports from the fields

USERREPORT

BY JOHN HERATH
Director of Operations
Farm Journal Radio

SOUTH BEND, IND. — Farm Journal Radio is part of the Farm Journal Co., which has properties in print, web, data, television and radio, all focusing on agriculture. On the radio side we have two syndicated talk shows called "AgriTalk" and "Market Rally," as well as a daily syndicated feature called "American Countryside."

"AgriTalk" is a live, one-hour syndicated talk radio program focusing on agriculture and rural America and it airs on 90 affiliate stations throughout the Midwest. The show's host, Mike Adams, has been with the program since 2001; he travels more than 100 days a year to do remote broadcasts that facilitate discussions about issues and ideas important to rural America.

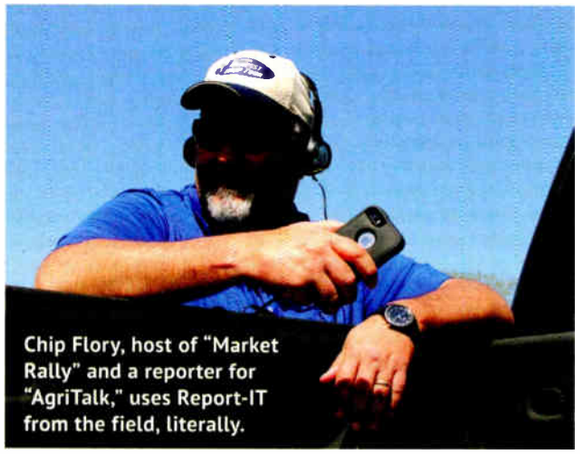
We use Tieline Commander and i-Mix G3 codecs for all of these remotes and I have used them since 2003 when I joined "AgriTalk." Back in those days, we mostly connected over a POTS line to go live. Nowadays, we connect over IP almost exclusively.

I was also an early adopter of Tieline's Report-IT Enterprise smartphone codec app solution and we have been using this for several years. Where Report-IT really shines for us is our annual crop tour. We have teams of market analysts, farmers, reporters, etc. who fan out across the Corn Belt every August and measure samples from corn and soybean fields.

It's the largest on-the-ground estimate of the crop and is closely watched by the industry and grain traders. We have reporters literally out in the fields connecting to our radio shows live and delivering the latest information on the condition of the crop they are observing. They interview experts live and the information they gather conveys early indications of expected crop size.

Logistically, it's huge. Our teams of editors and reporters drive thousands of miles visiting farms throughout South Dakota, Nebraska and Kansas in the west, into Minnesota, Iowa and Missouri, and then eastward into Illinois, Indiana and Ohio.

This will be our fourth year using Report-IT on our annual crop tour, and it's been tremendous. We purchased 10 user accounts and we have a Commander G3 rack unit and a Bridge-IT IP codec in the studio that we use to receive calls from reporters using Report-IT. The Report-IT Enterprise app is preloaded onto all of our phones, and I configure the settings for each user account using Tieline's Tieserver Console app for Report-IT administrators.



Chip Flory, host of "Market Rally" and a reporter for "AgriTalk," uses Report-IT from the field, literally.

Our teams carry two cellphones from different telcos in case service for one network is more reliable than the other in different locations. We rarely encounter any cellphone coverage issues and I have been pleasantly surprised about how reliable it's been overall.

We use Tieline iRig adapters to attach a handheld microphone or a headset to our cellphones when reporting. The quality is so much better than a regular phone call, and it's amazing when you hear people reporting from such remote areas standing in the middle of a field. It's remarkable how Report-IT frees users up and just fits into a pocket.

The Report-IT feeds come into our main studio in South Bend, Ind., and these are mixed with feeds from studios in Jacksonville, Ill., and Cedar Falls, Iowa. One of the remote studios uses an i-Mix to connect and the other uses a Bridge-IT over IP. Every remote endpoint receives a mix-minus feed from our main studio to facilitate bidirectional communications. This allows us to integrate reporters from multiple locations simultaneously.

Report-IT has worked very well for us, even in some rather remote locations. It's portable, it's simple for reporters to use, and has improved the workflows and quality of our remote broadcasts.

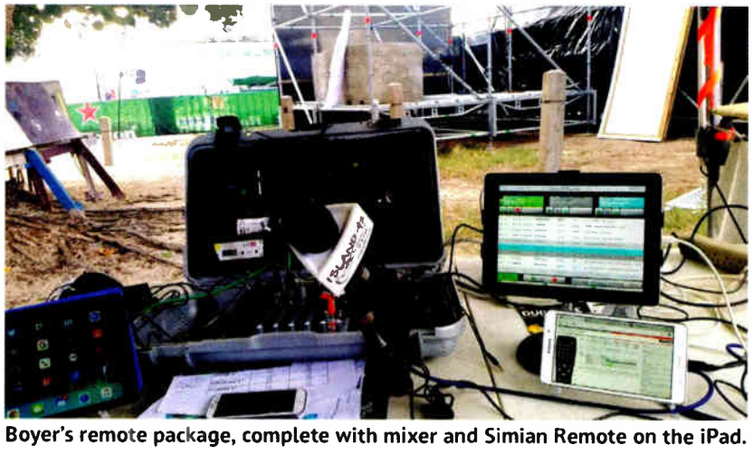
For information, contact John Lackness at Tieline USA in Indiana at (317) 845-8000 or visit www.tieline.com.

BSI Simian Remote Shines With Island 92

Remote app behaves just as if it were in the studio

USERREPORT

BY ERIC R. BOYER
PD/MD/Tech/On-Air Host
Caribe Broadcasting



Boyer's remote package, complete with mixer and Simian Remote on the iPad.

SIMPSON BAY, ST. MAARTEN — Here at Caribe Broadcasting/Island 92 we use Simian Remote from Broadcast Software International for all of our remotes. We do a lot of remotes with a very little staff, three employees to be exact. Of them I am the only technical person, so being able to deploy and run a remote on their own is very important.

Where we get the most use out of it is the Sint Maarten Heineken Regatta, a very large sailing event here in the northeast Caribbean. Simian Remote on the iPad gives us the ability to control the station with all the functionality as if we were in the studio.

On the Simian Remote screen you actually have the same visual as what is seen in the station, so it's very easy for people that already know how to run Simian to be able to just start up the app, connect and be on the air. The functionality of Simian Remote is great because you have access to the macros, you have access to change the log, you have access to hot keys, everything that you would have in the studio is available to you on the iPad.

The one drawback with Simian Remote has nothing to do with the app; it's the fault of the iPad and multitasking — if you need to jump to another app and try to come back to the app, you will need to reconnect and download the log again. We usually end up having a second tablet or also use smartphones to handle this. We have them anyway to access the internet for weather and any other information that we need to get to be able to do the broadcast.

For our remotes we have two delivery systems to get audio back to the studio. The more portable one is using an iPhone app to connect to our AEQ Phoenix codec and then use the iPad to control the station. We use hot keys on the Simian Remote to control a router to switch the audio. The second is a kit I built using a Barix Instreamer IP interface to link back to the station's Barix Exstreamer. The kit has a little mixer and portable WiMax internet interface.

Either way, we have the ability to arrive onsite, set-up and be broadcasting in a matter of minutes, no matter the techni-

(continued on page 27)

World Radio History

We are mobile.

“We get to **work** on **our stations wherever** we are!”

Aquira2GO Zetta2GO Selector2GO

RCS Sound Software rcsworks.com

© Copyright 2016 RCS. All Rights Reserved. RCS Sound Software and its products and their marks and logos are registered trademarks of RCS.

World Radio History

What's "App" With the Future of Broadcast?

K-Love tries out the software side of Telos products

USERREPORT

BY JONATHAN OBIEN
Manager of Studio Operations
K-Love and Air1

ROCKLIN, CALIF. — We have reached the end of life with our traditional analog and AES broadcast technology, and with the progress and convergence of broadcast into the digital realm of IP and mobile delivery platforms, we decided to partner with Telos Alliance for our studio broadcast technology needs.

As the manager of studio operations at K-Love and Air1, my responsibility was to rebuild our network's head-end systems and implement a design that is scalable, turnkey, customizable and reliable. This comes with many challenges, but between the different products available through the Telos Alliance, we were able to come up with many solutions to achieve our goals.

SOFTWARE CONTROL

One solution required the use of Axia SoftSurface from the Telos Alliance. This virtual console software for Windows gives you real-time control of your Axia Fusion or Element mixing console from anywhere an Internet connection is available. SoftSurface lets you take direct remote control of your console, or you can match it directly to an Axia StudioEngine mixing engine or PowerStation connected to a Livewire network to create a "virtual console" without a physical mixing surface. It's a great companion for existing consoles and also a solution for audio mixing in limited-space locations. You can also load it to your tablet for remote broadcasts. Furthermore, SoftSurface was designed to be complementary in a simple, small standalone studio or, as in our case, the answer to a complex, scalable, multi-studio digital environment.

We were growing rapidly in the area of digital media delivery and running out of square footage. We dreamed up a system that would achieve a "Studio-in-a-Rack" that could grow with us.

We contacted Cam Eicher at Telos Alliance. With Cam and our tech John Ott, we were able to create a solution using existing Telos Alliance products, and SoftSurface was the missing-link.

John learned SoftSurface in three days, and in a week he found the feature-rich capability, intuitive interface and ease of configuration to be refreshing. Within the app he created individual profiles for the programs airing. These profiles store configuration templates for a particular show. The Show Profiles tab displays these profiles and allows the user to select a show and load it. Up to 99 show profiles can be stored.

SoftSurface can also be used to substitute for a hardware controller or to enhance the existing hardware controllers of a single studio or to remote into multiple studios on the AoIP network. We have used it as a central controller for multiple program feeds for our digital streaming platforms (e.g. our website, iTunes, iHeart, etc.). While this is nothing new in the world of DAW production, it's groundbreaking for us to modularly build broadcast studios with native turnkey products that allow us to go "virtual" with minimal hardware.

Jonathan Obie

That's what I liked about the marriage of all the products that the Telos Alliance offers. At first it was a little intimidating to try to sort through all their products. It felt like all the functions of a traditional turnkey console was exploded into modular parts. And it felt like that because that is exactly what the Telos Alliance did.

Once I grasped the potential of this modular approach, I realized the power of their approach. Think Legos for broadcast. If we can dream it, there is a native combination of the Telos Alliance products that creates solutions. We combined SoftSurface with studio engines and some nodes to make powerful virtual studios in a single rack.

For information, contact Cam Eicher at the Telos Alliance in Ohio at (216) 241-7225 or visit www.telosalliance.com.

TECHUPDATES

TAGSTATION SUPPLIES DATA TO NEXTRADIO APP

TagStation is a cloud-based system that enables the centralized management of broadcast metadata. The company says it empowers local radio staff to take on the management of this information, freeing up engineering resources for more critical, technically-challenging tasks.

TagStation can be configured to send enhanced visual content and metadata to NextRadio (the Android-based FM tuner application) and to HD Radio/Artist Experience receivers; it can also be used to send metadata to RDS-enabled receivers.

Installation is simple thanks to free, proprietary datacasting software Slingshot, which supports connections to major automation systems like BE AudioVault, RCS NexGen, RCS Zetta, WideOrbit AFR and others. Note that HD + RDS configuration is not supported by Slingshot and requires the use of third-party datacasting software.

For information, contact NextRadio in Indiana at (317) 684-2952 or visit www.tagstation.com.

WORLDCAST MANAGER SIMPLIFIES MONITORING

A new SNMP monitoring tool from WorldCast Systems is WorldCast Manager.

It is an intuitive PC-based application that provides real-time status and alarms of connected units in a unified display. Should further investigation be required, it provides the user with access to the unit's own web-based control interface.

WorldCast Manager has been designed to work not only with WorldCast Systems products but with any SNMP-enabled device, meaning it can be deployed to monitor an entire broadcast site or even multiple sites.

With a growing library of broadcast and other devices, many units discovered will require no further configuration within the system; expertise in SNMP is not required. If a device is not automatically recognized, the user can use the integrated tools to import the MIB files or ask WorldCast Systems, which can provide the service free of charge.

Once configured, the modern, clean user interface with map-based display shows the status of monitored devices across monitored sites and alerts you to any alarms. If an alarm does occur, the WorldCast Manager will identify the alarm and can provide one-click access to the unit's web-based control interface to help resolve the issue.

WorldCast Manager is offered on a tiered subscription basis, with a free version permanently available to those broadcasters wishing to manage a small number of predominantly WorldCast equipment.

The platinum version is free of charge without commitment until the end of September 2016, and a permanently free version is available enabling monitoring of up to 11 devices. The software can be downloaded from download.worldcastmanager.com.

For information, contact WorldCast Systems in Florida at (305) 249-3110 or visit www.worldcastsystems.com.

World Radio History

Comrex Helps Retirement HQ

Free web app works with Comrex STAC VIP to handle audio comms for radio program

USERREPORT

BY RYAN ELDER
Lead of Radio Production
Retirement HQ

TOPEKA, KAN. — At Retirement HQ, we work with financial advisors to record and produce radio shows, which allow them to share their expertise with listeners in their area. The advisors we work with are located across the country, but through our work they are able to use radio as a means to reach their audience. Because our advisors are located in so many places, collecting the audio for their shows can be a logistical challenge.

While some advisors have opted to purchase a Comrex BRIC-Link to connect to us, other advisors needed a different solution. To accomplish this, we use the Comrex STAC VIP, along with WebRTC, a free application that enables browsers and mobile applications to make real-time calls with high-quality audio.

Before we implemented WebRTC, we accomplished our audio collection with a combination of Skype and our STAC VIP. Users would call our STAC system with Skype, and record their shows that way. It was a good system — Skype provided high-quality audio, which was important to us. But in the summer of 2014, Microsoft acquired Skype and disabled the program that enabled it to connect with Comrex products. We needed a replacement as soon as possible. My boss was the one who originated the idea of using WebRTC instead. Once we implemented it, WebRTC did exactly what we needed.

While brilliant, many of our advisors have no radio experience. It's important that we make their setup simple, with as little configuring on their end as possible. In the past, installing and setting up Skype could be confusing for some of our advisors. With WebRTC an advisor simply needs to plug a USB microphone into their office computer, and click a link we've sent them. There's no need to install software. They are then connected to our STAC VIP phone system, where we can record their show. After that, we edit the programs, and place them on radio stations wherever our advisors are located.

There's no need to send out or train our users on unfamiliar equipment. This has streamlined our production process significantly. It's convenient, and our advisors enjoy the simplicity. Additionally, WebRTC uses Opus audio codecs, which provide great-sounding audio. While quality will occasionally fluctuate, depending on the stability of the IP network an advisor is using to connect to us, if network conditions are good, the audio sounds wonderful. We love it because connecting users is easier than it's ever been — they click a link, and we're set to go. From the standpoint of simplicity, it's made our jobs much easier.

WebRTC is an open project supported by Google, Mozilla, Opera and more. Additional information can be found at *webrtc.org*.

For information, contact Chris Crump at Comrex in Massachusetts (978) 784-1776 or visit www.comrex.com.

BSI

(continued from page 24)

cal ability of the user.

Another application that I use Simian Remote for is with my other job as a freelance TV host. For that gig I travel, and on occasion my schedule gets changed at the last minute, and I need to be able to record my shows. With Simian Remote using the voice-tracking function as if I was in the studio.

All I need is a mic, pair of headphones and an iPad and I can do voice-tracking as if I'm in the studio. The app will download the segues needed and that allows me to then record on the iPad the same way I'd voice-track in the studio on regular Simian. It will then upload the voice-track as a WAV file to the station's Simian server and insert it into the log.

I have high hopes for the Simian Remote app that will be coming out for the Android. Knowing Android and its ability to do multiple windows I have hopes that this will solve my only issue with the app.

For information, contact Marie Summers at BSI in Oregon at (888) 426-8434 or visit www.bsiusa.com.

TECHUPDATE

BIRD RF METER APP

The Bird RF Meter App from Bird Technologies now enables an Android smartphone to become a power meter capable of connecting with the Bird USB Field Sensors.

Useful for field techs and engineers who need to make power measurements anywhere they go, the Bird RF Meter's user interface has an intuitive, menu-driven design, making it easy to use on a smartphone. The application enables the user to set up sensors with the appropriate configurations, correction factors, offsets, zeroing calibration and selection of element types.

It includes the ability to enable smoothing level for more stable readings or max hold to detect the maximum measured power.

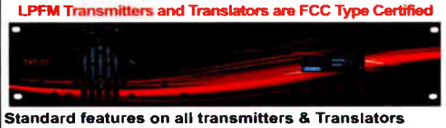
The RF Meter App is compatible with the following Bird RF sensors: 7020 wideband power sensor; 5014 DPS directional power sensor; 5012D, 5016D, 5017D, 5018D and 5019D WPS wideband power sensors.

The Bird RF Meter app is available as a free download at the Google Play store; search Bird RF Meter.

For information, contact Bird Technologies in Ohio at (866) 695-4569 or visit www.birdrf.com.

PRODUCTS & SERVICES SHOWCASE

Choose power levels 50 to 10,000 watts
Technologix has outstanding values on Solid State FM Transmitters, Exciters, Amplifiers, Translators, Antennas, Combiners, and Accessories.
LPFM Transmitters and Translators are FCC Type Certified



Standard features on all transmitters & Translators
Automatic power control and fold back protection ensures
Reliable operation under most operating conditions.
Input/output interface built in high performance stereo coder,
L&R analogue audio inputs, mono input, MPX composite and auxiliary input for SCA,
World class reliability and quality
Broadband across the FM band
Metering: Output power, Reflected Power,
Current on each amplifier
Voltage on each amplifier
Voltage and current on IPA, Temperature
Remote control for easy remote operation
North American design and manufacturing
High efficiency with state of the art Solid State Devices
Two year warranty
Fast Delivery

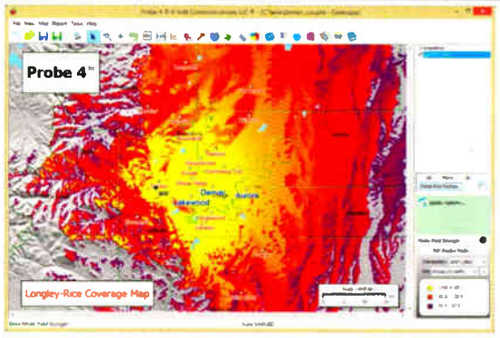
Contact Jimmie Joynt
Ph: 972.473.2577 | Email: jjsbp@msn.com
18208 Preston Rd. Suite D9-297 Dallas, TX 75252

World Radio History

BROADCAST EQUIPMENT EXCHANGE

Submit your listings to: minderrieden@nbmedia.com

Broadcast Engineering Software



- Create stunning "real-world" coverage maps, interference studies, and population reports with Probe 4™
- Find STL broadcast auxiliary and Part 101 microwave frequencies and generate PCN letters with Microwave Pro™
- AM Pro 2™, used daily by FCC engineers, performs skywave and groundwave allocation studies and AM coverage mapping
- Map FM stations and discover upgrade possibilities using FCC minimum separations and contour-to-contour methods with FMCommander™

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

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

ACOUSTICS

ANTENNAS/ TOWERS/CABLES

WANT TO SELL

TOWER SIGNS: Antenna ID Products. AM-FM custom&ASR. PDF product list. antennaid@msn.com, 610-458-8418, www.antennaid.com.

CCA FM8000G 107.9, like new; 4-Bay Jampro antenna deicers, gd cond; 4-bay Shively circul polar FM antenna, manual. D Brockman, 606-965-3436.

AUDIO PROCESSING (INCLUDES ON-AIR)

WANT TO BUY

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST - 214 738-7873 or sixtiesradio@yahoo.com.

AUTOMATION EQUIPMENT

WANT TO SELL

DIY-DJ Version 2.0 is now available. Over 500 copies of DIY-DJ, a Linux based radio automation system, have been distributed and now version 2.0 is available. Voice tracking, join satellite feeds, do unattended sports and remote events, temperature announce, scheduler, automatic cut editing on import, and much more. It's FREE. If you are using version 1.0 or would like to try DIY-DJ, go to krwsfm.com, register and download your free full version. The only thing we ask is that you let us know if and how you are using the software. Call (406) 679-0527 or email krws@digitaldevelopment.net for a copy today.

MICROPHONES/ HEADPHONES/ SPEAKERS/AMPS

WANT TO SELL

1934 RCA 77A double ribbon microphone, originally used by Arthur Godfrey at WFBR Baltimore. 100% perfect condition. Contact Bill Cook, 719-684-6010.

WANT TO BUY

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 214 738-7873 or sixtiesradio@yahoo.com.

MISCELLANEOUS

ROTRON BLOWERS AND PLATE BLOCKERS, new & rebuilt for Elcom, Harris, CCA, CSI, McMartin. Goodrich Ent. 11435 Manderson St. Omaha, NE 68164 402-493-1886 Email: **charlesgoodrich44@gmail.com.**

FOR THE BEST PRICE & 24 Hr service on transmitting tubes & sockets/parts, new & rebuilt call Goodrich Ent. at 402-493-1886 day or night, **www.goodrichenterprises.com.**

WANT TO SELL

I'm selling between 150 and 200 cassette tapes that consist of old-time radio shows, sports shows, some local New York radio talk shows, etc... Must take entire collection and the price is negotiable. Please call me for details and, my phone number is 925-284-5428.

Radio broadcasts of Major League Baseball, NFL, and some college football games that are on cassette tapes, approx 100 to 125 games, time period of entire collection os from the 1950's – 1970's, BO. Must purchase entire collection. Contact Ron, 925-284-5428 or ronwtamm@yahoo.com

WYBG 1050, Messina, NY, now off the air is selling everything: 8-chnl consoles w/ mics & access; transmitter reader meter; EBS receiver, 250' tower w/building on 4 acres, collection of very old 78's, 12' satellite dish on concreate base and (3) commercial production aid library music, sound effects and copy, complete radio advertising training course w/book, cassettes and CDs, all at great prices. 315-287-1753 or 315-528-6040.

WANT TO BUY

Collector wants to buy: old vintage pro gears, compressor/limiter, microphone, mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035 or ilg821@aol.com.

2" plastic "spot" reels 6.5 or 8" diameter, as used for quad video. Wayne, Audio Village, 760-320-0728 or audiovlg@gte.net.

Equipment Wanted: obsolete, or out of service broadcast and recording gear, amplifiers, processing, radio or mixing consoles, microphones, etc. Large lots preferred. Pickup or shipping can be discussed. 443-854-0725 or ajkivi@gmail.com.

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSFX, KOBY, KCBS, KQW, KRE, KTIM, KYA, etc, I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@yahoo.com.

Looking for a broadcast excerpt of a SanFrancisco Giant's taped off of KSFO radio from 1959, interviews with Willie Mays, Dusty Rhodes & some play by play excerpts, also features a homerun by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio Ron, 925-284-5428 or ronwtamm@yahoo.com.

Looking for KFRC signoff radio broadcast from 1930 Andy Potter, running time is 0:22 & also the KLX kitchen the program guest is Susanne Caygill, a discussion of women's affairs with a long promotion for Caygill's appearance at a local store. Anne Truax, Susanne Caygill, running time is 13:44. Ron, 925-284-5428 or email ronwtamm@yahoo.com.

Looking for KTIM FM radio shows from 1981-1984 if possible unscoped. R Tamm, 925-284-5428 or ronwtamm@yahoo.com.

CONSULTANTS

GRAHAM BROCK, INC.
BROADCAST TECHNICAL CONSULTANTS
Full Service From Allocation to Operation AM/FM
Field Work: Antenna and Facilities Design
Over 45 years engineering and consulting experience
912-638-8028
202-393-5133
www.grahambrock.com

DISTRIBUTOR DIRECTORY

The following distributors serving the broadcast industry would be glad to help you with any of your requirements.

CORNELL-DUBILIER MICA CAPACITORS
FROM STOCK
JENNINGS VACUUM CAPACITORS
FROM STOCK
HIGH ENERGY CERAMIC CAPACITORS
SURCOM ASSOCIATES
5674 El Camino Real, Suite K
Carlsbad, California 92008
(760) 438-4420 Fax (760) 438-4759
e-mail link@surcom.com web www.surcom.com

TUNWALL RADIO
SWITCH AND TRANSMITTER CONTROLLERS

AM/FM/MULTI-SWITCH AND CUSTOM DESIGNS
330.995.9642 www.tunwallradio.com

RECEIVERS/ TRANSCEIVERS

WANT TO SELL

Free sample SCA decoder. 417-881-1846.

RECORDING & PLAYBACK HARDWARE

WANT TO BUY

Large or small collections of 16" transcriptions or 12" transcriptions, not commercial LPs. Bill Cook, 719-684-6010.

Schnader telescriptions 16 mm musical films produced in the early 50 s. Bill Cook, 719-684-6010.

Standard Short-tune series. Bill Cook, 719-684-6010.

TAX DEDUCTIBLE EQUIPMENT

Donations Needed: All Volunteer, Non-profit Low Power community radios stations need Equipment. Will offer tax deduction letter, You determine donation value, We will pay shipping. Equipment shared between three Wisconsin stations. Looking for Mics, Mixers, field equipment, etc. You name it. Email: Dan@WIECradio.org.

SPACE IS AVAILABLE!

World Radio History

Rebuilt Power Tubes 1/2 the cost of New!

ECONCO

Se Habla Español

Se Habla Español

Tel: 800-532-6626 Web: www.econco.com
Intl +1-530-662-7553 Fax: +1-530-666-7760

TRANSMITTERS/EXCITERS/TRANSLATORS

TRANSCOM CORPORATION

Serving the Broadcast Industry Since 1978

Transmitters and Broadcast Equipment for Radio & Television

Used FM Transmitters

55W	2000	Harris DIGIT CD
Tri-Mode HD	2006	Harris Digital Z6HD, solid-state
3.5 KW	2000	Harris Z3.5CD, solid-state
5 KW	1995	Harris HT5CD
5 KW	1992	BE FM5B
7.5KW	2007	Harris Z7.5CD, solid-state
10KW	2001	Harris Z10CD, solid-state
10 KW	2002	Harris Z10CD, solid-state
20 KW	2002	Harris ZD20CD, solid-state
25 KW	1982	Harris FM25K with DIGIT
30 KW	1988	Harris FM30K *Special Sale Price*
35 KW	1991	BE FM35B

Used AM Transmitters

10 KW	1998	Nautel ND10, solid-state
10 kW	2001	Nautel XL12, solid-state

Exciters & Miscellaneous Equipment

Exciters >Harris DIGIT, Continental 802B
Bird Model 8932, 10 kW air-cooled RF Load
Harris N + 1 Controller

Used TV Transmitters DTV & ATV
** FLO TV Transmitters**
Rohde & Schwarz Harris Maxiva

Please visit our website, www.fmamtv.com, for additional listings.

BE

Continental Electronics

HARRIS nautel

CROWN BROADCAST

New TV Transmitters- DTV & ATV
OMB, Rohde & Schwarz and Technologix

KW Special w/ 4 channel encoder
VHF and UHF TV Antennas
(10 W to 10 KW) TV STL

800-441-8454 • 215-938-7304 • FAX: +1-215-938-7361
www.fmamtv.com • E-mail: transcom@fmamtv.com
RETUNING & TESTING AVAILABLE • CALL US FOR A QUOTE!

AM Ground Systems Co

Complete AM Ground System Construction, Evaluation and Repair Services, Fuel Efficient Full Site Construction Services

www.amgroundsystems.com
866-22RADIO

TUBES

POWER Eimac YOU CAN TRUST

ISO 9001 Certified

The Choice of Successful Broadcasters Since 1934

NEW POWER TUBES

Triodes
Tetrodes
Pentodes

NEW SOCKETS & REPLACEMENT PARTS

Worldwide Availability

Made in U.S.A.

CALL (800) 414-8823
Int'l (650) 846-2800
Fax (650) 846-3795

Visit our Web Site at
www.cpii.com/eimac

CPI
Communications & Power Industries
microwave powerproducts division

ADVERTISE YOUR EMPLOYMENT AD ON OUR WEBSITE FOR ONLY $2 PER WORD!

ADS GET POSTED THE NEXT BUSINESS DAY AND WILL RUN FOR A FULL TWO WEEKS!

COMBINE THIS WITH AN AD IN OUR RADIO WORLD NEWSPAPER EMPLOYMENT SECTION AND REALLY COVER THE BROADCAST INDUSTRY AND THEN SOME!

www.radioworld.com

Call Michele Inderrieden for all the details at

212-378-0400 ext. 523
minderrieden@nbmedia.com

EMPLOYMENT

POSITIONS WANTED

Are you a small market station needing a good nuts & bolts engineer in the Los Angeles area? I will make your station shine! CET, fully FCC Licensed. Available for Full/Part-time/Contract work. Available immediately. Mitchell Rakoff, 909-446-6820, mitchellrakoff@yahoo.com.

Experienced radio station manager seeks new management opportunity. More than 39 years experience in radio. Willing to relocate. Family-friendly format(s) preferred. Send details about your management opening to: radiogm@hotmail.com.

Extremely knowledgeable and articulate racing writer/talk show host Adam Amick is available for shows, correspondent, features, etc. Check out www.bleacherreport.com for samples. Call 214-384-5812 or email: adam@rubbinsracingshow.com.

Impressive writing strengths, well-delivered and prepared news/sportscasts and show content. Driven and detail-oriented; creative with strong board-operations, technical ability and ingenuity. Tyler, 817-781-8743 or tyfo85@yahoo.com.

One of a Kind - Personality plus! Loyal, dependable, strong creative writing capacities, Radio/TV experience. On-air, news, sports talent with great deliverance. Versatile. Avis, 678-206-1763 or aviswiththelatest@gmail.com.

Polished, conscientious on-air professional, with an impeccable attention-to-detail plus punctual. High-spirited, astute copywriting, versatile and natural VO capacities, and production. Thespian/singer. Lydia, 682-219-5658or mslfbrown21@hotmail.com.

Sociable, able to relate and appeal to listening audience. Strong speaking, research ability to interview and moderate, provide commentary/news stories. Flexible. Emberly, 214-713-2328 or emberlyjohnson@yahoo.com.

Talented, adaptable, and joyful personality seeks fun and professional environment. Well versed in digital production/copy writing, time management, and on-air. Jennifer, 769-251-3214 or nikkijradio@gmail.com.

Buying Or Selling Used Equipment?

You're in the right place!

World Radio History

READER'SFORUM

POSITIVE PROGRAMMING EXPERIENCES

The recent story on radio finding the positive was a good one ("You Have the Power. Use It or Lose It," April 27 issue).

Much of radio is automated and non-creative. Here at Faith And Friends Radio.Com in Dayton, Ohio, we launched a personality internet contemporary Christian music station in 2011. After working many years in top 40 and news, and at a 50,000 watt local Christian station, I saw the technology zooming quickly to the internet.

We have engaging hosts 6 a.m. to midnight. Melody Morris and I have co-hosted a morning show in the Dayton market for 17 years. There's local news and traffic, weather from a local TV meteorologist and Fox News Radio 24/7. In 2014, we were the first internet-based radio station on the iHeartRadio app.

Our desire for compelling, creative programming includes "Hands Of Time," one-on-one with legendary artists; "Cross Connection," examining a pop hit for spiritual value; and "Kaleidoscope," a live radio variety show done on location, with live house band, audience and live adlib commercials from a bygone era, but which works well today. These one-hour shows feature a major artist in town or who will visit to do an interview and several songs. This was launched and produced by my company in 1999 and continues today.

While worldwide and so far heard in 177 countries, we keep a local focus, to serve the community with annual events like our 100-mile bikeathon for charity and the annual Chocolate Festival. We have the privilege of promoting God's love and doing so in positive and creative ways.

Bill Nance
Co-Manager
faithandfriendsradio.com
Dayton, Ohio

AM: BACK TO THE FUTURE?

With all the talk about AM improvement, I have yet to see anyone suggest we go back to the bandwidth before the NRSC chopped it down to an upper limit of 9 kHz. Back in the '70s, AM sounded great! Then the band got crowded, and the NRSC lopped off most of the high frequencies.

All we need to do is thin out the AM band (let a bunch of stations go silent) and open up the audio to 15 kHz.

Then the FCC needs to mandate better standards for radio receiver manufacturers, like much wider receiver bandwidth to pick up that 15 kHz.

When your average young consumer listens to FM stereo, CDs and MP3s, and accidentally switches on an AM station, they are put off by the lack of high frequencies. Until the audio bandwidth can compete with FM, all of the other suggestions out there seem like a waste of time.

Steve Tuzeneu, CBT
Network Staff Engineer
BBN Radio Network
Charlotte, N.C.

SOUND VANS

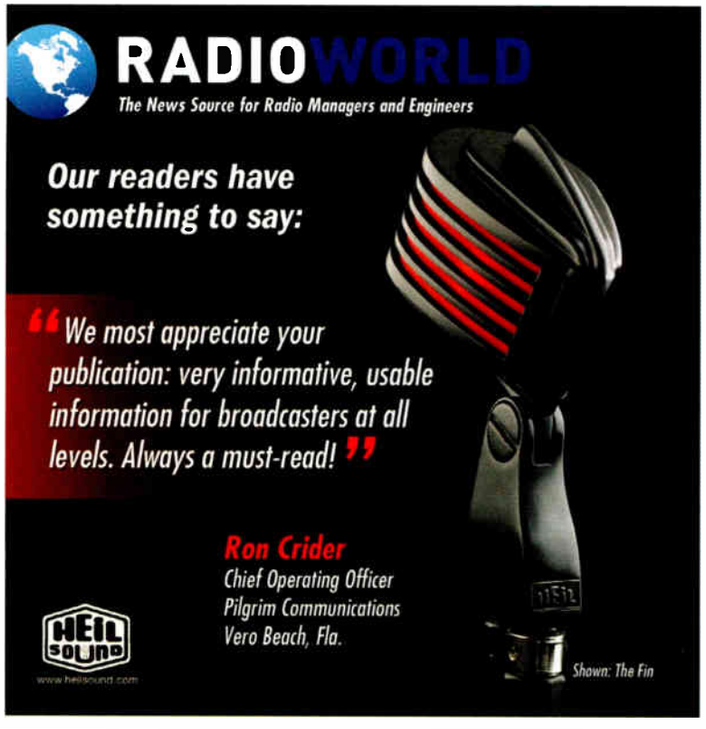
Regarding Dan Slentz' recent RW blog post "Blast From the Past," http://tinyurl.com/rw-blast:

Back in the '90s, when I lived in Minnesota, Steve Raymer at the Pavek Museum had toy "sound vans" similar to the one featured in this story.

The wow and flutter problem could be completely and instantly eliminated by placing the van on the record, with the record on a turntable. Turn the turntable on, and the truck no longer appears to revolve around the record. The truck appears to become almost stationary as the record revolves on the turntable. (OK, so maybe this defeats the novelty of the toy...)

While the wow and flutter stats could be improved to almost audiophile standards by this method, audio fidelity from the truck still leaves a lot to be desired! We need someone to MacGyver one of these guys, installing a high-quality cartridge connected to an onboard Bluetooth or similar device. Then the little sound van could have a chance at becoming a true instrument of high fidelity!

Russ Johnson
Cañon City, Colo.



ADVERTISER INDEX

This listing is provided for the convenience of our readers. Radio World assumes no liability for inaccuracy.

PAGE	ADVERTISER	WEBSITE/URL
13	Arrakis Systems Inc.	www.arrakis-systems.com
20	Audio-Technica	www.audio-technica.com
23	AudioScience Inc.	www.audioscience.com
15	Axia - The Telos Alliance	www.axiaaudio.com
12	Broadcast Logger	www.broadcastlogger.com
4	Burk Technology	www.burk.com
7	Comrex Corporation	www.comrex.com
22	Deva Broadcast Ltd	www.devabroadcast.com
8	ESE	www.ese-web.com
5	Front Panel Express	www.frontpanelexpress.com
30	Heil Sound, Ltd.	www.heilsound.com
11	Inovonics Inc	www.inovonicsbroadcast.com
6	Insoft, LLC	www.hdvmixer.com
10	Lightner Electronics	www.lightnerelectronics.com
1	Logitek	www.logitekaudio.com
3, 14, 24	Nautel Ltd.	www.nautel.com
19	Omnia - The Telos Alliance	www.omniaaudio.com
31	Radio Show	www.radioshowweb.com
25	RCS	www.rcsworks.com
21	SCMS	www.scmsinc.com
18	Studio Hub	www.studiohub.com
27	Superior Broadcast, LLC	www.superiorbroadcastproducts.com
9	Tieline Technology	www.tieline.com
2, 16-17, 32	Wheatstone Corporation	www.wheatstone.com

World Radio History

RADIOSHOW
Produced by RAB and NAB

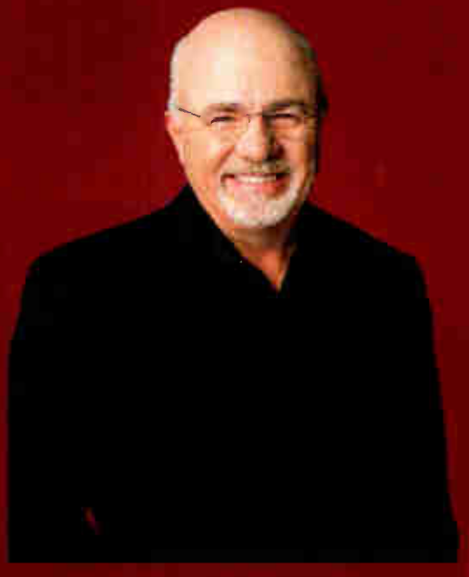
September 21–23, 2016 | Nashville

reach beyond
CONNECT LEARN GROW

Get the tools essential to your business success straight from the source.

WEDNESDAY HEADLINER: SEPT. 21
"CUTTING EDGE TRENDS IN MARKETING"

Come get an inside look at the marketing prowess that has driven Dave Ramsey's business success.



DAVE RAMSEY
Financial expert and syndicated radio show host

JOHN RICH
Musician and businessman

Featuring a conversation with country music star and businessman John Rich on entrepreneurship and building a brand.

Sponsored by: vcreative

First 300 registrants get the early bird discount. Hurry while supplies last!

Register Today at RadioShowWeb.com. #radioshow2016

Registration sponsored by: Marketron

World Radio History

THE INTELLIGENT NETWORK

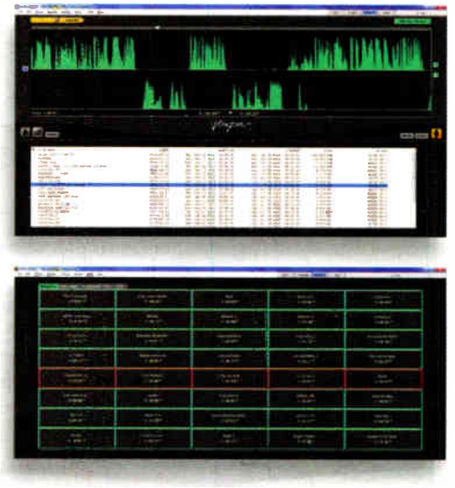
VOXPRO MAKES YOU THE BEST DJHOSTENGINEERPRODUCER YOU CAN BE

VoxPro, the only audio recorder/editor/playback system designed for live on-air operation, is absolutely indispensable to those who use it. It provides a unique set of software tools designed to record, edit and play back audio in real time, as well as a dedicated hardware controller that intuitively lets you get your job done with absolutely no fuss. It literally becomes a part of your routine.

For VoxPro 6, we're adding new features to let you enhance your productions. For instance, you can now, at the push of a button, simultaneously record audio while editing/playing back other audio. There's a Gap-Buster function that automatically removes silence. Detach the Hot Keys panel and hide the Editor and File lists to reduce on-screen clutter.

WheatNet-IP routing and playback tallies (with warning flash) let you control your network. And there's foreign language Unicode label support, color-coded Markers, and plenty of user interface streamlining. There's so much more.

For the whole story, check us out at voxpro.wheatstone.com



VOX 6 PRO

RECORD/EDIT/PLAYBACK AUDIO – LIVE, IN REAL-TIME, ON THE AIR

Wheatstone
BROADCAST AUDIO PERFECTIONISTS®

phone +1-252-638-7000 | wheatstone.com | sales@wheatstone.com

World Radio History