



ABC Legal Eagle

Conservative talker Mark Levin says the Supreme Court has been out of control for decades.

Page 68

Go Wired

Mike Bergman of Kenwood USA on the wireless FM modulator situation.

Page 5

*****AUTO**SCH 3-DIGIT 856
8117298 DOB 0508
TOM MILLER 254
ASST CHIEF ENGINEER
KTZR
2033 S AUGUSTA PL
TUCSON AZ 85710 7905

Radio World

\$2.50

The Newspaper for Radio Managers and Engineers

September 13, 2006

INSIDE

NEWS & ENGINEERING

▼ Google's new radio offering is set for its fall debut.

Page 3

▼ 'Podjacking' draws increased attention.

Page 28

▼ An overview of T1 service from Ted Nahil.

Page 34

▼ What to do (and eat) in Dallas.



Chisom Trail Mural by Richard Hass, Dallas CVB

Page 58

GM JOURNAL

▼ Tourism dominates in New Hampshire's Concord & Lakes Region.



Loon by NHDTTD/Craig Alness

Page 64

OPINION

▼ Comments from Tom Yingst, Harold Bausemer, Robert Richer, Dave Bull, Richard Factor, Alan Carter, Paul Gregg, Dan Peluso and Bill Kingman.

In This Issue



Sign Up For NewsBytes Weekly Digest at www.rwonline.com

THE NAB RADIO SHOW

The Dallas Skyline is reflected in the Trinity River.
Photo ©2004 Dallas CVB

Still Waters Page 55
Industry leaders meet in Dallas hoping to "Redefine Radio." Can they overcome sluggish business currents?

NEWS MAKER

Radio One's Mathews Talks HD-R, AM

LANHAM, Md. As Radio One celebrates its 25th anniversary, the company is deep into its HD Radio conversions. Beginning in 2002, we reported that the broadcaster, an early Ibiqity Digital investor, was initially planning to convert five stations in as many markets.

Vice President of Engineering John Mathews, 33, is spearheading that effort and doing more to help ensure the com-

pany facilities remain updated as the stations keep their content relevant to new listeners.

The self-described tinkerer came to radio almost by accident as Radio World News Editor/Washington Bureau Chief Leslie Stimson found when she spoke with Mathews as he was preparing to fly to Miami to help finish an AM HD-R conversion in that city.

RW: How far along is Radio One in converting stations to IBOC?

Mathews: Currently we have 21 stations broadcasting in HD. Before the end of this year we'll have a total of 33 stations. And then over the next two years, we're planning on converting the rest of our stations, which is 36 stations. ...

We put the very first commercially-
See MATHEWS, page 10 ▶

Stand alone reliability or networked flexibility. Why should you have to choose?

With the Harris **PR&E RMXdigital™** console and **Vistamax™** networked audio management system you don't have to give up reliability to get the flexibility of networked audio, you can have **both!** Whether you have a large consolidation, or just want to update one studio, we've got you covered. Our unique distributed approach reduces wiring, installation time and expense. Harris' scalable digital audio solution can be tailored to fit the most demanding needs and strictest budget.

The touch and feel your talent loves with the adaptability every engineer needs all at a price the boss will like.

Call 800-622-0022 today and put the power of Harris to work for you.



HARRIS assuredcommunications™
Broadcast • Microwave • RF • Government Systems www.harris.com

McDowell Begins His Learning Curve

Newest Commissioner Says He Is Open To Separate Media Ownership Rulings

by Leslie Stimson

WASHINGTON New FCC Commissioner Robert McDowell supports breaking up the media ownership proceeding into separate, smaller proceedings, and in particular separating out the newspaper/broadcast cross-ownership ban.

"I would be open to it," he said, but added he wasn't saying he expects that, reminding reporters at his first press briefing that the chairman controls the legislative calendar. "While they're all related,

they're also in many ways distinct issues."

The ownership items are at present part of one proceeding, which the newest Republican member of the five-member panel likened to "one big kidney stone to pass."

The agency voted to begin revising media ownership rules in June, renewing debate over whether to relax local radio and TV ownership limits and whether it should lift the ban that prohibits a company from owning both a newspaper and a radio or TV station in one market.

Chairman Kevin Martin favors relax-

ing the ban on cross-ownership and would like to vote it out separately; Democrats Michael Copps and Jonathan Adelstein oppose this approach.

Attorneys who watch the FCC say McDowell's vote against forcing cable companies to carry all the digital signals of an over-the-air broadcaster — and thus opposing Martin — is an early indicator he will not always be in lock-step with his fellow GOP commissioners. In the July public meeting, McDowell was openly critical of the agency during the vote on his proposal offering a way for two companies to solve a dispute about airing Washington Nationals baseball games over local cable systems.



Photo by Leslie Stimson

New Commissioner Robert McDowell during what he jokingly called a 'question and dodging' session with reporters.

The addition of a Republican gives the GOP a 3-2 majority on the commission, something Martin lacked for more than a year after he was appointed to the leadership post by President Bush.

Most agency watchers have predicted the majority vote would help the chairman advance a business-friendly, deregulatory agenda and move decisions like the IBOC rules that have simmered in the Portals building for months. However some observers now say McDowell's public votes so far cast him as unpredictable and not always willing to vote along with his GOP colleagues.

Media ownership "will probably dominate" the commission agenda for the next few months, McDowell said in his 69th day on the job.

McDowell declined to say whether the agency should raise or lower the local

See MCDOWELL, page 6 ▶

THIS IS THE NEXT BIG THING:



WHEATNET™ — FUTURE PROOF!

WHEATNET LETS YOU ROUTE THOUSANDS of bi-directional signals at ONCE in just 60 microseconds—all secure, virus-proof and in just 2 rackspaces! WHEATNET leaps way ahead of conventional stacked router or IP-based designs, interconnecting up to 48 studios (each with its own independent mix engines and I/O resources) using just one CAT-5 wire per studio, plus providing systemwide X-Y control from one central location. You can even meter and monitor (in stereo) any signal systemwide.

REDUNDANCY? We've got that covered too: just add a second WHEATNET and CAT-5 link from each studio and have an AUTOMATIC standby interconnect for the ENTIRE system!

WHEATSTONE has a proven track record for digital networking; benefit from our experience!



48 CAT-5 PORTS with 128 audio channels (plus embedded control data) per port. THAT'S 6144 TRAFFIC CHANNELS IN JUST TWO RACK SPACES!



Wheatstone

tel 252-638-7000 / sales@wheatstone.com

GET THE POWER!

copyright © 2005 by Wheatstone Corporation

Index

NEWS

Radio One's Mathews Talks HD-R, AM	1
McDowell Begins His Learning Curve	2
Google Radio Ads Set for Fall Debut	3
From the Editor	4
Why Some FM Mods Go Over Limits	5
DRM Hopes for FM Standard in 2007	6
Digital News	16
CAB: Digital Radio Needs Help	19
NewsWatch	20

FEATURES

Workbench: 'Gold' Buried in That Site Soil	24
'Podjacking' Draws Increased Attention	28
Spills and Chills on the Air	30
Four Shows for Your SBE Calendar	32
An Overview of T1 Service	34
How You Can Go Off the Grid	38
Disaster Preparedness for Broadcasters	42
Here's Your Own Power Source	46
Shared Towers, Brotherly Love	50
The 'Isle of Dreams' Goes Shortwave	52

NAB RADIO SHOW

Big Engineering Topics in the 'Big D'	55
Dallas Is Cowboy Nouveau	58
Exhibitor List	60
Suppliers Look Forward to Dallas NAB	63

GM JOURNAL

Making Radio on Golden Pond	64
76 Commissioners, 76 Personalities	65
Levin Bats Cleanup on WABC	68
Listeners Getting Busy Signals?	70
Real-Life Lessons for Would-Be Owners	73

STUDIO SESSIONS

The DIY Studio Saves Time, Money	75
Marketing, Attitude Yield Voiceover Success	77
PV 10 Flexibility Facilitates Remotes	78
Time Tailor Audio Plays Catch-up	80

OPINION

Reader's Forum	84-86
Dario Calabrese: Tribute to a Fast Friend	85
FM Translators for AM Are a Good Idea	86

Google Radio Ads Set for Fall Debut

by Randy J. Stine

MOUNTAIN VIEW, Calif. Google officials say they are expanding the dMarc Broadcasting radio advertising distribution technology in hopes of creating a significant boost for the radio industry's stagnant revenue stream.

At least one media watcher believes the deal signals a sea change in the way radio inventory is bought and sold if Google makes dMarc an auction-based advertising service.

Google plans to launch its AdSense for Radio product later this fall; the product integrates dMarc automated ad-insertion technology and management tools with the Google AdWords platform.

dMarc
from Google

AdWords is an auction-based advertising program that allows advertisers to target potential customers at the exact time they are searching online for relevant products and services. Advertisers pay on a cost-per-click or cost-per-impression basis.

Google officials say the current dMarc Revenue Suite platform doesn't cost radio stations a thing to run and uses computer software that simply inserts national advertiser commercials into open avails after the traffic department has closed the station log. The automated system streamlines the ad-buying process and allows better verification of when an ad actually airs, according to Google. The dMarc Revenue Suite platform works with most radio audio and traffic management systems.

Google has not announced if a bid-based or set price model will be used for radio advertising sales.

"The new radio service will connect

eBay to Test e-Media Exchange Model

As search giant Google moves forward with its Internet-based system for selling radio advertising, a task force comprising marketers and media agencies says it will test a pilot program in early 2007 with the goal of facilitating media advertising transactions via eBay's online auction platform, with an initial focus on buying and selling TV ads.

The initiative has the support of the Association of National Advertisers and the American Association of Advertising Agencies. Task force members say the time is right to embrace advancements in technology and the benefits of the digital world.

According to their press release, "The e-Media Exchange test will assess the viability of the business system and determine the size and scale of benefits to the advertising industry. A variety of media are under consideration for the test."

eBay will manage the framework and technology for the project. Advertisers can register their interest and become involved at www.admarketpilot.com. Wal-Mart, Toyota, Home Depot and Microsoft are already committed to the initiative.

— by Randy J. Stine



Rick Feinblatt of Greater Media says Google has the potential to 'connect with advertisers we normally wouldn't.'

advertisers directly to radio stations through our automated process. This technology seeks to simplify the sales process, scheduling, delivery and reporting of radio advertising in an effort to help advertisers more efficiently purchase and track their campaigns," according to a Google press release. "We believe we can add new advertisers to the market."

The Internet giant entered the radio ad business when it bought dMarc Broadcasting for \$102 million in January.

WRIF experiment

Executives believe the search engine innovator can significantly reduce the costs to broadcasters associated with processing broadcast ads and announced several agreements they say further illustrate the needs of broadcasters to fill unsold inventory. Greater Media Inc. has launched dMarc's inventory replacement system at one of its stations in Detroit, with plans to expand the Google ad-insertion platform if it proves successful there.

Meanwhile, XM Satellite Radio said dMarc would sell commercial inventory on its non-music channels.

"XM is excited about the opportunity to leverage Google's extensive advertising base to open up a new revenue stream," stated D. Scott Karnedy, senior vice president, sales and marketing solutions, for XM.

Other major broadcast groups are expected to watch the Greater Media deal closely to see what the potential profits might be, according to analysts, who say that previously, mostly small-market radio groups and stations used the dMarc Revenue Suite and its remnant inventory abilities.

Rick Feinblatt, Greater Media's vice president for radio, acknowledged there are several available inventory-filling companies, including inventory auction site Bid4Spots and direct response companies like Marketing Architects, but he said he believes dMarc has the most promise with its level of automation.

"We have tried on our own to sell leftover inventory with a modicum of success," said Feinblatt. "Not a lot of clients we typically deal with can buy that way. Most clients want spots to run at a specific time on a specific day. They do not want just leftover avails."

Google has the potential to "connect with advertisers we normally wouldn't" reach and tap new revenue streams, said Feinblatt, adding that the "untapped potential" of remnant inventory becomes more intriguing when you add Google to the mix.

"Their pitch is that a lot of companies

that use Google right now would have an interest in using radio. And honestly, they wouldn't have to bring a lot of their existing clients to the table for that to be a significant number," Feinblatt said.

This marks the beginning of a turn in the way traditional media is bought and sold.

— Shar Vanboskirk,
Forrester Research

Greater Media launched dMarc's Revenue Suite on WRIF(FM) in Detroit in early summer and expects to expand the platform across its 19 radio stations if it proves successful, he said. "This will strictly be a supplemental income feature for us. I do not believe this will revolutionize radio or the way we sell, by any means. We just have to be smart and look at our options."

Too soon to tell'

"This will be another way for our clients to utilize our stations," said Feinblatt.

It is "too soon to tell" if the Google ad-insertion platform will work well enough, he added. "The results haven't been terrific yet ... very modest success so far."

Greater Media receives a percentage for each commercial that airs from dMarc, Feinblatt said.

dMarc officials declined to comment on the Greater Media project.

A potential influx of new advertisers to radio could mark a shift in how clients view radio and the way the ad community purchases time, according to one media analyst.

"I think the bigger deal is that this marks the beginning of a turn in the way traditional media is bought and sold," said Shar Vanboskirk, a Forrester Research analyst who specializes in the interactive area. "It's a significant change to sell remnant radio inventory on an automated process, possibly on a bid basis, although dMarc has said it will use some inventory for upfront sales. Radio (ads) could eventually be put up for auction and targeted based on customer behaviors."

Vanboskirk's hypothesis is that large advertisers will not immediately flock to Google/dMarc's way of doing things. However, smaller advertisers will try the model as a cost-savings approach.

"Small advertisers will likely try first and then larger advertisers will gradually experiment," Vanboskirk added. "And they may never spend their primary radio budget on Google/dMarc, but rather determine how much they should spend to reach the level of audience dMarc can deliver."

Google employs nearly 5,000 full time workers worldwide. 

Connect to ANY DEVICE, ANYWHERE.

An Affordable FM-based Early System That Protects Your Citizens!



Global Security Systems Network (GSS-NET), which utilizes digital FM subcarriers to transmit data to emergency providers. Global Security Systems holds a contract with the states in the US affected by Hurricane Katrina as part of GSS-NET's nationwide network and is building a **global digital emergency alert network**. In times of crisis, GSS-NET chips incorporated into personal receivers, pagers, cell phones and other electronic devices can access critical data when other communications systems are disrupted.

A Global Digital Emergency Alert Network

• Smoke Detectors • CellPhones • Mobile Devices

www.gssnet.us • 228.255.7220 • info@gssnet.us

ANY DEVICE ANYWHERE



real FM radio

GLOBAL SECURITY SYSTEMS

See us at NAB Radio Show Booth #709

Analyst Takes Long View on Value

"There's a public perception that radio is going to go away."

Analyst Marci L. Ryvicker of Wachovia Capital Markets is talking to me on the phone about how Wall Street and consumers view our industry. She monitors publicly held radio groups (Clear Channel, CBS, Entercom and the like) from the financial side; I sought her outlook as the industry prepares to convene in Dallas for the NAB Radio Show.

If you don't work as an owner or manager in commercial radio, you may think you're not affected by these topics, but that's wrong. Your salary and career are influenced by revenue and stock prices, and by how perceptions among

complete and utter 180. It's showing very little growth."

Radio revenue has been flat for several years and Ryvicker thinks we are in for a couple more like it. Other experts agree.

Gloom talk about the impact of new media on radio tends to be simplistic, I feel, overlooking radio's strengths and market position. Ryvicker seems to share my view and is upbeat in the long term.

As a business enterprise, she says, U.S. radio enjoys good cash flow and "a great value proposition." She also thinks owners will incorporate the Internet more effectively into their strategies, while advertisers will learn to balance their current infatuation with online channels.

hands tied. "They have to make decisions for the long term but also the short term. That's hurting the entire industry." The result, she says, is a strategy like Less Is More, with Clear Channel trying to decrease ad inventory and "screwing around with pricing."

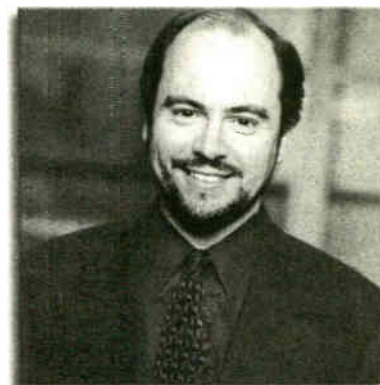
Proactive

Is multicasting having an impact on revenues yet?

"No," she said flatly. "The radio operators don't know what formats they're going to do, how they're going to monetize the signal and how they're going to get these radios into the hands of the consumer."

Ryvicker knows of no consumer who will spend even \$100 on a digital radio when they can go out and buy an iPod. So radio operators have to concentrate on getting digital receivers into cars and

From the Editor



Paul J. McLane

on exploring data possibilities, such as allowing consumers to order a song by pushing a button on the receiver.

She's not impressed with the mere promise of more multicasting formats. Adding more stations with the same programming "is just going to confuse

See VALUE, page 5 ▶

There is a lot of collaboration among the radio groups to figure out how to survive in a difficult environment.

— Analyst Marci Ryvicker

listeners, regulators and advertisers affect the health of our employers and the listenership levels we fight to keep and grow. That's true even if you work as an engineer or are employed in public radio or an allied field rather than sitting behind a mic or in a GM's chair at a commercial station.

Pragmatic

I spoke to Ryvicker while preparing a story for the daily newspaper at the NAB Radio Show. I find it notable and discouraging that one of Wall Street's experts on the health of radio companies detects a perception that radio is doomed.

That view, Ryvicker says, "results not just from satellite radio, but from iPods and other technology. Also there's the fact that radio has been such a high growth medium [but] has now done a

"There will come a point when advertisers realize that the Internet is not the only place consumers are. [Online] prices will be high. Even if we don't get to that point, there will be a point when advertisers say we still need radio and TV. Money will come back into traditional media."

But Ryvicker knows as well as anyone that Wall Street thinks in the very short term. "That really hurts radio, especially since radio stocks trade at much higher multiples than other stocks."

She said growth investors are gone from the sector and value investors don't like the cost of our stocks relative to earnings. The latter investors will buy print company stocks, which also are beaten down but seem a better value than radio.

Right now, Ryvicker says, publicly held radio operators are operating with

Never Forget



Illustration by Joaquin Araya

Your Best Move!

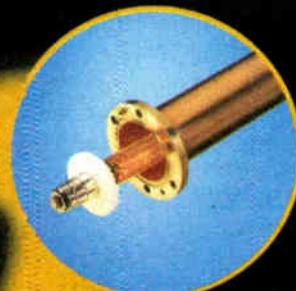
Make ERI part of your broadcast strategy.

HD Radio™ Solutions
HD Radio™ is trademark of iBiquity Digital Corporation.

Antennas



Broadcast Towers and Structural Products



Transmission Line



ELECTRONICS RESEARCH, INC. **ERI**

Call Toll-free at 877 ERI-LINE • Visit Online at www.eriinc.com • Your Single Source for Broadcast Solutions™

GUEST COMMENTARY

Why Some FM Mods Go Over Limits

Wired FM Modulators Are the Best Technical Solution for the Bleed-Through Problem

by Mike Bergman

The author is vice president of new digital technologies for Kenwood USA.

Recent tests conducted by the NAB and NPR have raised questions regarding wireless FM modulators. Some of these products are apparently over FCC Part 15 limits.

The view of this situation is somewhat different, depending on whether one is a broadcaster or a consumer electronics maker, for obvious reasons. As manufacturers, we generally look to comply with existing regulations as much as broadcasters do, but recent events have shown that not all regulations are being observed, or at least not with the same attention to detail.

When we're discussing wireless FM modulators, or "mods," we're generally talking about the low-power intentional radiating devices that are expected to transmit a weak signal a short distance to an FM receiver. By "short distance," I mean perhaps a meter or two.

FCC rules are located in Title 47 of the Code of Federal Regulations. CFR 47, Part 15 covers these items. Part 15.239 and Part 15.209 cover the requirements under which these devices operate, with measurement specifications in several places including ANSI/IEEE standard C63.4.

Was I speeding, officer?

Many consumer applications for these modulators are for the mobile (car) environment — using a modulator to play your iPod, for example, over your OEM car stereo. A wireless modulator that strictly complies with Part 15 limits will sometimes have noisy audio in a real-world environment.

The device would need higher than Part 15 power to get clean performance under the majority of normal conditions. Markets such as New York City don't have any open channels, so there

is an ongoing motivation for transmitting higher power.

Put another way, the existing Part 15 limits don't allow for reliable transmission enough of the time that consumers will be happy with the product. This leads to consumer calls and complaints — on the CE side. Of course, transmitting too much power leads to calls and complaints to the broadcasters, and eventually a letter from the FCC.

Apparently, the Part 15.239 limits have been watched somewhat less than a desert speed limit. That is, "everyone" went over the limits, and "everyone knew" that it was "okay." This situation has been developing since about 2002.

Information available at that time indicated to us that some small companies had started offering product that significantly exceeded the limits. Apparently, this situation has grown to include larger companies.

Now that the FCC has lowered the boom, there are certainly more than a few engineers at more than a few companies — large and small — scrambling for fixes, rework, etc., before they get their letter.

What do you mean by 'measured,' exactly?

Of course, even if you strictly complied with the FCC limits in the required test procedures, you don't have a solid picture of what is happening with modulators and cars out in the field. The FCC testing is typically done on a wooden rotating table. Some of the industry testing involves measuring field strength outside the car, which brings to light an interesting point.

What appears to happen is that the device — when mounted in a car — is attenuated 10–15 dB from the standardized test results, based on the NAB report data (RW Aug. 2). That means that the device that can bang a signal into another vehicle from a distance is significantly over-powered. It is overcoming significant attenuation and still capturing the second car's FM receiver.

Another item that has been studied is the "wired FM modulator tied to the car antenna" concept. In this case, the type of product considered is an FM modulator with only antenna cable connections, and no antenna for wireless transmission.

Data submitted by the NAB indicates that wired modulators are not part of the larger problem mentioned above. NAB testing shows that the field strength resulting from intentionally mis-wiring a wired FM modulator can push the entire configuration over Part 15 limits, but not by anywhere near as much as the wireless FM mods do.

Like, totally wired, dude

After the NAB report came out, we checked with our field staff. No one was aware that this "intentional mis-wiring" might be going on in the field. If it is happening, it is not a happening on a significant number of installs.

Also, wired modulators only make up a few percent of the total number of modulators sold. The unit sales for wireless

strongest wireless modulator output power, one can safely conclude that the wired units are unlikely to be the reason your listeners are hearing Howard Stern.

Feeling their pain

I have some sympathy for engineers who have been routinely ignoring the Part 15 "speed limit" and are suddenly facing a "traffic cop" for doing what everyone has been doing for years. I'd be pretty surprised if I had my car impounded for driving 60 in a 55 mph zone.

However, I believe broadcast engineers have a right to feel differently for two reasons: first, this is directly causing them headaches; second, enforcement of broadcast rules appears to be quite strict, so sympathy from broadcast engineers is not something we in the CE world should expect.

Current FCC regulations permit just enough power to get a signal through, but with noise. Wireless hardware makers have probably not spent enough time optimizing performance with compliant power levels as opposed to simply increasing power.

On the other hand, wired products provide an excellent solution when wired correctly, and appear to be not a significant source or problems even when intentionally mis-wired by lab technicians. Wired, dealer-installed products are not ideal for every consumer.

However, wired FM modulators are the best technical solution for the bleed-through problem today.

RW welcomes other points of view. 🌐



Mike Bergman receives a certificate of appreciation from NPR at PREC 2005, for Kenwood's efforts on the Tomorrow Radio Project.

modulators probably exceed the wired ones by a factor of 100 or more. Probably, more wireless modulators were sold in the fourth quarter of 2005 than the total number of wired modulators sold in the past 10 years.

So, since the wired modulators are outnumbered by 100 to 1 or more, and must be mis-wired to be considered, and even then are some 30–40 dB under the

NO CHARGE Digital Upgrade!

Upgrade your console to digital at no charge with our FREE DIGITAL CARD exchange policy. Here's how it works:

Purchase a Millennium-D console with any number of analog or digital input channels (even all analog input channels). Then as your complement of digital sources grow, we'll swap your analog input cards for digital input cards for the life of the console at no charge. And all console models feature 13 simultaneous analog and digital outputs.

Millennium Digital broadcast consoles from Radio Systems are the flexible way to go digital.

Contact Radio Systems or your dealer today to upgrade for FREE!

Radio Systems, Inc.
601 Heron Drive, Logan Township, NJ 08085
Phone: 856 467-8000 Fax: 856 467-3044 www.radiosystems.com

DRM Hopes for FM Standard in 2007

by Dan Mansergh

As radio broadcasters in the United States scan the horizon anxiously for the long-promised HD Radio "receiver invasion," a few also watch developments abroad for lessons to be learned from roll-outs of other digital radio systems.

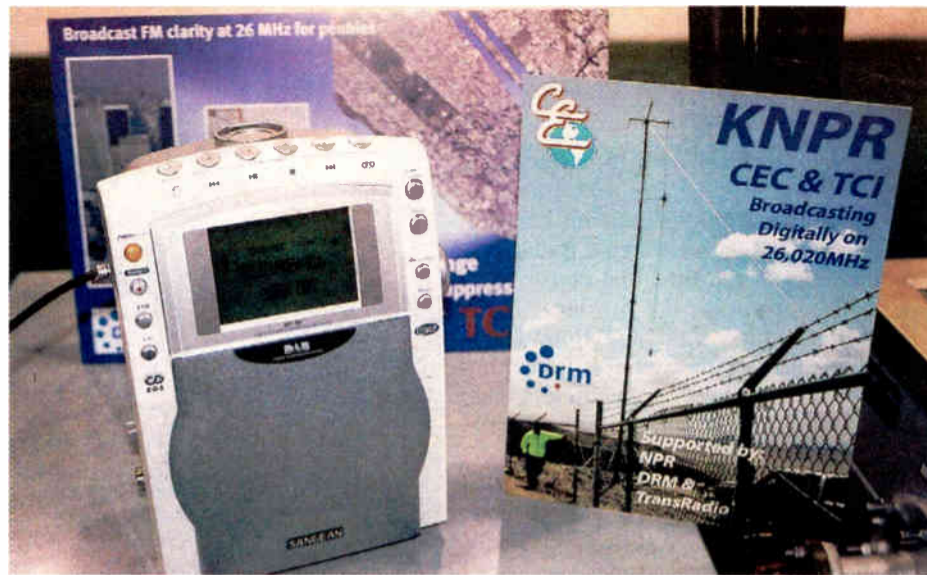
One of the best opportunities for an update on international digital radio is at the spring NAB show, where those attending the Broadcast Engineering Conference hear from colleagues in other countries about their experiences. This year, presenters offered a wealth of information about Digital Radio Mondiale and the Eureka-147 DAB systems.

DRM next

Don Messer, chairman of the DRM technical committee, presented an update on the progress of the DRM consortium in adapting the system for use in new bands.

The system initially was conceived as a universal digital standard for broadcasts under 30 MHz, with development understandably focused on optimizing the system for existing shortwave, medium-wave and long-wave broadcast bands.

Now the focus has turned toward optimizing DRM for use on unused or underutilized spectrum that has not worked well for analog broadcasting or is being reallo-



At the Continental Electronics booth at NAB2006, attendees heard DRM broadcasts of Nevada Public Radio station KNPR(FM) using a Sangean DRM/DAB receiver.

cated due to other technologies.

Of key early interest is the 26 MHz shortwave band, which, according to Messer, is only lightly used around the world and is unallocated in many countries due to its unreliable skywave propagation. This light use of 26 MHz may be an advantage for DRM use of the band, Messer said, because the noise floor

would be much lower than existing AM broadcast bands, and would allow the development of an "FM-like" local service with low transmitter power and bandwidths of up to 20 kHz capable of providing FM-quality stereo programming.

Tests of 26 MHz transmissions in Mexico City in July 2005 were encouraging, Messer reported. With a 200-watt transmitter — "about the size of a soda vending machine," Messer quipped — DRM was available in locations with at least 18–20 dB signal-to-noise ratio and a 35 dBu signal strength, much less than the 30 dB signal-to-noise ratio and 60 dBu signal strength required for AM, due primarily to the reduced local noise.

Messer estimates that from the test transmitter's location on the edge of town, approximately 2–6 kW of transmitter

power would be required to cover all of Mexico City's 12 million inhabitants. "Other cities will require less power."

Further tests are being conducted or are planned in Brazil, Croatia and Great Britain, Messer said.

Another development and the subject of wide interest is DRM's decision to pursue regulatory authorization through the ITU to expand its system into the VHF bands.

Messer said that in a DRM-only band, channels could be allocated with 50–100 kHz bandwidths, maximizing spectrum efficiency and minimizing interference while providing enough data payload for CD-quality audio. This use is targeted for the 54–72 MHz bands, which are or will be abandoned in many countries, he said.

A hybrid mode will also be proposed for use in existing FM bands with 200 kHz channel bandwidths, Messer said. In hybrid operation, DRM power will be limited to 16 dB below the analog FM power, while the maximum power for DRM-only operation would be higher.

Messer hopes to have a proposed standard for DRM use in the FM band submitted to the ITU by this time next year.

DRM is also hopeful that one or more variants of the system will find a use in the United States as a complement to HD Radio on FM, Messer said.

He said the continuing development of DRM is part of a strategy to offer broadcasters a variety of options to provide digital radio to their listeners, dependent on spectrum availability and other local considerations. The goal is "complete terrestrial frequency capability with no regulatory complications," Messer concluded.

DRM on shortwave

One of the key reasons for developing DRM was to offer shortwave broadcasters and listeners more reliable transmissions. Early proponents and participants in the consortium have been anxious to see how

See DIGITAL, page 8 ▶



THE EXPRESS LANE IS NOW OPEN.

PCI EXPRESS

AudioScience introduces the world's first PCI Express sound cards: the ASI6600 series.

Not only do you get the advantage of speedy PCI Express data transfer, but our ASI6600 series sound cards are loaded with Built for Broadcast™ features. With PCI Express slots fast becoming the standard in new PCs, now is the time to get in the fast lane. Get ahead, and stay ahead, with AudioScience. Learn more by calling +1-302-324-5333 or visit www.audioscience.com.

ASI6600 SERIES FEATURES

- +24dB analog levels
- 96kHz sample rates
- SSX multi-channel support
- MRX multi-rate mixing
- MPEG Layer 2 and 3 encoding and decoding
- TSX time scaling
- SoundGuard transient voltage protection
- Short 6.6" PCI card format
- Up to 4 cards in one system
- Windows 2000, XP and Linux software drivers

BUILT FOR BROADCAST

AUDIOSCIENCE
Sound Engineering
Sonic Excellence

McDowell

▶ Continued from page 2
radio ownership limits.

"It's a challenge to update rules that are very old and were created in a different era," said McDowell, although he noted there are more media outlets now. "In the meantime, we do have to thread the needle handed to us by the Third Circuit," referring to the federal appeals court order that the commission justify its numerical media ownership limits. He said he has read the case, but needs to re-read it several times.

He also declined to speculate on a timeframe for finalizing the IBOC rules, although he hoped the commission will get them out "soon." Three items related to final IBOC authorization were expected to be voted on at the commission's monthly meeting in July but were pulled from the agenda before the meeting began. A spokesman said they weren't complete.

In a broad sense, McDowell said his general philosophy is to get a deregulatory framework in place to foster an unfettered marketplace in which consumers are free to make decisions. Consumers want "to pull content of their choice through a pipe of their choosing," he said.

Only when there is a failure should government act, he said, and even at that, those kinds of rules should be "sunsetted" at a certain date.

In March the former telephony execu-

tive told members of the Senate Commerce Committee during his nomination hearing that he would "commit to promoting competition in all markets," encourage private-sector solutions and remove barriers to entry if confirmed.

McDowell said his very first vote was to allow TV Martí to use a new channel to broadcast to Cuba.

His term runs until June 30, 2009.

'Wireline guy'

McDowell worked at WTOP(AM) in Washington shortly after he completed college. At the time, he was considering becoming a journalist, following the example of his parents, he told Radio World.

But he went on to spend 16 years as a telephony executive. Before coming to the FCC, McDowell was senior vice president and assistant general counsel for Comptel, an association representing telecommunications service providers.

A few times during his briefing, he described himself as "a wireline guy," suggesting he's studying other industries the commission regulates.

McDowell lives in Northern Virginia on about five remaining acres of the farm on which he grew up. He owns several terrestrial radios but no satellite radio; he has basic cable TV service. He said he has not purchased a digital upgrade for his cable service, nor an HD Radio. He said he listens to several stations on his morning commute, including FM stations WMZQ and WWDC. ●

Internet remotes... there's been talk.



➔ Live from 37,000 Feet— No kidding—Live Broadcast from a Lufthansa flight!



... successfully aired his three hour talk show from a commercial airplane [using ACCESS] at 37,000 feet on a regularly scheduled flight between Frankfurt, Germany and New York, US.

Peter Greenberg—Host of the syndicated radio program Travel Today

*For the complete story visit
<http://remotebroadcasts.blogspot.com>*

➔ Radio Free Asia—Live from the Himalayas



"The results [with ACCESS] were especially reliable considering that Dharamsala has one of most "problematic" Internet infrastructures that we have come across." — David Baden, Chief Technology Officer Radio Free Asia

*For the complete story visit
<http://remotebroadcasts.blogspot.com>*

➔ Ski Mountain Remote



This picture, really demonstrates what ACCESS is about. This product truly has the ability to cut the wires.

*For the complete story visit
<http://remotebroadcasts.blogspot.com>*

➔ JAMN 94.5—Walk for Hunger



"ACCESS was used on the air exclusively for JAMN945 at this one. It was all over EVDO with a tremendous amount of active cell phones in the area. The ACCESS was connected to the Verizon wireless Broadband...

*For the complete story visit
<http://remotebroadcasts.blogspot.com>*

Put Comrex On The Line.

COMREX

Digital

► Continued from page 6
the system will perform in regular use.

Deutsche Welle, the German international broadcaster that broadcasts in 28 languages, has been aggressively deploying DRM; it offers 66 hours of DRM to Europe each day, with anywhere from one to six transmitters broadcasting digital signals at any given time, according to its head of terrestrial transmission, Andy Giefer.

To gain useful data from such a large number of individual transmissions, Deutsche Welle engineers have developed and deployed a low-cost automated monitoring system to help characterize and track the performance of DRM broadcasts over time.

Messer hopes to have the standard for DRM use in the FM band by this time next year.

Paired receivers are located at 25 distributed locations around Europe, selected to provide a representative sampling of reception conditions. Eight reference receivers are also installed at DW's DAB transmitter sites, providing 58 total continuously monitored reception data points.

The two receivers at each site are connected to a PC running a custom monitoring application based on the open-source DRM software receiver platform. Reception availability, defined as the receiver's ability to decode DRM into audio, is continuously recorded for each one-hour "slot" of DRM broadcasts on any given frequency.

A "quality" measure is then calculated for each slot, yielding a single number that represents the overall signal availability for that particular transmission. For example, an hour that contains 36 seconds of undecodable audio would have a quality of 99 percent.

The reception data from each of the monitoring sites is sent to a centralized database in Bonn, where a matrix display with color-coding of the quality measurements allows engineers to view the reception status of all monitoring sites for all DRM broadcasts simultaneously.

This "at-a-glance" view has proven useful in troubleshooting problems and addressing concerns about reception quali-

ty for such a far-flung coverage area, Giefer said.

What's more, he continued, the monitoring system has given Deutsche Welle a valuable data set to study the long-term performance of DRM on shortwave and to develop recommendations for improving reception.

After an analysis of several months' worth of data gathered by the monitoring system, a total of 86,126 total slots, DW's engineers found several interesting trends, according to Giefer.

Overall, the quality of DRM broadcasts on a single shortwave frequency was only 65 percent when averaged over all monitoring sites. However, when programming was simulcast and synchronized on two frequencies, quality ranged from 90-95 percent, depending on the design of the receiver.

"Two frequencies increases availability dramatically and receiver sophistication can increase it to near 100 percent with two-tuner combined reception at many sites," Giefer said. "Three frequencies can be even better."

Ultimately, the experience of designing and deploying the monitoring system and the subsequent analysis of the data it has gathered has led Giefer to develop six "rules of the road" for broadcasters considering deploying a multi-frequency DRM network:

- Monitoring is crucial
- Local noise can affect monitoring sites
- Reference receivers are essential
- Networks need to be synchronized
- Second frequencies increase availability
- Receiver sophistication matters

Eureka, indoors and out

After a long, slow start, the Eureka-147 DAB system has taken hold in Great Britain, primarily through desirable digital-only channels from the BBC and Digital One, the holder of the U.K.'s only nationwide commercial digital multiplex license.

According to Quentin Howard, chief executive officer of Digital One, there are now 3 million DAB receivers in the United

NEWS WATCH

HD-R Included in Tweeter 'Concept' Stores

CANTON, Mass. Tweeter features HD Radio in its new retailing concept.

The retailer has opened its third "Consumer Electronics Playground" concept store in Burlington, Mass. Tweeter describes the stores as having unique selling spaces that create a consistent "customer journey" that makes shopping for home and mobile entertainment easier and more enjoyable.

Customers see living rooms, bedrooms and other typical home spaces displayed with integrated audio and video products controlled by a single master remote control.

At designated technology pods, customers play with new technologies, including HD Radio and home audio integration systems. An installation bay for mobile car products with on-site experts is available, too.

This third store expands on concepts built in to Tweeter's concept stores in Las Vegas and Oak Brook, Ill.

Kingdom, with 11 percent of total radio listening now on digital channels. Receivers are now available in all form factors, with a starting price of around \$50.

Interestingly, Howard said, the greatest take-up of DAB receivers has been with indoor portable radios, even though the system was initially designed for mobile car reception.

With this large number of stationary indoor receivers providing the bulk of DAB listening and with consumers' expectation of perfect reception in all locations, research was needed to provide guidance to DAB system planners to optimize transmission networks for improved indoor listening, Howard said. This need led to the "Uxbridge tests," named after the greater London town where they were conducted, in which a \$100 standard consumer receiver was tested in a variety of "real-world" likely in-home locations to determine what differentiates indoor and outdoor DAB reception.

The results of the tests, Howard said, were "generally better than expected." About six out of 10 in-home locations tested received a signal comparable to that expected for 99 percent signal availability in outdoor locations at 10 meters above ground.

During the course of the tests, several trends were observed that can affect listeners' experiences with indoor DAB reception, Howard said. Many locations, especially under kitchen cabinets, do not allow standard whip antennas to be fully extended, so users tend to pull them up only as far as the obstruction will allow and making the antenna inefficient. However, users were also more willing to find an appropriate reception location and antenna ori-

entation than testers had initially expected.

These qualitative observations, combined with quantitative data on signal strength gathered from the tests, led to two additional planning factors that can be used by system engineers to optimize digital transmission networks for indoor reception. Similar factors should be applicable to HD Radio or other digital radio systems, Howard suggested.

Since indoor listeners are somewhat willing to find an optimum reception location, Howard said, 95 percent service availability is acceptable. Planners should add 9 dB to their service estimates to reach this availability threshold indoors.

To compensate for short or otherwise inefficient antennas, such as earpiece antennas found on portable radios or mobile phones, planners should add 17 dB to their power budgets, Howard suggested.

Of course, he admitted, the only practical way to optimize coverage using these planning factors over a large area with a variety of population densities is to deploy so-called "dense networks" of single-frequency repeaters. This creates a new problem, in that in-fill transmitters will cause interference to adjacent-channel multiplex broadcasters unless they have a supplementary transmitter at the same location.

After extensive analysis and predictive calculations, Howard said, the simplest way to avoid interference on adjacent channels is to install a companion booster for the adjacent multiplex channels. Based on Digital One's experience installing such a booster in Uxbridge, "a 20 dB ratio works well for make-good transmitters for adjacent-channel affected stations," Howard concluded. 🌐

BURLI. COMPLETE NEWS PRODUCTION FOR RADIO.

Burli is a computer newsroom system specifically designed for radio with tools to let you gather, edit, manage, share and deliver the news.

- newswire ingest and management, including rss and xml feeds
- digital audio ingest, editing and play-to-air
- radio prompter
- shared news production across bureaus, newsrooms, groups
- one-click podcasting
- fast indexed searching
- complete news archive

Burli's reliability, ease-of-use and state-of-the-art features make it the choice of both small-market stations and the world's leading all-news radio operations.

TO FIND OUT HOW BURLI CAN WORK FOR YOU...

www.burli.com | info@burli.com | +1.604.684.3140

Booth 201
NAB Radio
Show.



BURLI

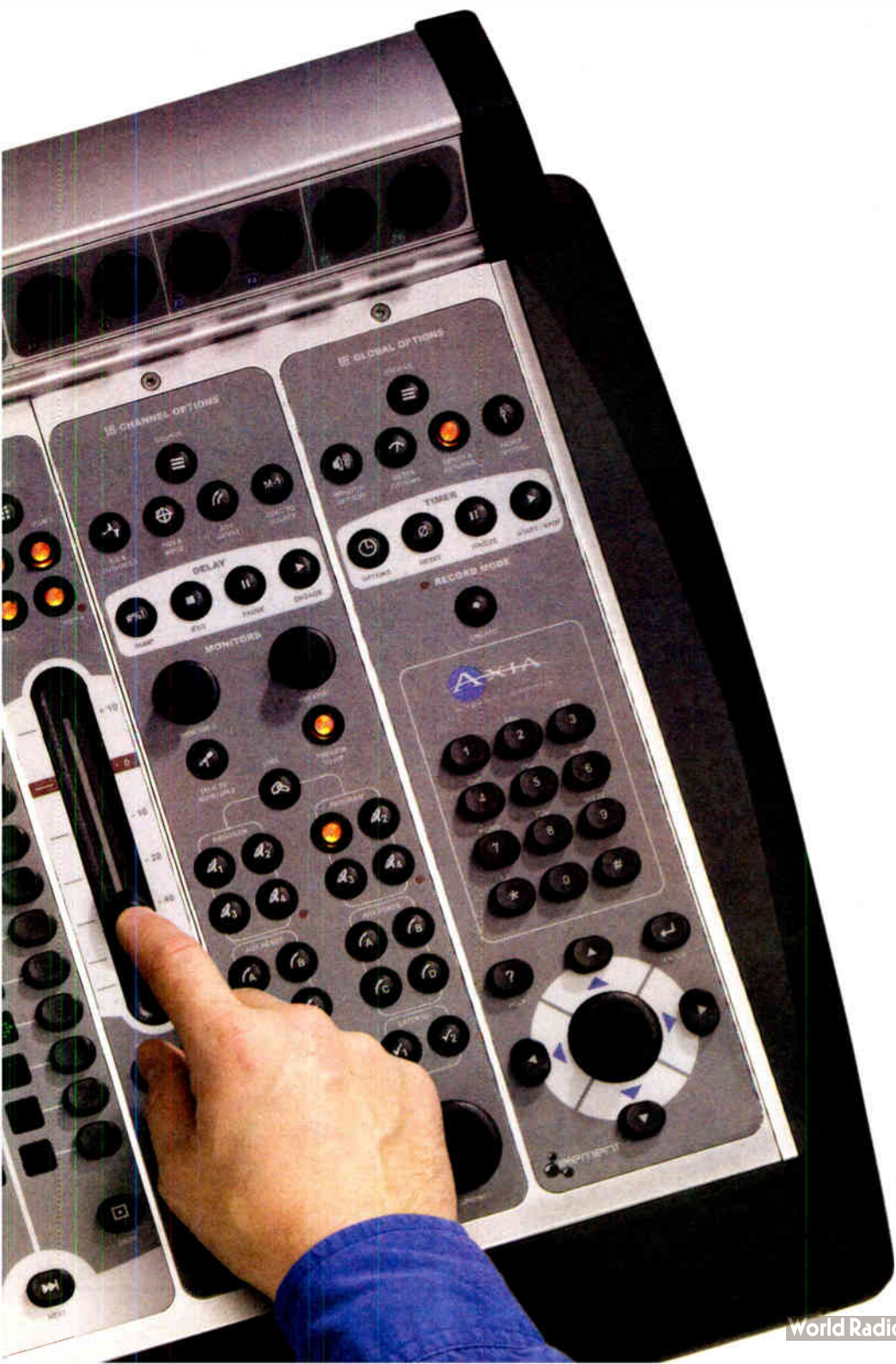
250 studios already?

Time flies when you're having fun!

Hard to believe, but we passed the 250 studio mark recently. We're told that it's a major milestone, but we prefer to call it a good start.

In fact, our clients have made Axia the **fastest growing console company** in radio. To you, we say "thanks" for your trust and enthusiasm. And to those of you who aren't yet clients: we're ready when you are.

Okay, back to work now. (Consoles don't build themselves, you know.)



www.AxiaAudio.com

Mathews

► Continued from page 1
licensed HD-R station on in Detroit, WDMK(FM). We did seven in our first year [2004] and then we did 12 through the end of 2005. So we had 19 on at the beginning of this year and then we're going to be doing 14 this year.

RW: Are your stations multicasting, or, if not, are there plans to?

Mathews: We're not doing multicasting yet. The plan is that we'll have all the infrastructure in place to have at least six stations multicasting by the end of this year in six key markets. ... We're still working internally to figure out the best way to utilize these HD2 signals to

get our content out.

RW: Radio One is not a member of the HD Digital Radio Alliance, yet your company is a long-time proponent of IBOC.

Mathews: One of the reasons we didn't join the alliance was simply because it didn't make sense, based on the fact that we have very niche audiences. ...

They didn't want stations broadcasting HD2 that didn't really cover the entire metro. They actually had a system of metrics that determined two things: where you're positioned and the ability to pick a format and ... whether or not you could be on at all with HD2.

In theory, if you joined the alliance and you had a signal that didn't cover the market very well, you couldn't even put on HD2. ... The point is they want to make sure the market is saturated

with only quality HD2 signals so we get launched on the right foot, because we don't want the consumers to be disappointed in the quality of the signal. ...

Since we cover very niche parts of the market, then it's okay because our listenership will receive a quality signal everywhere.

RW: What are you learning as you do these conversions?

Mathews: What I'm learning is that the equipment manufacturers are making very big strides in sort of perfecting the approach. They were new to it just like the rest of us. The initial beta releases of everything were not exactly the most intuitive and most well thought-out setups. But as time has gone on, everybody is starting to impress me with the simplicity and the amount of

work and effort that they've put into making these setups more robust and more user-friendly and less prone to failure. ...

RW: Some stations are using filters to reduce spurious emissions. Are you running into those kinds of situations?

Mathews: At least with Harris hardware, I've had a lot of luck with not really running into that too much. ... But typically, it's a site-by-site evaluation, and if you've got a signal out of a station out in the middle of nowhere, I've not had a lot of trouble with the hardware creating spurious emissions.

See MATHEWS, page 12 ►

Radio One

Radio One Inc. is marking its 25th anniversary with a year-long celebration throughout 2006. The media company is the seventh-largest radio group in the U.S. based on revenue, and considers itself the largest radio broadcaster that primarily targets African-American and urban listeners.

Including announced acquisitions, Radio One owns and/or operates 71 radio stations in 22 U.S. urban markets and reaches approximately 14 million listeners every week.

RADIO ONE

THE URBAN RADIO SPECIALIST

Celebrating
25 Years
of Service
to the Community

Radio One also owns approximately 36 percent of TV One LLC, a cable/satellite network with programming catering primarily to African-Americans, which is a joint venture with Comcast Corp. and DirecTV. In addition, Radio One owns 51 percent of Reach Media Inc., the owner of the "Tom Joyner Morning Show" and other businesses associated with media personality Tom Joyner.

Radio One also syndicates what it says is the only national African-American news/talk network on free radio, and it programs an African-American news/talk channel on XM Satellite Radio.

Chairperson/Founder: Catherine Hughes

President/CEO: Alfred Liggins III

Market portfolio: Atlanta; Augusta, Ga.; Baltimore; Boston; Charlotte, N.C.; Cincinnati; Cleveland; Columbus, Ohio; Dallas; Dayton, Ohio; Detroit; Houston; Indianapolis; Los Angeles; Louisville, Ky.; Miami; Minneapolis; Philadelphia; Raleigh-Durham, N.C.; Richmond, Va.; St. Louis; and Washington.

NASDAQ Stock Symbols: ROIAK and ROIA

Web site: www.radio-one.com



From New York to Alaska, Logitek fits just right.

Logitek's Console Router Systems can be scaled for any size application, whether it be 24 networked Audio Engines in the USA's top market or a single engine and control surface in Barrow, Alaska, the northernmost radio station in the USA. With our flexible architecture and affordable prices, Logitek is just right for your market. Logitek Console Router Systems, 1300+ systems strong. You should be next.

Logitek Electronic Systems, Inc.
5622 Edgemoor • Houston, TX 77081
713.664.4470 1.800.231.5870
info@logitekaudio.com www.logitekaudio.com

© 2006 Logitek Electronic Systems, Inc.

Logitek
Console Router Systems



Wireless Broadband Internet Remotes

Now Shipping



*Verizon, Cingular and Sprint now offer broadband IP cell phones you can plug into a Tieline codec and deliver reliable, broadcast quality remotes from wherever you're standing



The first time out with the Tieline was a brilliantly simple experience for everyone involved. For lack of a better phrase, the codec just worked.

**-Christian Vang Chief Engineer
Clear Channel St. Louis**



Read the full story and get
a **FREE** IP demo www.tieline.com/ip

800-750-7950

Tieline 
www.tieline.com

*Verizon, Cingular and Sprint are trademarks of their respective corporations

Mathews

► Continued from page 10

But when you've combined your hardware and three or four other radio stations in near proximity, then I start seeing some issues. We typically deal with that by putting in bandpass filters and things like that.

RW: Please ballpark your conversion costs, per station.

Mathews: That's totally driven by the kind of station. I would say for a Class A, on the low end, where we've already got a solid-state transmitter and all we're doing is linearizing the transmitter, and buying an exciter — we're probably talking \$75,000 for the easiest install.

For the high end, we're probably talking a quarter-of-a-million dollars to \$300,000, because for a full C, you're doing high-level combining, you're buying combiners, you're upgrading your mechanical. The digital transmitter alone that can create enough RF to make that work for a full Class C is over \$100,000 anyway. So we can easily spend \$250,000 on a big conversion.

From a fiscal perspective, market size and costs have driven my selection criteria so that I can spread it out evenly over the four years. ...

RW: Do you have a team of people that does the conversions?

Mathews: We paid a little bit extra, per install, to have Harris send in a couple of technicians to help with these conversions. But I can tell you, having

done several myself, that it has really become very intuitive. Especially for the Class As and some of the middle range.

It's really not that complicated or labor-intensive. You just have to really plan and organize everything in advance. ...

RW: Are you upgrading studios at the same time?

Mathews: We typically build out two markets a year where we're actually moving to new facilities because we're running off a bunch of old leases ... and at that point upgrading all the equipment to digital. We've probably done between 10 to 12 markets since I've been here — top to bottom buildouts.

(The company is upgrading to digital studios at its Lanham, Md., headquarters, and Radio World has previously

reported the corporate offices' plan to move to downtown Washington.)

RW: How are you handling the delay between the analog and digital signals? Ibiqity wants all HD-R stations to do it and not all of them are.

Mathews: Ibiqity's position is either delay or don't bother being on, because there's no point on being HD if you're not going to delay your analog, because then the listeners have a horrible HD experience. ...

'Equipment manufacturers are making very big strides in sort of perfecting the HD-R approach.'

Everywhere we're in HD we're delaying and what we've done is installed silent sensors for notification issues. ...

Usually we tie them to a remote control; they call the engineer. They actually find out faster that way than they would with a jock.

We had already gone through the profanity delay process [using Symetrix gear] before the HD process. So it really isn't a big transition for us because we're already delaying just about every station we've got by 10 to 12 seconds. Typically we take the headphone feed — the program feed — and we process it so the on-air talent can hear processed audio in their headphones, but delayed audio.

RW: What are your thoughts about whether or how AM should go digital at night?

Mathews: I think there are problematic issues. The long and short of it is a lot of AM stations, just like FM's, have been getting reception in areas where they aren't really technically protected. ... But, at some point ... they're going to have to give up what they've been sort of getting for free all this time anyway, that sort of non-protected listening area. ...

RW: Because AM has to go digital at night. ...

Mathews: It's one of those things where everybody is saying, "It can't happen." And I've said this from the beginning on HD, none of this is a question of "If," it's a question of "When."

RW: Do your listeners notice when you go digital?

Mathews: They have no concept unless they have an HD Radio. As I mentioned with our HD2 strategy we're still doing the internal strategy on the HD primary promotion. We're big about cross-platform advertising and utilizing all of the Radio One interests. We have TV One, Syndication One ... we've got a lot of products.

So we're trying to come up with the best strategy to tie all of this together, including HD2, primary HD and everything so that when we start promoting it, it will have the most bang for the buck.

See MATHEWS, page 14 ►

Attention Programmers!

SYNDICATION NETWORKS CORPORATION

The TWILIGHT ZONE™

Each week, host Stacy Keach takes you to another dimension — a dimension not only of sight and sound, but of mind. Your next stop ... THE TWILIGHT ZONE!

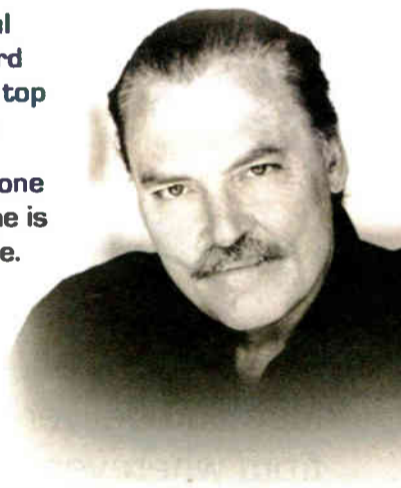
RADIO DRAMAS

"We wanted TWILIGHT ZONE right away because of the artful way it delivers a classic genre to a new generation. Our reward has been real ratings performance. This show is consistently top 5 in our key 35 - 64 demo." TODD MANLEY - WGN Chicago.

"Instant name recognition and great listener feedback. Just one book with THE TWILIGHT ZONE RADIO DRAMAS and my cume is up 47% over the previous hour!" BOB BROOKS - KIXI Seattle.

"THE TWILIGHT ZONE RADIO DRAMAS is the best radio drama available. The all-star casts are terrific and the production values are exceptional! I receive more e-mail on the program than any other show. Keep those great shows coming!" REED HAGEN - KLBB Minneapolis.

"STACY KEACH does a great job and it's fun to hear actors we know from the visual media try out their chops on the aural side." GUY ALLEN TYNES - KWAM Memphis.



- THE TWILIGHT ZONE radio dramas are BRAND NEW radio adaptations of Rod Serling's classic stories. Each episode features a Hollywood celebrity, supporting actors, music and ambient sound effects. Now heard on more than 200 commercial radio stations, including: WGN Chicago, KSL Salt Lake City, KQV Pittsburgh, KFNC Houston, KLBB Minneapolis, KNUU Las Vegas, KWAM Memphis, KJLL Tucson, WWTN Nashville, WCTC New York, WIST New Orleans, KMA Omaha, KLVQ Dallas, and WHBL Milwaukee.
- Host Stacy Keach is joined by Hollywood celebrities: Jason Alexander, Jim Caviezel, Jane Seymour, Blair Underwood, Lou Diamond Phillips, Luke Perry, Ed Begley, Adam West, Daniel J. Travanti, Kate Jackson, Bruno Kirby, Chris McDonald, Adam Baldwin, John Schneider, Paul Dooley, Fred Willard, Henry Rollins, Hal Sparks and many others.
- You get TWO, One-Hour TWILIGHT ZONE radio dramas each week. Schedule One Hour on Saturday and One Hour on Sunday, or run them both in a Two-Hour weekend block!

Format:
2 Weekly
Hour-Long Shows

Distribution:
Digital

Free of Charge:
Barter

For more information please phone Matt at Syndication Networks
1-800-743-1988 ext. 201 or email matt@syndication.net

“Connect POTS to ISDN? You’ve got to be kidding!”



At Telos, we’re obsessed with quality audio. We were the first to marry DSP with broadcast phone hybrids to achieve clean, clear caller audio. We invented Zephyr, Earth’s most popular way to send CD-quality audio over ISDN. And now our DSP experts have built the **best-sounding POTS codec ever — Zephyr Xport.**

Instead of proprietary algorithms, we chose **MPEG-standard *aacPlus***[®], the same coding used by XM Satellite Radio, Digital Radio Mondiale, Minnesota Public Radio, Apple Computer and many others to deliver **superior audio at low bit rates.** (An optional ISDN interface lets Xport connect to Zephyr Xstream with Low-Delay MPEG AAC, or with nearly all third-party ISDN codecs using G.722.)

There’s no need for a studio-side POTS line. Your studio’s Zephyr Xstream receives Xport’s POTS calls via its existing ISDN line, **eliminating the cost of a second POTS codec** and delivering smooth, clear digital audio to your listeners.

And Xport **makes unexpected modem re-training extinct** thanks to custom DSP algorithms that extract stable performance from even marginal phone lines. Xport gives you **surprisingly clean 15 kHz remote audio at bit rates as low as 19 kbps.**

No wonder clients tell us Zephyr Xport is the world’s best-sounding POTS codec. But don’t take their word for it — hear it for yourself.

Zephyr Xport: It’s all about the audio.



Two-input mixer with sweetening by Omnia, switchable Phantom power, and send / receive headphone mix make life on the road easy.



Ethernet port isn’t just for remote control: feed PCM audio right into the codec from any Windows™ laptop. Great for newsies on the go.



Xport’s *aacPlus* and Low-Delay MPEG AAC deliver superb fidelity. G.722 coding enables connections with 3rd-party codecs, too.



Xport lets you easily send and receive audio using a cell phone headset jack. Gives a whole new meaning to the phrase “phoning it in.”

Telos
AUDIO | NETWORKS

telos-systems.com

Telos, the Telos logo, Zephyr and Omnia are registered trademarks of TLS Corporation. *aacPlus* is a trademark of Coding Technologies, Inc. Windows is a trademark of Microsoft Corp. All other trademarks are property of their respective owners. All rights reserved. © 2005, TLS Corporation.

World Radio History

Mathews

► Continued from page 12

(Company President/CEO Alfred Liggins recently said on a conference call to analysts that Radio One is buying HD Radios to use as giveaways.)

RW: When do you think the whole strategy will come together?

Mathews: Probably Q4 of this year. Because we're going to have the HD2 stations available ... and the ability to deliver that additional content. ...

RW: How is the engineering group at Radio One structured?

Mathews: I'm the vice president of engineering and I have a director of engineering as well who is in Cincinnati [John Soller]. He's kind of the number two guy and deals with a lot of the operational stuff.

We're staffed very lean. Each market, typically, has a chief and an assistant chief. They're staffed based on their individual skills. Usually, if I've got a chief who's strong in studio and RF skills then I'm going to try to hire an assistant who's got strong IT skills. We've got a lot of really talented guys.

RW: How do you handle equipment purchase decisions?

Mathews: Pretty much everything comes out of corporate. We keep pretty tight rein on the purse strings. We go through a pretty complicated cap-ex



Radio One's John Soller (left) and John Mathews prepare to take a 1,000-watt generator up 12 floors to the KNOU(FM) studios in New Orleans in the wake of Hurricane Katrina.

budgeting process at the end of each year. But then we re-approve everything on a per-quarter basis during the year. ...

RW: What's a ballpark figure for the annual engineering budget?

Mathews: For the entire company? It's got to be a few hundred grand a market. Including salaries, tower leases, electricity. ... So \$200,000 times 20 is \$4 million. ...

RW: Getting to other technologies that are competitors, I noticed recently that Apple said several U.S. automakers are going to start offering iPod adapters as in-dash equipment. Does that have the potential to outpace HD Radio?

Mathews: No, I think ultimately what you're dealing with here is that delivery methodology to the consumer is going to become a commodity. Basically everything out there, RF signals, cellular

... is going to basically become not that impressive to own.

What it's going to become is that content is king. So all the broadcast owners and broadcasters have to stay focused on staying ahead of that curve by developing the best content and by utilizing HD and HD2 and the data potential for HD, using those to come up with clever ways to deliver this content to the listener. As long as we stay ahead of that, and it stays free, I think that [radio] will never go away. ...

RW: How did you get into radio?

Mathews: I was in college studying biomechanical engineering and was getting pretty close to finishing that degree and I decided I didn't want to do that anymore. I just left. ... Biomechanical engineering is the mechanical design of artificial prosthesis, like hip joints.

RW: Where were you?

Mathews: I was attending the University of Alabama in Birmingham. I had always been a tinkerer, a technology guy. I moved to Panama City, [Fla.], just to take a break from education. ...

I got a job selling background music systems at resorts. I was in Tallahassee, Fla. removing an SCA Muzak dish from a full-powered Class C station, [WGLF]. A local guy said that the chief engineer had recently been promoted to general manager and they needed a chief engineer. ...

I got on board there, but unfortunately, the guy who was supposed to be my mentor, the GM, left two weeks later.

See MATHEWS, page 16 ►

AM Multiplexed Directional Antenna Systems For The Digital Revolution



Directional Antenna Phasing Systems

The way they ought to be...

**WFLF - AM 540
50/46 KW DA-2**

**WQTM - AM 740
50 KW DA-2**



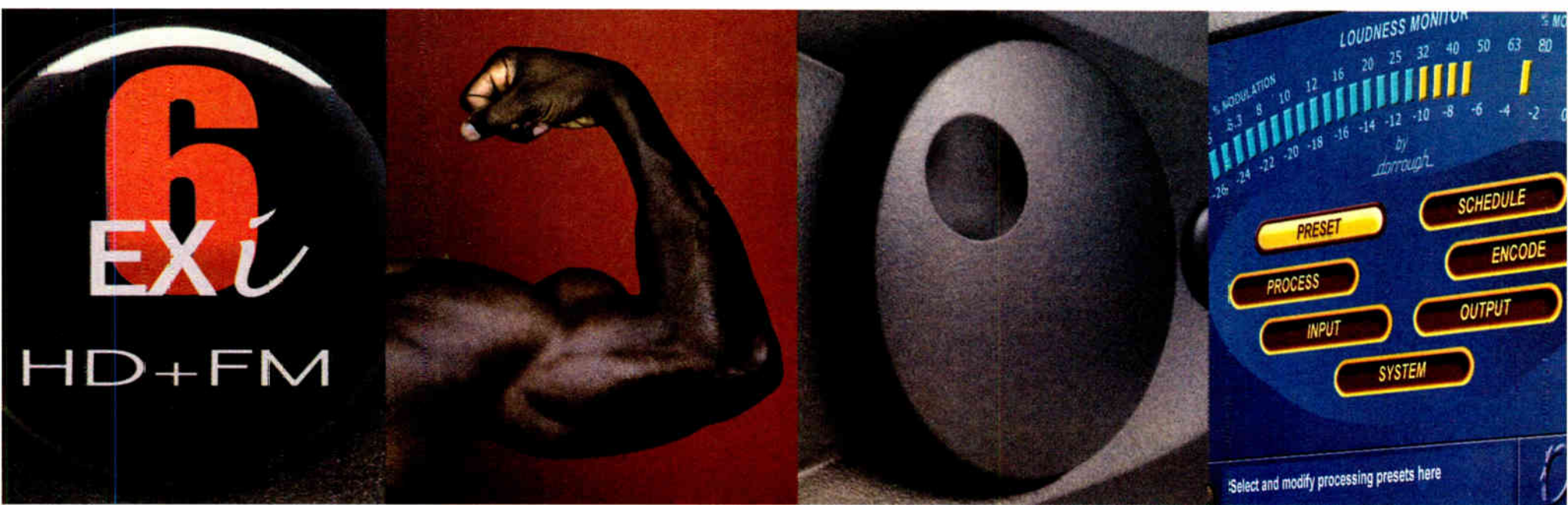
Interior Craftsmanship
Synonymous With Kintronic Labs

Built by Kintronic Labs for Clear Channel Communications, Tampa, Florida

Nobody Does It Better!



423.878.3141 fax 423.878.4224 Email: ktl@kintronic.com www.kintronic.com



Omnia 6EXi

The Ultimate Upgrade.

Omnia-6 is the standard by which all other processors are measured. In the last few years, thousands of leading stations in the world's top markets have upgraded to Omnia. In fact, Omnia-6 has been so successful that some competitors have just given up; others are mere shadows of their former selves.

So why do broadcasters love Omnia-6? The *sound*. The clean, pure, crystal-clear sound (bone-shakingly loud, if you want) that's become the choice of #1-rated stations in New York, Los Angeles, Tokyo, Paris, London, Rome, Sydney and Beijing. The other guys tried to match its winning sound... and failed. So they've settled instead for trying to copy its innovative features.

Features that Omnia pioneered — like dual, simultaneous processing paths for HD Radio™ and conventional FM at no extra cost. The world's first non-aliasing digital clipping system, with composite clipping for the ultimate in competitive loudness. The high-precision Multi-Band Look-Ahead Limiter (invented by Omnia) for perfect HD Radio processing. The six-band limiter for conventional FM, with adjustable crossovers for surgically-precise control over your signature sound. An integrated Dorrough™ Loudness Meter. And of course, the groundbreaking 96 kHz, 24-bit platform that delivers full 20 kHz bandwidth for HD Radio broadcasts. Always innovating.

Which is why the **new Omnia-6-EXi** makes perfect sense. With **integral HD Radio Diversity Delay** that helps digital broadcasters eliminate analog connections to the HD exciter, ensuring independent analog and digital program streams. And the exclusive new **LoIMD Clipper** that actually **suppresses intermodulation distortion** to deliver audio that's cleaner, clearer and more detailed than ever — no matter how aggressive your processing. (If you already own an Omnia-6, don't worry — there's a low-cost upgrade to give your processor full-fledged Omnia-6EXi power.)

A lot of muscle? You bet. No wonder the competition is running scared.



DIGITAL NEWS

FCC Okays Kiryung Sirius FM Mods

NEW YORK Sirius Satellite Radio said one of its receiver manufacturers has resumed building and distributing Sirius-branded wireless FM modulators. Kiryung Electronics received new grants of authority from the FCC for the Xact Visor, Sirius One and Sportster Replay radios.

The FCC's lab confirmed the devices were compliant with its Part 15 rules. KRI also continues to make the Sirius Sportster 4, the satcaster said.

Sirius did not say how soon products would be shipped to retailers, nor did it reveal the status of other manufacturers and their devices.

The satellite radio company said in a recent SEC filing that after testing, the FCC permitted a grant of authority for the Sarmate Replay to remain effective, and it expected the agency to permit new equipment authorizations for other products shortly, including the Visor by U.S. Electronic.

Sirius said in the filing that the new compliant products may be subject to "some transmission noise," which may mean it would begin recommending professional installation in some cases.

More XM FM Mods Snared in FCC Dragnet

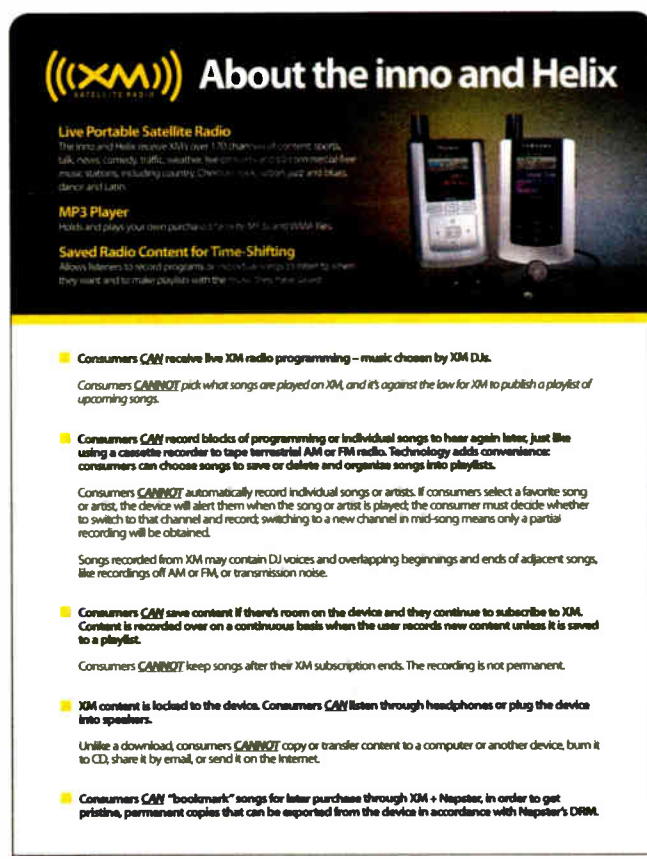
WASHINGTON The FCC is asking XM Satellite Radio about more wireless FM modulators. XM says in an SEC filing it will give the commission information on the circumstances leading to the non-compliance, and remedies to correct the situation for the Airware, Tao and Rody 2. This is in addition to the Delphi XM SKYFi2 and Audiovox Xpress, which we've reported on.

XM has asked manufacturers to suspend shipments for the additional radios and is completing design or installation modifications. It expects the commission will soon approve new certifications for the modified radios.

Audio Flag Talks Stall

WASHINGTON In response to a letter from lawmakers encouraging parties discussing a possible audio flag provision to resume negotiating, the RIAA said in August it is ready and awaits responses from Ibiquity and NAB to its proposals.

In the July 28 letter, Reps. Roy Blunt, R-Mo. and Eric Cantor, R-Va., said they didn't intend to take a position on the issue, but stated, "These policy considerations have serious implications."



(((XM))) About the inno and Helix

Live Portable Satellite Radio
The inno and Helix receive XM's over 150 channels of content: sports, talk, news, comedy, traffic, weather, health, and more. XM also provides live music stations, including country, Christian, rock, urban jazz and blues, dance and Latin.

MP3 Player
Inno and Helix play your own purchased tracks in MP3 and WMA files.

Saved Radio Content for Time-Shifting
Allow listeners to record programs as recorded songs. It's easy to share, they want and to make playlists with the music they love.

- Consumers **CAN** receive live XM radio programming—music chosen by XM DJs. Consumers **CANNOT** pick what songs are played on XM, and it's against the law for XM to publish a playlist of upcoming songs.
- Consumers **CAN** record blocks of programming or individual songs to hear again later, just like using a cassette recorder to tape terrestrial AM or FM radio. Technology adds convenience: consumers can choose songs to save or delete and organize songs into playlists. Consumers **CANNOT** automatically record individual songs or artists. If consumers select a favorite song or artist, the device will alert them when the song or artist is played; the consumer must decide whether to switch to that channel and record; switching to a new channel in mid-song means only a partial recording will be obtained. Songs recorded from XM may contain DJ voices and overlapping beginnings and ends of adjacent songs, like recordings off AM or FM, or transmission noise.
- Consumers **CAN** save content if there's room on the device and they continue to subscribe to XM. Content is recorded over on a continuous basis when the user records new content unless it is saved to a playlist. Consumers **CANNOT** keep songs after their XM subscription ends. The recording is not permanent.
- XM content is locked to the device. Consumers **CAN** listen through headphones or plug the device into speakers. Unlike a download, consumers **CANNOT** copy or transfer content to a computer or another device, burn it to CD, share it by email, or send it on the Internet.
- Consumers **CAN** "bookmark" songs for later purchase through XM + Napster, in order to get pristine, permanent copies that can be exported from the device in accordance with Napster's DRM.

XM Capitol Hill handout discusses its portables.

Talks between the RIAA, NAB and other industry groups about the scope and complexity of audio flag restrictions in the Senate version of the Telecom Act are at an impasse. Chances of resolution are in doubt more each day the shortened congressional calendar winds down in this election year.

NAB spokesman Dennis Wharton stated that talks were suspended in July "because the RIAA began pushing legislation on Capitol Hill as opposed to letting the negotiating process proceed. When talks resume, we expect consumer groups and the Consumer Electronics Association to have a seat at the table."

At issue is how consumers record content from a digital audio device. The RIAA says devices such as the XM Pioneer Inno and Sirius S50, which allow consumers to record and store up to 50 hours of content, begin to function like download services and therefore the record labels should get more money than they do now for royalties for these kinds of devices.

The satellite radio companies and CEA say XM and Sirius already pay millions in royalties and the new devices are in line with the 1992 Audio Home Recording Act.

See DIGITAL NEWS, page 18 ▶

Mathews

▶ Continued from page 14

I told them I wanted to do the gig but that I needed help.

For the next three years, I probably went to every school imaginable, from transmitter schools, audio design schools to tower climbing schools. ...

RW: And then where did you go?

Mathews: WGLF(FM) in Tallahassee for three-and-a-half years. Then I went to Birmingham, Ala., working for H&P Radio, which was then bought by Cox Radio. The stations were WBHK and WBHJ. H&P stood for Heftel and Palmer, Cecil Heftel and Carl Palmer. ...

I was there for about three-and-a-half years and then I got the job with Radio One. I moved to Atlanta for Radio One in 2000 (as DOE) and in 2001 moved up to Washington.

RW: Do you have an unusual story to share?

Mathews: I went down and did volunteer work to help out radio stations after Hurricane Katrina. The building had no air conditioning and the windows weren't blown out so we [Mathews and Soller] literally had to cut out the office windows ... just to have air in the building. We had to carry the 1,000-watt generator up to the 12-story roof. You couldn't leave it on the ground because it would have been stolen.

RW: What stations were you helping?

Mathews: KNOU(FM) in Empire, was primarily one of the ones we helped. ... The 1,000-foot tower that he was on, only 300 feet was left of it standing. But the 700 feet that was gone was not at the base of the tower. ...

On the way to the transmitter site, we had to get police escort into the parish that was south of the city. The sergeant we had to talk to asked us to make sure that we had a gun and other stuff before we went any further. We had to drive around coffins that were in the middle of the road. ...

RW: What's the most unusual or funny engineering situation you've had to handle?

Mathews: When I worked at Muzak I got a call from a place in Appalachia called National Forest. It was a restaurant. They said the satellite dish wasn't working. So I got there and climbed up on the roof and there were about a thousand green tree frogs hanging out on the dish to bake in the sun.

They were all stuck to the dish and it wouldn't work. ... You spray Pam [cooking spray] on dishes up here [in Washington] to keep snow from collecting on them. So I sprayed it on there after I scraped all the frogs off, and they immediately started to try and jump back up.

So they'd go "Spoo" and then they'd slide off. I must have sat there and watched that for an hour just for the sheer entertainment value, to watch these poor frogs try to jump up on this dish and then slide off.

Worried about Translator Hijacking?

The recent flood of cheap FM repeaters for Satellite radio and MP3 players has raised the risk of someone overpowering your distant translator source with inappropriate content.

With our RBDS encoder at your station and an RD10 RBDS Receiver/Decoder at each translator, you can automatically mute the translator if the received signal has been hijacked or overcome through atmospheric skip.

The RD10 is available now for only \$395 for the Serial version, \$475 for the USB version.

Visit www.viaRadio.com or call us at (321) 242-0001 for more information.



viaRadio
Radio Data Systems

ViaRadio Corporation tel (321)242 0001
760 North Drive, Ste B, Melbourne, FL 32934 www.viaradio.com
Specializing in RBDS solutions

got cables & connectors
racks
tools
problem solvers
test gear
& much more
connectors?
www.systemsstore.com

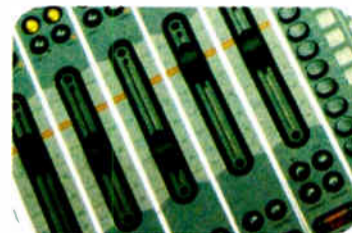
Can a broadcast console have a fan club?

"The more I learned about Axia, the more impressed I became with their routing system and consoles, and how well their network topology was designed. We ordered nine studios, and we love it. Our operators keep raving about how easy things are to operate. Even our listeners tell us how good WOR sounds!"



— Thomas R. Ray III, CPBE, Vice President /
Corporate Director of Engineering, Buckley Radio

"Axia's Ethernet links are switched connections – no hubs. With guaranteed bandwidth, and some clever clocking mechanisms, latency simply isn't an issue. With regard to cost, we found a significant difference between Axia and the other options we examined. Going with Axia cut our costs by roughly 33%..."



— Ethan Torrey, Chief of Research & Development,
Minnesota Public Radio

"We liked Axia consoles so much we installed them in a second studio. Then a third. Then a whole second cluster. And Axia cost about half what some companies wanted us to spend. My colleagues are so impressed, they want Axia consoles in their stations, too!"



— Jorge Garza, Chief Engineer
Univision Radio, McAllen, Texas

"I've worked with lots of equipment in the past 30 years, and Axia is by far the easiest system to install and get up to speed with. There are just a few cables instead of hundreds; the entire installation – with testing – took just one week."



— Rudy Agus, Chief Engineer, Hi-Favor Broadcasting
Los Angeles, California

"The announcers tell us how much they love working with the Axia consoles... It's great to be able to setup and save multiple configurations that can be recalled at a moment's notice. I don't know why we hadn't gone this route earlier. Where we're installing new equipment, we're onboard with Axia."



— Owen Martin, Director of Engineering,
Newcap Radio, Alberta, Canada

"The jocks took to the new Axia consoles like fish to water. Show Profiles are their favorite part, because they can all have custom board setups. Since the first studio was installed, we've added a new production and interview studio, and we plan on building three more studios. It'll be all Axia, all the way to the transmitter."



— Marc Johnson, Chief Engineer, WEGL-FM
Auburn University, Auburn, Alabama



www.AxiaAudio.com

Digital News

► Continued from page 16

The issue pertains to future generation HD Radios, which may have recording capabilities; both NAB and CEA claim any hint of a change in legislation could cripple the rollout as manufacturers sense regulatory uncertainty.

The RIAA counters that NAB is "mis-characterizing" the agreements and says it never agreed not to pursue audio flag legislation. NAB disagrees.

In an Aug. 3 letter, RIAA Chairman/CEO Mitch Bainwol states to NAB President/CEO David Rehr that NAB seems to be walking away from a commitment made in March between broadcasters and the record labels.

"That commitment — which we subsequently expressed jointly in a submission to the Congress — was the linking of an expeditious rollout of HD Radio with content protection to prevent the cherry-picking of songs from digital radio broadcasts," wrote Bainwol.

"We need to see a path that is constructive and purposeful — with an unambiguous commitment to content protection. Not a slow walk to prevent legislative activity this Congress with no intent to solve the problem."

CEA, meanwhile, reacting to a letter the RIAA sent to Rep. Rick Boucher, D-Va., on the issue, says the letter proved the RIAA has not participated in a congressional Copy Protection Technical Working Group because, "as we have long suspected," there is no technical specification for an audio flag and the

RIAA does not want to change its business model.

CEA said it is prepared to discuss ways to limit the mass indiscriminate redistribution of music over the Internet.

XM Fights RIAA Lawsuit ...

WASHINGTON XM asked a federal judge to throw out a copyright lawsuit brought by the RIAA over the Pioneer Inno. The music labels seek \$150,000 for every song copied on the device, saying such handhelds act like music download services and the labels should be paid more than the satellite radio companies pay now for copyright fees (see previous story).

In the court filing, XM said the device

was built to comply with the 1992 Audio Home Recording Act and does not allow the user to move the music files off the device.

CEA backed XM in a related court filing.

Sirius avoided a lawsuit by agreeing to pay the RIAA an undisclosed amount for music licensing fees for the S50 model.

... And Again Lowers Subscriber Predictions

WASHINGTON XM lowered its projection of subscribers for the second time this year.

Based on marketplace dynamics and regulatory uncertainties concerning its FM-modulated products, XM projected that it would end the year with between 7.7 million and 8.2 million subscribers. That's down from 8.5 million projected in May and 9 million originally projected for the year.

It still hopes to have positive cash flow by Q4, although executives acknowledged that might be difficult if the subscriber numbers come in at the low end of the projected range.

Company execs said they would be able to refine the subscriber figure in the third quarter when they expect to have a firmer sense of regulatory progress and availability of product for the fourth quarter, as well as retail sales trends.

The company reported it had more than 7 million subscribers at the end of July. CEO Hugh Panero said comparisons to rival Sirius, which so far projects to end the year at 6.3 million subscribers, are not accurate because the two firms count subscribers differently.

For the second quarter, XM recorded gross subscriber additions of 926,281 and net subscriber additions of 398,012. The satcaster finished the second quarter with 6,899,871 subscribers, representing a 56 percent increase over the 4,417,490 subscribers at the end of the second quarter 2005.

XM's Net Loss Grows

WASHINGTON For the second quarter, XM's net loss was \$229 million while revenue was \$228 million. CEO Hugh Panero said the satcaster lost some retail market share to rival Sirius and has beefed up its marketing team to address that.

Its churn rate is up since the first quarter, now at 1.83 percent; executives said they switched the company that handles the subscriptions, and lost some customers by not reaching out to them before their initial three free months were up.

The revenue figure represents an 82 percent increase from the \$125 million reported in the second quarter last year. The quarterly increase in revenue was driven by 56 percent subscriber growth year over year, as well as increases in average revenue per subscriber.

XM's net loss in the quarter was \$229 million compared to a net loss of \$147 million at the same period last year. The net loss includes \$105 million in de-leveraging and other non-operating charges that were not incurred during the second quarter of 2005.

— Leslie Stimson

The Word is Out - iMediaTouch is the fastest growing Radio Automation System...



iMediaTouch
Broadcast Automation Software

...wondering why?

With three new installations a week, iMediaTouch keeps beating out the competition. Why are we so hot?

- » HD-2 Multicasting & PAD Data
- » Instant website integration
- » Non-Stop Broadcasting
- » Group Wide-Area solutions
- » New On-Air Interface and more!

"We looked at many different systems and kept getting drawn back to OMT's iMediaTouch! I spoke with programmers and engineers that use iMediaTouch and those that use other systems...NO iMediaTouch user could come up with a system downfall. That's a powerful statement!"

Chris Maestle - Director of Programming
Verstandig Broadcasting

Call our Toll Free Sales Desk Today 888-665-0501

Download a Free Demo Version
@ www.imediatouch.com

omt
technologies **Inventing Radio Trends**

» See us at the NAB Radio Show September 20-22 in Dallas! Booth #512

CAB: Digital Radio Needs Help

Canadian Broadcasters Asks Regulators to Consider Eureka/HD Radio Push to Help Stalled Rollout

by James Careless

GATINEAU, Québec NAB's counterpart in the neighbor to the north has asked its government to consider a joint Eureka-147/IBOC approach to help revitalize Canada's anemic digital rollout.

Broadcasters have petitioned the Canadian Radio-Television and Telecommunications Commission as it prepares to revamp rules governing commercial radio; they want the regulators to allow stations using Eureka-147 digital radio technology to carry new digital-only programming and authorize those outlets to use IBOC to transmit existing programming digitally.

Broadcasters and other parties have submitted 183 written filings and made their cases at public hearings held in Gatineau, Québec, in mid-May.

First principles

The Canadian government and broadcasters have worked together for years to test and then deploy Eureka-147 DAB broadcasting in L-band. The idea has been to allow existing facilities to migrate to digital.

Of Canada's transition to digital radio, the CRTC report states, 'It is now effectively stalled.'

To this end, DAB transmission multiplexes have been built and switched on in cities such as Toronto; Montréal; and Vancouver, British Columbia — simulcasting local AM and FM stations.

Today, 76 stations are licensed to provide DAB services in Canada; about 50 are operational. Yet, according to the CRTC, listenership remains sparse and the DAB rollout is stagnant.

"In spite of the availability of DAB signals, very few people are listening to these services due to the limited take-up of DAB receivers in Canada," according to the pre-hearing report.

Besides the lack of affordable DAB receivers and the U.S. decision to pursue

HD Radio instead of Eureka-147, the CRTC notice states, "the slow rollout of DAB may be due to the lack of distinctive programming on the digital band: better quality sound through digital radio may not be enough to drive the rollout and widespread take-up of DAB receivers."

The report continues: "New and innovative programming may be needed, particularly programming for ethnic audiences, who would have a strong incentive to purchase DAB receivers."

This is a turnaround given that the

CRTC originally planned on digital radio replacing analog AM and FM.

The simulcast policy has not worked. Of Canada's transition to digital radio, the CRTC states in its report: "It is now effectively stalled."

The CAB reaction

In its comments to the CRTC, the Canadian Association of Broadcasters, which represents most private Canadian radio stations, shares the doubts held by the CRTC.

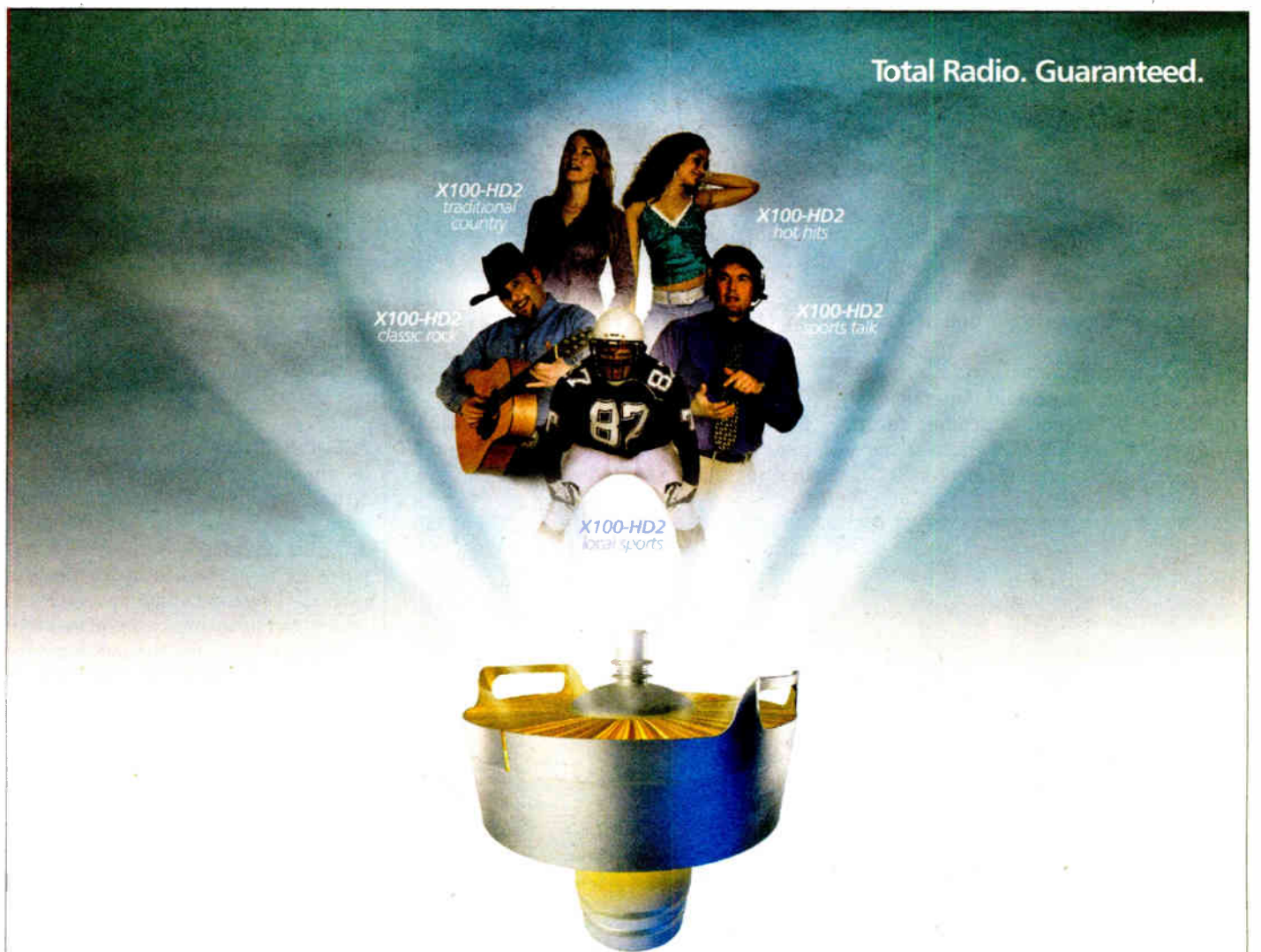
The CAB calls for "a light regulatory hand," including no minimum Canadian music requirement until digital listening increases.

The CAB calls for "unfettered implementation by existing broadcasters of AM and FM IBOC services that are 100 percent simulcast and that broadcasters be permitted to determine when such implementation should occur."

This means private stations want to use their existing DAB L-band allotments to launch new programs while they adopt HD Radio to provide their existing material in digital, too.

Also, private Canadian broadcasters still want licensing preference over new entrants wanting a space on the digital spectrum.

Finally, the CAB asks for the current 256 kilobits-per-second per digital station requirement to be reduced to 96 kbps, so that more channels can be packed into the same spectrum, arguing that audio quality compromises in digital is a trade-off for more, innovative programming.



Total Radio. Guaranteed.

All the Advantages of HD Radio In a BE Tube Transmitter

Introducing BE's FMi T Series for High Power HD Radio

These highly-efficient, cost-effective transmitters can help you harness HD Radio's revenue enhancing potentials, such as multicasting and Messagecasting. Based on BE's field-proven T Series, they feature Class C operation and our patented folded half-wave technology.

No company designs and builds a more complete range of analog and digital radio transmission options than BE. And, thanks to Essential Spectral Precorrection™ (ESP) and other proprietary BE innovations, no HD Radio system outperforms the combination of BE FXi HD+FM Exciters and HD Radio transmitters.



Broadcast Electronics, Inc. • 4100 North 24th Street, Quincy, Illinois 62305
Telephone: (217) 224-9600 • Fax: (217) 224-9607 • E-Mail: bdcast@bdcast.com

Broadcast Electronics and the BE logo are registered trademarks; Total Radio is a trademark, and Messagecasting is a service mark of Broadcast Electronics Inc. HD Radio is a trademark of iBiquity Digital Corporation.

NEWS WATCH

Regulatory Fees Due Sept. 19

WASHINGTON The FCC has set Sept. 19 as the latest that licensees may pay their fiscal 2006 regulatory fees. The agency will begin accepting payments for all licensees it regulates on Sept. 6.

Payments not received by the deadline get a 25 percent penalty tacked on to the total amount.

All payments also must include a FCC Registration Number (FRN) to be processed. Visit the FCC's Web site (www.fcc.gov/fees/regfees.html) to see specific amounts.

NEWS WATCH

Radio Show Floor Sold Out

WASHINGTON NAB says exhibition space at The NAB Radio Show is sold out.

According to Chris Brown, executive vice president of Conventions and Business Operations for the trade group, NAB has no more booth space left to sell for the fall show. More than 110 companies are listed.

The convention will be at the Hilton Anatole Hotel in Dallas, Sept. 20-22.

No Ham Carve-Out For BPL

WASHINGTON The FCC upgraded its rules for Access Broadband over Power Line systems while maintaining safeguards against harmful interference to existing radio services.

If harmful interference does occur to amateur radio spectrum or other operations, for example, the commission said it would "take appropriate action to remedy the situation."

The commission turned down a request by the ham radio community to prohibit BPL operations pending further study and to exclude BPL from frequencies used by amateur radio operations.

The commission made the changes in August in response to a number of petitions for reconsideration of the BPL rules established in 2004. The FCC reemphasized that the Part 15 rule changes were made to ensure that BPL operations do not become a source of interference to licensed radio services.

Specifically, the agency affirmed its rule regarding BPL emission limits and said reducing the emissions to 20 dB below the normal Part 15 emissions limits will provide adequate interference protection for mobile operations.

The commission turned down a request by the television industry to exclude BPL from frequencies above 50 MHz.

It said information regarding BPL deployment must be provided in a public database at least 30 days before deployment and that BPL equipment must be certified.

The agency denied a request from the aeronautical industry to exclude BPL operating on low-voltage lines from frequencies reserved for certain aeronautical operations.

Polk Predicts Tight I-Sonic Supplies

BALTIMORE Polk Audio anticipated big pent-up demand for its I-Sonic unit that includes HD Radio reception, and

asked broadcasters to be patient about their shipments.

Polk started shipping its I-Sonic tabletop HD Radio to Tweeter stores in mid-August.

This will be the second available HD-R tabletop, after the Boston Acoustics Receiver HD.

Polk has started taking pre-orders on its Web site (isonic.polkaudio.com) and said it would start shipping those orders around the same time units are shipped to stores, according to Marketing Manager Paul DiComo.

"In mid-August we will also start filling the broadcaster back orders that have been accumulating since shortly after the unit was unveiled," said DiComo, noting that the company has numerous broadcaster orders to fill.

"Supplies will be tight for the first couple of months and we ask for patience from broadcasters, consumers and media outlets while we steadily fulfill the huge pent-up demand. This product has taken us longer to bring to market than we anticipated, but we believe discriminating listeners will find it well

worth the wait."

The HD Radio multicast-capable unit also features a DVD player and can receive XM Satellite Radio for those who have an XM antenna and subscribe. The I-Sonic can also play standard music CDs and MP3 discs, as well as Video and picture CDs. The radio lists for just under \$600.

It ships with a loop AM antenna and an external dipole FM antenna.

Polk: Station Affiliate Pricing Available

Polk is offering an affiliates program for broadcasters. The manufacturer gives the station a commission for every customer who buys a Polk I-Sonic through the station Web site. Broadcasters who would like to know more about the program should e-mail Senior Vice President of Marketing Dan Hodgson at: dhodgson@polkaudio.com.

DIGITAL NEWS

Sirius Q2 Loss Widens

NEW YORK Sirius said it was the market leader for the third consecutive month, at 58 percent market share for satellite radio products according to the NPD Group, but it's losing more money when compared to the same time last year.

Sirius reported a net loss of \$237.8 million for the second quarter; that compares to \$177.5 million for the same period a year ago. The company cited increased customer care costs for a larger subscriber base, as well as higher marketing and licensing costs related to new programming.

Total revenue for the quarter increased to \$150.1 million; that's compared to \$52.2 million for Q2 of 2005. Subscriber acquisition costs dropped from \$172 to \$122 per person.

Sirius added 600,460 subscribers in the fourth quarter. Sirius ended the quarter with 4.6 million customers.

Sirius has revised its year-end subscriber projections upward to 6.3 million, previously, it projected ending the year with 6.2 million subscribers.

Digital News Roundup

SIRIUS expected to release its first live wearable unit, the Stiletto, by the end of August and a children's backseat video product by the end of the year. Howard Stern will round out the year for Sirius with a marketing campaign to garner fans who didn't follow him to satellite radio.

ALLTEL WIRELESS is carrying 20 XM Satellite Radio channels on its cell phones for \$7.99 a month with an application developed by MobiTV. The deal is similar to one Sirius signed with Sprint last year. Also, XM Canada recently reached a similar deal with Telus.

XM, Standard Parking Corp. and Quixote Transportation Technologies are developing technology to help drivers find parking spaces. The system builds on XM NavTraffic service to show drivers space availability at Standard Parking facilities using color-keyed icons. The companies intend to test the XM ParkingLink concept later this year in Chicago, Detroit, Los Angeles and Washington.

VOLVO will expand its Sirius Satellite Radio factory-installed options. Starting with 2007 models, Volvo will offer Sirius on the Volvo S40, V50 and C70 for a list price of \$295 including a six-month subscription. Packaging and pricing for the Sirius option in the S80, available later in model year 2007, will be announced later. The radios also feature Dolby Pro Logic II Surround.

Volvo previously included Sirius as a factory option on the S60.

KENWORTH Truck Company is also expanding its Sirius factory-installed options to include its Class 8 truck sleeper models. Kenworth will use the DEA300 Sirius/AM/FM/CD radio, the first Sirius integrated radio available as factory installed in the commercial vehicle market, according to the satcaster. The option includes a free three-month subscription to Sirius through May 31, 2007. Sirius is already available on non-sleeper Kenworth Class 8s.

Coverage, Reliability, and HD Radio Experience

from the FM Specialists:

Shively Labs®

FM antennas • combiners
injectors • components
transmission line

4 Times Square, New York
Shively digital-ready
FM antenna & combiner system
for 21 stations
photo by John Lyons

We'll be at
THE NAB RADIO SHOW
See us at Booth 501

207-647-3327
sales@shively.com
888-SHIVELY
www.shively.com

Sony's PCM-D1 portable Linear PCM Recorder



SONY
PRO AUDIO

There's never been an audio recorder like the Sony PCM-D1. Musicians have hailed its 96 kHz/24-bit uncompressed audio. Recording professionals love the sound quality of the on-board stereo mics and mic preamps. Bloggers and journalists appreciate the intuitive design. Because the PCM-D1 records WAV files to 4 GB of on-board memory, there are no moving parts and no self-noise for the mics to pick up. You won't worry about running out of power or capacity in the field, thanks to field-replaceable AA batteries and Memory Stick PRO High Speed media. Even the case is superb: one millimeter-thick titanium with a finish about ten times harder than aluminum. Reviewers have called the PCM-D1 "impressive," "a gem," and "a home run." We call it a whole new way of audio recording.

Find out more at www.sony.com/proaudio.

© 2009 Sony Electronics Inc. All rights reserved. Sony, the Sony logo, and the "WALKMAN" and "WALKMAN" logos are registered trademarks of Sony Electronics Inc. in the U.S. and other countries. All other trademarks are the property of their respective owners. The new way of business is a registered trademark of Sony Electronics Inc.

“A GEM”
“A HOME RUN”

THE NEW WAY OF BUSINESS™

NEWS WATCH

CEA Talks Up NOAA Weather Radio

ARLINGTON, Va. The Consumer Electronics Association says the FCC should expand distribution of non-weather emergency messages using NOAA National Weather Radio.

It made the recommendation in comments filed with the FCC as the agency reviews the impact of Hurricane Katrina on communications networks.

CEA restated its belief that it is important for the commission to consider the full array of emergency alerts, saying that NOAA Weather Radio has developed into an effective collection and distribution system estimated to originate more than 96 percent of all emergency alerts.

Thus the NWR delivery system today would be more appropriately named "all-hazards radio" than "weather radio," the trade association argues.

EAS has evolved into a voluntary system in which broadcasters exercise discretion over which alerts to transmit, and NWR is a critical component providing broadcasters almost immediate access to the emergency alerts; closer integration of EAS and NWR would serve to improve awareness of these facilities and quicken dissemination of emergency information, CEA said.

The electronics group urged the commis-

sion to avoid mandatory standards on reception equipment, citing its Public Alert Technology Alliance as one example of industry effort to bring product manufacturers and government representatives together.

With collaboration from NOAA, that alliance has adopted voluntary requirements for consumer receivers that display the Public Alert logo and trigger alerts by decoding the digital data string transmitted over NWR broadcasts. The Public Alert-certified devices also provide automatic translation for alerts into English, Spanish and French and alert technology for the hearing impaired, the group said.

Public Radio Creates Station Purchase Fund

Tired of not being able to raise capital quickly enough to buy a station when a frequency comes on the market (for example, when a university wants to sell off its non-commercial station), public radio now has its own fund to provide investors small, short-term loans to invest in public radio stations.

The Calvert Foundation, the Ford Foundation and Public Radio Capital have teamed up to create the "Public Radio Fund."

The Calvert Foundation has con-

tributed \$3 million and the Ford Foundation \$1.5 million in start-up money. Participants hope the fund will reach \$15 million within the next six to 12 months — enough to provide financing for an estimated five to 10 stations.

By leveraging the fund's assets, PRC says it will be able to attract tax-exempt bond financing to acquire a greater number of radio stations. Previous financing for public radio in the U.S. has been on a station-specific basis or for a single entity controlling multiple stations.

Most public radio financing arrangements that PRC now works with are in the range of \$1 million to \$6 million.

By recycling the loan capital, the impact of the fund over three to five years could secure financing for 20 to 30 stations, participants said.

PRC Managing Director Marc Hand said most loan amounts would be between \$200,000 to \$300,000. The monies will be available this fall.

VPR First to Go IBOC in State

COLCHESTER, Vt. Vermont Public Radio's WVPR(FM) on 89.5 MHz in the Upper Valley region went IBOC in July — the first station in the state to do so, according to station officials.

The station is using a modified Harris Z12HDC solid-state transmitter and low level combining of the analog and digital signals.

Later this fall, VPR will multicast two programming services on WVPR, a mix of NPR news, regional news and music on 89.5-HD1 while 89.5-HD2 will feature VPR Classical, Vermont Public Radio's 24-hour classical music service.

VPR expects to continue converting to digital radio throughout the next year, multicasting VPR Classical across the region. The current analog VPR frequencies will then evolve into a news and information service.

VPR believes this goal of two statewide services — one for news and information programs and the other for classical music — will become a reality within the next two years as VPR Classical service expands through additional translators as funding and the FCC allow.

Ibiquity Beefs Up Automotive Team

PONTIAC, Mich. To meet what it says are increasing demands for support of HD Radio implementation in new vehicles, Ibiquity Digital has expanded its automotive staff.

Jeff McGannon, Ibiquity vice president for OEM, said more auto companies and dealers want the technology in order to remain competitive.

The Ibiquity automotive group, based in Pontiac, Mich., has hired Gereon Joachim as senior manager OEM business development. Joachim is based in Cologne, Germany, and will head Ibiquity's efforts with European automakers.

Joachim has responsibility for support of Volkswagen, Audi, BMW, Mercedes-Benz, Porsche, Volvo and Europe-based suppliers like Bosch and Siemens.

The IBOC developer added a former national sales manager for Visteon, Richard Zeichner, as manager for dealer programs to its Pontiac staff.

Zeichner will help dealers find ways to supply customers with HD Radio options, even if there are limited factory options. One of Zeichner's responsibilities is to develop a dealer-education program.

Erin Burns is now a sales engineer on the Pontiac-based staff. Burns is a veteran of Siemens VDO and Sentek Corp. He provides tech support to the U.S.-based sales/marketing staff working with DaimlerChrysler, Hyundai, Honda, Toyota and Nissan.

News Roundup

THE HD DIGITAL Radio Alliance announced the third wave of stations that will launch side channels under the Alliance format-selection program, bringing HD2 to 18 new markets. The rollout will consist of 140 new side channels, bringing the total number of supplemental channels to more than 600 in 68 of the top 100 markets. HD2 stations are initially being offered commercial free.

APPLE COMPUTER will work with Ford, General Motors and Mazda to integrate iPods with the audio systems of several 2007 car models. Audi and BMW already offer iPod integration. BMW also carries HD Radios in several models.

EMMIS Communications founder/CEO Jeff Smulyan called off his \$15.25 a share bid to take the company private. He said his purchase company, called ECC Acquisition Inc., was unable to reach a deal with the Emmis board that could be taken to shareholders for a vote. Smulyan also stated that in recent months "there has been a significant decline in the broadcasting sector valuations and an increased competitive environment, as well as a downturn in the financing markets."

DENNIS WHARTON, senior vice president, NAB corporate communications, has been promoted to executive vice president, media relations. Wharton's duties now expand to include additional outreach and public policy advocacy to the national news media on behalf of broadcasters, as well as continuing to serve as a key adviser to NAB President/CEO David Rehr, senior staff and to NAB member stations. Wharton joined NAB in June 1996 following a 16-year stint in journalism.

CEA VP Communications and Strategic Relations Jeff Joseph planned to leave the trade group Aug. 31 for a position with the Biotechnology Industry Organization. CEA President/CEO Gary Shapiro credited Joseph with driving media attendance and coverage of the International CES to new levels.

CRUTCHFIELD launched Spanish-Language HD-R ads, saying in some cities, there is almost the same amount of digital programming available in Spanish as there is in English. The catalog retailer incorporated what it says is an "unprecedented" level of Spanish content and Spanish-speaking sales advisers into its free HD Radio learning center, available at www.crutchfieldenespanol.com.

Important People. Powerful Radio Stations.

TOTAL HOME RUN

MusicMaster has slid into place at Emmis LA so easily . . . it's totally user friendly, has a great support crew, it's light years beyond our old music scheduling software, and it's considerably less expensive too . . . total home run!" —JIMMY STEAL, VP of Programming, Emmis Communications

WORK SMARTER NOT HARDER

MusicMaster Windows is next level. It allows you to work smarter not harder on constructing your music logs. —JD GONZALEZ, VP of Programming, Univision Radio

MAJOR IMPROVEMENT IN EFFICIENCY

MusicMaster for Windows is a major improvement in efficiency, compatibility, and reliability. . . . Our program directors have given it rave reviews.

—JEFF MCCARTHY, VP of Programming, Midwest Communications Radio Group

NOW PLAYING ON:

KPWR WNYC WHDR WSTR
 KLVE WUSN KZLA KKJJ
 KLUC KFMB KLNO KRST
 WQHT KESS WFMT KLTN
 KJJK KSCS KUPL Much Music
 WIXX WQCD WRKS Radio Disney
 WMYX KINK KRCD and many
 WFLC CJKR KINK more!
 KSTP CMT KBBT

THE UNDISPUTED CHAMPION

MusicMaster for Windows is the undisputed champion! I've used MusicMaster since 1991 and it just keeps getting better and better! Thanks!

—CRAIG POWERS, PD/MD, KKJJ-FM Las Vegas

THE INNOVATOR IN WINDOWS® BASED MUSIC SCHEDULING SOFTWARE

1-800-326-2609 or www.mmwin.com

Windows is a registered trademark of Microsoft Corporation.

THE
BIG
 SWITCH IS ON!

Music Master
 Scheduling



See a live demonstration of **Nautel's Network Solution**

WITH REMOTE CONTROL AND MONITOR OPTION
AT BOOTH 205 AT THE NAB FALL RADIO SHOW



Virtuoso V5

1.5 kW Digital, 4 kW Hybrid, 5.5 kW Analog Transmitter

More Versatility

- Digital adaptive pre-correction
- Integrated Engine
- Programmable pre-selections for frequency, power and audio source
- Frequency agile: N+1
- Better than 62% overall efficiency
- AC Voltage: 185-250VAC, Single and Three Phase

More Robust

- Redundant ventilation fans
- Dual IPA
- Dual IPA power supply
- Dual low voltage power supply

More Service-Friendly

- Hot-pluggable RF modules
- Hot-pluggable PS modules
- Dual digital exciters
- Compact, light weight rack (23"W x 72.5"H x 34.5"D) is ideal for tight spaces



Phone: (207) 947.8200 Fax: (207) 947.3693 info@nautel.com www.nautel.com

HD Radio is a trademark of iBiquity Digital Corp. All rights reserved.

Making Digital Radio Work.

World Radio History



Radio World, September 13, 2006

Past columns are archived at www.rwonline.com/reference-room

'Gold' Buried in That Site Soil

by John Bisset

Thieves have been busy this summer — busy stealing copper from transmitter sites. I've heard from several engineers who have responded to their remote control alarms only to find copper ground radials and screen ripped from the ground, or above-ground coaxial

feeder and sampling line cut and removed. With surplus copper selling at an all-time high, savvy thieves have targeted broadcast facilities.

It's not just the copper cable. Crawford Broadcasting DOE Cris Alexander, a fellow RW contributor, reports thieves recently demolished an air conditioner at one of the Crawford

sites, just to get to the evaporator core. A few weeks later the thieves returned, this time breaking into the building.

Fortunately, the alarm system frightened them so badly they left their tools. But as Cris notes, a few tools are pitiful compensation for replacing an air conditioning system.

AM directional sites are particularly vulnerable, with copper at each tower.

How do you fight back and still stay on budget? First, several of the national security companies are advertising on television and radio. See if you can work a barter for transmitter site security. The signs alone are worth the month-

ly fee, as a means of discouraging trespassers.

Security cameras have also dropped in cost; so consider adding a security camera system to next year's budget. Can't spring for the camera system? Buy an outdoor camera case, and mount the camera case outside. Since the glass is tinted, you can't see if there's a camera inside. Don't forget to add a pigtail cable going into the building!

Include a few "premises monitored by video surveillance" signs, and most thieves will look for easier pickin's.

As for the building itself, if you can't get a full-fledged security system, a magnetic proximity switch, as shown in Fig. 2, and some wire running to the status alarm of the remote control will provide some peace of mind. Other ideas?

See WORKBENCH, page 26 ▶

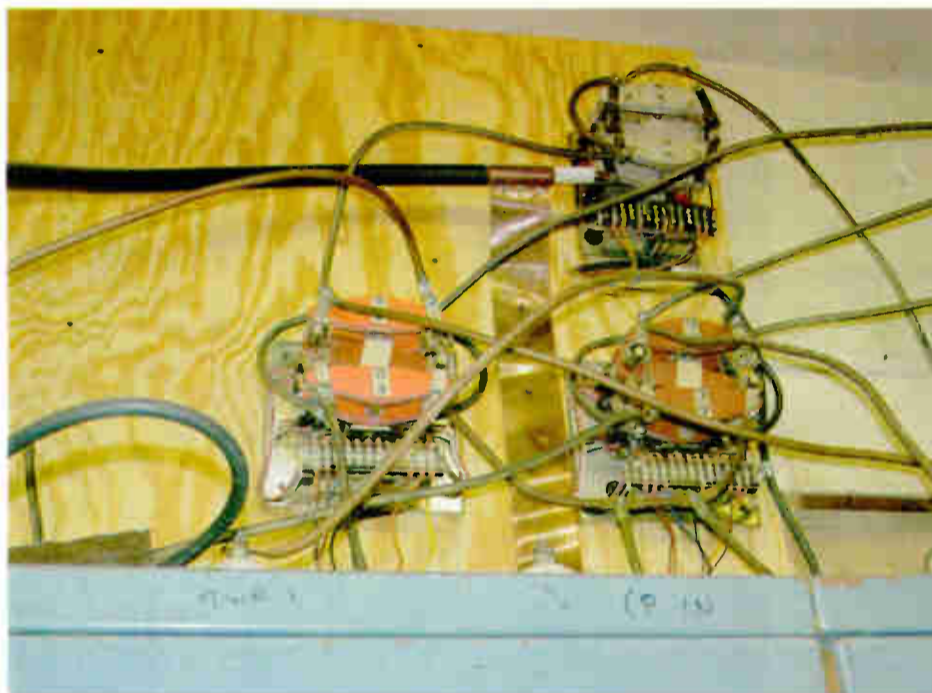


Fig. 1: There's plenty of copper at AM directional sites.



Fig. 2: A simple magnetic switch tied to the transmitter door alerts through the remote control.

Bigger, Bolder, Brighter!

**THIRD-GENERATION "DAVID" PROCESSING...
SMOOTH AND EXCEPTIONALLY COMPETITIVE!**



Improved AGC, 3-band Spectral Loading™ processing, and our proprietary PIPP™ limiter... new features we've merged with the 'elegant simplicity' that characterizes the "DAVID" FM-airchain legacy. The result is performance that rivals processing systems costing several times the DAVID-III's modest price. Your listeners will hear music with dynamics and 'punch,' and live-announce that's natural and non-abrasive.

The DAVID-III is easy to set up and easy to use. It employs quasi-digital PWM processing circuitry, digital synthesis of the FM baseband signal, and it never requires routine calibration. Component parts are common and available worldwide.

Ask your preferred distributor for a demonstration of the DAVID-III at your station.

Inovonics
1305 Fair Ave. • Santa Cruz, CA 95060
TEL: (831) 458-0552 • FAX: (831) 458-0554
www.inovon.com • e-mail: info@inovon.com

DAVID-III - \$2200

Visit www.inovon.com
for full technical details



Fig. 3: Eliminate remote confusion by listing all ISDN lines.

Capture Your Market With Incredibly Powerful Orban Sound

Orban Optimod 8500 for HD Radio

Looking to remain on top in your market...or get on top! This flagship Optimod processor is the ideal choice for FM stations simultaneously transmitting iBiquity's HD Radio along with a traditional analog signal. Independent processing for analog FM and digital radio is standard. Orban's state-of-the-art FM high-frequency limiting and clipping systems peak-limit the analog-FM output while a look-ahead limiter controls the digital radio output. The base sample rate is now 64 kHz, allowing the 8500 to offer 20 kHz audio bandwidth in the digital radio processing path. A built-in 8-second delay allows HD Radio broadcasters to bypass the delay in the iBiquity exciter and to use the 8500's stereo encoder and patented "Half-Cosine" composite limiter instead. This means you won't have to compromise loudness of your analog channel to broadcast HD. Always get the lowest price at BSW. Call us for a quote and test drive the new Optimod 8500.



orban

8500 List \$13,990.00

LowestPrice@bswusa.com
OR CALL: 1-800-426-8434

BSW Now Stocks Lectrosonics

Lectrosonics 400 Series Digital UHF Wireless Packages

NEW!!

Purchase your high-quality Lectrosonics 400 Series wireless systems in ready-to-go, economical packages, rather than a la carte. These packages pair the new UCR401 portable receiver along with your choice of transmitter: The **ENGPACK1**: the LM 50mw bodypack transmitter and M152-5P high-performance omnidirectional lavalier mic/cable. The **ENGPACK2**: the UH400A XLR plug-on transmitter for use with your own vocal mic and a CCMINI carry case for your mic system. The **ENGPACK3**: the powerful 100mw UT-VMC handheld microphone. Each package is available in two frequency blocks (25 and 26). The **UCR401 Compact Receiver**: The new UCR401 is a high-performance compact UHF wireless microphone receiver for mobile applications such as electronic news gathering. The compact size and rugged attached antennas are ideal for camera-mounted use. Power is provided by two AA batteries, typically NiMH rechargeable types, or external DC supplied via a jack on the rear panel. Microprocessor control enables SmartSquelch™ and SmartDiversity™ advanced reception techniques to minimize noise and dropouts in all conditions. In environments with significant RF reflections, the diversity switching activity optimizes the antenna combining based upon an analysis of RF level and audio content. Finding a clear operating channel is simplified with a choice of 256 frequencies across a 25.6 MHz bandwidth. For information on each transmitter type or accessory see www.bswusa.com.



ENGPACK2-25



- | | | |
|-----------------------------------------------------------------------------------|-----------------|-----------------------------|
| ENGPACK1-25 Lav mic system with UCR401A, L-M and M152-5P – freq. block 25 | List \$2,385.00 | \$2,027²⁵ |
| ENGPACK2-25 Plug-on system with UCR401A, UH400A and CCMINI case – block 25 | List \$2,835.00 | \$2,409⁷⁵ |
| ENGPACK3-25 Handheld mic system with UCR401A and UT-VMC – freq. block 25 | List \$3,445.00 | \$2,928²⁵ |

LowestPrice from \$2,027!



3-Pack of AKG Headphones



The K44 is a durable headphone that delivers excellent audio. Sealed ear cushions offer excellent comfort without audio leakage...perfect for on-air and studio applications. Frequency response 18 Hz- 20 kHz. Impedance 32 ohms. 8 ft. single-sided cord with stereo mini-jack and 1/4" plug adaptor.

K44PKG List \$129.00 LowestPrice 3 for only \$49!



Easy-to-Use Time Compression – For Any On-Air Application



Audio Time Manager from 25-Seven gives you the power to shift live programming in real time without compromising sound quality. Squeeze more time (up to 6 minutes per hour) without audio artifacts and glide undetectably between scheduled programming and added content. Use it to clean up network feeds, run PSAs or add local spots for extra revenue! By allowing you to delay the start of syndicated programming and shorten its duration in real-time, ATM puts you in control of your broadcast schedule without removing content, changing pitch or creating annoying artifacts. Plus, it's easy to use.

ATM List \$7,950.00

LowestPrice@bswusa.com
OR CALL: 1-800-426-8434



New Product Alert #43

There are times when you just need to be on the scene, broadcasting events as they happen, and you are fresh out of codes. Try the new PortaXmitter – a 50kw transmitter that's compact enough to go where you go.

Day Sequerra M-4 HD Radio Tuner

DaySequerra

BSW is NOW SHIPPING the DaySequerra M-4 HD Radio™ Tuner. The M-4 is THE professional tuner perfect for HD Stations to monitor their HD Broadcast Signal(s). Features include demodulated audio Peak Level indicator; 10 preset stations each for AM and FM bands; and HD Radio digital to analog program time-alignment monitor. Order it online today, and BSW will include FREE shipping!!

M-4 List \$1,595.00

LowestPrice only \$1,229!



Aphex 230 On-Air Voice Processor

APHEX

Let's face it – everybody wants a better voice – on air and in production. Vocal presence is HUGE, and there's no better way to get than with a great voice processor. Aphex has created an analog, single-channel preamp and voice processor specifically for broadcasters. Its comprehensive features include tube preamplification, Easyrider auto-compression, Logic-Assisted gating, de-essing, parametric EQ, and Aphex' Aural Exciter and Big Bottom psychoacoustic effects. You also get balanced analog I/O and post send/return; AES3, S/PDIF, optical digital outs and work clock; and a remote Cough Switch input with soft mute.

230 List \$799.00

LowestPrice only \$699!

New Broadcast CD and MP3 Player

NEW!!



With XLRs Only \$199⁹⁵!

Numark MP102

Numark

This rack-mountable CD player gives you incredible music playback in a variety of applications. It plays standard audio CDs and MP3 CDs and provides buffered memory protection for consistent music playback. It sports a solid EQ section and features balanced XLR outputs, stereo RCA and digital S/PDIF outputs for versatile connectivity.

FEATURES:

- Buffered Instant Start
- Ability to create seamless loops both CDs and MP3 discs
- Easy-to-read, backlit LCD that includes text display
- Pitch bend capability via the jog wheel
- Supports continuous playback and is track sequence programmable

MP102 List \$399.00

LowestPrice only \$199⁹⁵!

Lowest Prices on everything at: www.bswusa.com

Same Day Shipping

BSW stocks a large selection of products. If you have a BSW account, we'll ship your order same day. All orders by 7:00 PM Eastern Time.

Free Shipping on Most Web orders over \$189

Most web orders over \$189 get FREE ground service delivery to the contiguous 48 states. Excludes heavy or oversized items.



BSW

1-800-426-8434

World Radio History

Knowledgeable Staff

Our sales professionals have real-world broadcast and studio experience to help you get the most out of your equipment purchase. We're BSW!

LowestPrice@bswusa.com

For the best prices on all of our gear visit us at www.bswusa.com. We're BSW! or call 1-800-426-8434.

Workbench

► Continued from page 24
E-mail them with high-resolution pictures for inclusion in a future column.

★★★

Thorough labeling around your plant takes a little time, but the payoff is significant.

Consider Fig. 3, a listing of ISDN numbers and telco contact information that Cox

Richmond Engineering Manager Jon Bennett uses. All of the information is at his fingertips, useful for the multiple remotes the cluster schedules. The clear plastic sleeves are available at office supply stores, and keep the information intact.

In cases where the sheet might develop legs and disappear, I've seen engineers secure the plastic sleeve to the rack with a wire tie. It's available to read, but not so easy to remove.

John Huntley, formerly with New Hampshire Public Radio, keeps his UPS systems labeled, as shown in Fig. 4. John installed several of these in the studio



Fig. 4: For quick identification, label the circuits connected to your UPS.

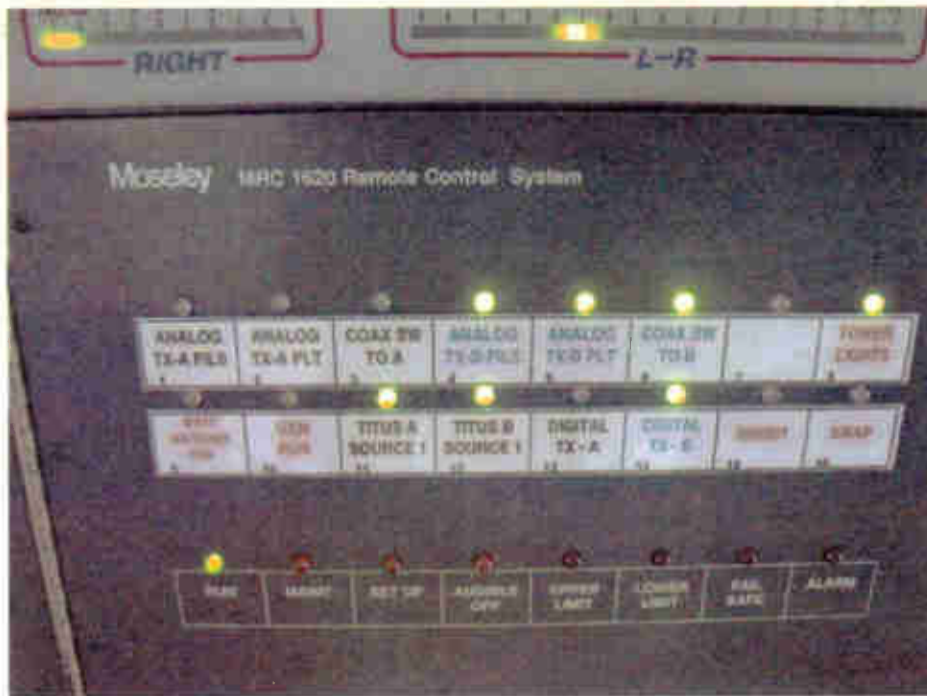


Fig. 5: A clear description of equipment designations will expedite troubleshooting down the line.

rack room. The labeling quickly identifies the equipment being powered by each UPS. When battery change time comes around, or other maintenance is needed, there's a clear indication of what's connected and might be affected.

We've all hand-written labels on remote control systems, but with the popularity of color printers around a radio station, there's no reason the remote control labeling can't be pretty, too. At Greater Media Boston, Paul Shulins and his staff have color-coded the labels — black for main, blue for auxiliary and red for things like tower lights and generator run status, as seen in Fig. 5.

I'll grant you that the labeling does take some time, but a clear description of equipment designations — whether it be on the remote control, console or UPS —

will expedite troubleshooting at some point down the line.

★★★

Don't forget to visit the *Workbench* archive from time to time. There's a deep collection of super reader tech tips saved from the past six years. Go to radloworld@imaspub.com and click on the *Workbench* tab.

John Bisset has worked as a chief engineer and contract engineer for 37 years. He is the northeast regional sales manager for Broadcast Electronics. Reach him at (571) 217-9386, or jbisset@bdcast.com. Faxed submissions can be sent to (603) 472-4944. Submissions for this column are encouraged, and qualify for SBE recertification credit.

PREVENT BROADCAST DOWNTIME WITH

STABILINE[®]

POWER QUALITY SOLUTIONS

Transient Voltage Surge Suppressors



PT1 Series / Branch Panel Protection

- Parallel Connected
- 25 to 100kA Surge Current Capacity
- Single & Three Phase Models
- All Mode Protection
- UL 1449 Second Edition
- LED Visual Protection Status

Uninterruptible Power Supplies



SEG Series / Exciter & Signal Generator

- True Regenerative On-Line Technology
- Single Phase, 120 & 230 VAC Models
- 1 to 6 kVA Capacities
- 19-Inch, 2U Rack Mount Models
- Optional Extended Battery Modules
- Input Power Factor Correction



Superior Electric

383 Middle Street, Bristol, CT 06010
Phone 860-585-4500 • Fax 860-582-3784
www.superiorelectric.com

Quincy Hosts Harris HD Seminar

A recent Harris HD Seminar at the company's Quincy, Ill., Training Center featured sessions on HD path studies, HD RF products, combining, STL/HD delivery, digital studio solutions and HD antenna configuration sessions by Shively, Dielectric and ERI.



Front row, from left: Robert Reppe of Hearst; Kelly Carlson, CSN International; Jason Horvath and Dennis Orcutt of Renda Broadcasting; Bill Croghan, Lotus Broadcasting; Doug Koehn and Mark Goins of Harris.

Middle: Noel Richardson and Ralph Messer of West Virginia Radio; Doug Rowe, Minnesota Public Radio; Ken Eklund, Cherry Creek Radio; Gary Minker, Towerswitch; Terry Cockerill and Paul Dadian of Harris.

Rear: Lynn Turner and Doug Thompson, Harris; Mike Hendrickson, MPR; Greg Garcia, Lotus; Steve Heaton, NRG Media Group; Mike Weaver, Lotus; Keith Mullin and Clarence "Doc" Daugherty of Harris.

Several seminars are planned for this fall. For information e-mail Chris Pannell at cpannell@harris.com or Paul Dadian at pdadian@harris.com.



All in One All in Hand

Photo made in Park Hotel Grenoble, France. 2006 Link-to-Business



UAX220-Mic
Professional USB Audio Interface
For Mobile Applications



With 2/2 balanced analog high-quality I/Os and two professional grade mic preamps, the UAX220-Mic is the most efficient portable interface for broadcast and other demanding pro audio applications. Under its compact and sleek design, it combines Digigram's leading edge experience in audio performance with the ease of use of standard USB Audio.

World Radio History



Find out more at:
www.digigram.com/uax
www.digigram.com
input@digigram.com

'Podjacking' Draws Increased Attention

One of the Hottest Issues in Regulatory Circles Lately Is Heating Up Even More

You may recall that way back in the June 8, 2005 issue of RW, this column first used the term "podjacking" to refer to reports coming in about car radio interference from the low-power ("FCC Part 15") FM transmitters used to feed portable devices into car audio systems via their FM tuners. Since then, tests commissioned by NAB, and subsequent independent tests conducted by NPR Labs, have confirmed and quantified the problem.

These tests found that there are numerous devices in violation — sometimes egregiously — of the legal output power limits and spectral occupancy for these devices (FCC Part 15 limits output power in the FM broadcast band to 250 μ V/m at 3 meters from the antenna). The transmitters are packaged in units designed for either the home or the car, and in the latter case, the issue is complicated by the fact that the device itself may appear compliant, but a non-compliant condition can be caused by inappropriate installation methods in the vehicle. This typically happens when the "wired" type of transmitter's output cable is (unintentionally or otherwise) coupled not only to the FM receiver's antenna input, but also to

the vehicle's car radio antenna. This antenna's gain can create an ERP from the device that extends well beyond the Part 15 limits, potentially wreaking havoc with other nearby vehicles' FM reception as it passes by them.

So a welcome bit of news on this front was Apple's recent announcement of arrangements with GM, Ford and Mazda for hardwired audio iPod interfaces, which will first appear as dealer-installed options in the 2007 model year. (BMW already offered them, and it's assumed that these might appear as factory-installed options in many manufacturers' vehicles for model-year 2009 and beyond). But these options will cost \$150 or more — significantly higher than most of the Part 15 devices, so whether and when this development will have an impact remains questionable.

Of course, these new interfaces also will include power and in some cases control, not just audio interconnection, but these other features can also be attached to the handheld by other (less elegant, but cheaper and equally workable) means.

Furthermore, although the iPod is currently the most popular handheld, there

are many other similar devices that could not take advantage of this interconnection if it were truly iPod-specific. In fact, the expected approach is likely to be an adapter cable to a standard plug-in module in the car, so it is assumed that a range of different adapter cables might be offered by dealers or third parties to accommodate a variety of units — similar to the many cell-phone charging cables using the cigarette-lighter outlet.

Meanwhile, CEA is developing a truly standardized interface for such vehicle interconnection, which might ultimately accommodate multi-channel audio, video, power and standard control features (volume, transport and simple navigation). Again, actual implementation is several years away, however, and at yet unspecified costs.

If they weren't so popular ...

Another coincidental study shows that most people would prefer this hard-wired approach to interfacing handhelds in the car, and their least favorite method of doing so is via the FM receiver (or cassette adapter). So why are the Part 15 devices becoming so popular in U.S. cars and homes? Answer: because there are so many radios.

Today's handheld audio devices are used more often as FM transmitters than as receivers.

Among all the audio devices in the consumer ecosystem, the one that combines the highest quality with the greatest quantity is the FM receiver. They are cheap, have low-power consumption and small footprints, exhibit reasonably high fidelity (enough for small-speaker systems, certainly), provide decent reception with small antennas, and work well enough for both fixed and mobile reception. FM is the lingua franca, common to almost every car and home audio system.

That's the good news for broadcasters in all this; their platform is the most prevalent. But the news turns sour when that platform is also so susceptible to hijacking by another source, and the iPod (or a satellite radio tuner) is thereby given parity with — and can become a substitute for — the local radio station. Moreover, when new consumer products interfere with FM listening by others who don't even own or want to own a Part 15 device, something is truly amiss.

An ironic sidebar here is that the one audio-device form factor where the FM tuner is *not* commonplace is in the portable device category itself. Apple makes a wired iPod peripheral that includes an FM tuner, along with a remote control, which, while it works well as a remote (and even has a cool FM tuning display on the video iPod screen w/RBDS station-ID data), it's not such a great receiver — low sensitivity, so-so audio, and like any headphone-antenna portable radio, accentuated multipath effects. Very few other handhelds include FM receivers (including satellite radios),

The Big Picture



Photo: Gary Hayes, BBC

by Skip Pizzi

probably for these same reasons — even though in the same study cited earlier, consumers ranked it as one of the top additional features they wished their handheld had. Again, more bittersweet news for broadcasters: Users would like to have FM radios included on their handhelds, but today's portable audio devices are used more often as FM transmitters than as receivers.

Another measure of the popularity of this approach is the availability of new features on Web sites like *radiolocator.com*. Click on the "Find unused frequencies on the FM dial" link on the site's home page, enter your Zip code, and the site paints you a rough spectral picture of the FM band at your approximate location, along with a tabular list of good, better and best frequencies on which to set your Part 15 transmitter.

A further point to ponder is that the iPod and other similar devices present a new paradigm of non-removable audio content. The device may be portable but often the content isn't — plus the devices generally have only headphone outputs, so some external device(s) must be interfaced if the user ever wants to hear the content resident (and possibly locked) on the device over loudspeakers. If this trend toward caged music grows, expect the growth of simple escape routes such as Part 15 devices to grow along with it.

Insult to injury

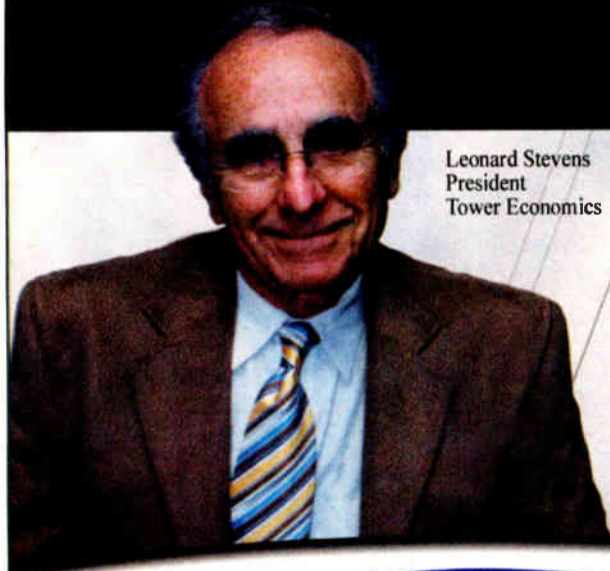
Maybe the hardest part for broadcasters to swallow is that satellite radio also uses this Part 15 route into the FM car receiver. Interestingly, because of this, the decency issue may finally motivate the FCC to get more proactively involved. It's hard for the commission not to react strongly when repeated cases are cited of a nice clean public or religious broadcaster's signal on the low end of the FM band (some Part 15 devices only retransmit in this spectral area) being "satjacked" by a blast of invective from a Sirius receiver retransmitting Howard Stern on the same frequency. So while Mom listened to "Morning Edition," little Janie and Junior in the back seat were just introduced to some new vocabulary on their way to school — which they'll be sure to share with all their friends once they get there.

Just what the next step will be is unclear. NAB has called for product recalls of the offending devices, but meanwhile, they continue to proliferate, and remain the most popular non-surgical method of interfacing outboard audio devices to the car. They are also useful in allowing "captive" audio to be easily heard on other audio systems around the house. Short of draconian efforts by regulators, it appears that the podjacking problem is likely to get worse before it gets better.

Skip Pizzi is contributing editor of *Radio World*.

"Accountability is indispensable to us

when putting up a new tower. That's why we deal exclusively with Sabre for our broadcast towers. Their people have been in the industry for years, and have a broad-based knowledge on all types of towers. Their construction department handles turnkey projects with ease, eliminating the need to hire subcontractors and worry about who is taking responsibility. We choose Sabre because we like the people, the product and the pricing."



Leonard Stevens
President
Tower Economics



800-369-6690 • www.sabrecom.com
e-mail: broadcast@sabrecom.com

2101 Murray Street • PO Box 658 • Sioux City, IA 51102



WorldNet Oslo is the perfect solution for 5.1 contribution and distribution applications, transporting high quality content over an E1, T1 or IP link.

MAKE YOUR THE STRONGEST LINK

Introducing WorldNet Oslo from APT. Now you can have up to eight full bandwidth audio channels with low delay, outage-resilient, Enhanced apt-X™ coding on a single T1 line.

Each WorldNet Oslo gives you a choice of Encoder, Decoder and Duplex Audio Modules, AC and DC redundant power supplies, a flexible auxiliary data system and automatic backup. WorldNet Oslo supports 16, 20 or 24-bit Enhanced apt-X™ audio, delivering lossless audio quality with under 2ms delay.

WorldNet Oslo comes complete with an easy to use IP-based Management System so you can set up, configure and monitor your installation across town or across the globe. To see just how useful this user interface can be, download a demonstration version from www.aptx.com.

Contact us to find out what WorldNet Oslo can do for your air chain or request a demo.



Highly intuitive user-friendly interface with VU meters and programmable fault monitoring, all via IP.

Features & Benefits

- Multiple Channel Audio Codec
- Designed for your STL and Studio-to-Studio Links
- Redundant Power Supplies
- Modular Architecture
- Audio over E1, T1 or Ethernet
- Up to 4 audio channels per audio card
- Up to 6 audio cards per chassis
- Analog and AES/EBU audio interfaces
- Enhanced apt-X™ coding

APT
AUDIO PROCESSING
TECHNOLOGY

Audio Processing Technology Ltd
Tel: +44 28 9037 1110
Fax: +44 28 9037 1137

Audio Processing Technology North America
Tel: 800-955-APT-X
Fax: 732-796-0504

Audio Processing Technology Japan
Tel: +81 (0) 5 5771 1101
Fax: +81 (0) 5 5771 1102

Email: info@aptx.com
Web: www.aptx.com

WIRED FOR SOUND

Spills and Chills, On the Air

by Steve Lampen

In an earlier column on the history of wire, I mentioned ancient batteries that used the first wire to conduct electricity. Inside these batteries, the liquid that made them run probably was grape juice.

So it shouldn't come as a surprise that grape juice, dumped into a broadcast console, doesn't help. If you dumped battery acid, it wouldn't work too well either. I've seen recent comments in newsgroups about what is allowed in studios — Coke, coffee, water, grape juice — and/or who gets charged when the

console needs to be cleaned.

I've been talking with several people about this. What effect do these "chemicals" have on board traces or cable? Since this column is actually about wire and cable, I asked an organic chemist here at Belden, Jeff West, who said that even inexpensive PVC jackets were highly resistant to these liquids. As long as the copper inside is covered, the conductors are protected.

You might have seen old cable that had turned green inside. This meant the jacket and dielectric (core) didn't do a very good job of protecting the cable. In the old, old

days it could also have meant that there was "compound migration," in which the chemicals in the jacket separated and oozed through the cable until they got to the core. You might still see this with some offshore brands.

Another aspect is how equipment, especially on-air consoles, is set up. Old boards used to mount parts away from the bottom of the console. I remember a Gates Yard and a Gates Executive that seemed amazingly impervious to spills.

But then came the fancy console with a motherboard and card edge connectors for the modules. Now you could hot-swap

modules, but the design also meant that anything you spilled ran down the cards, into the card edge connectors and onto the motherboard.

Any board with card-edge connectors should be checked to be sure you have gold edge into a gold socket. If you put gold edge into a tin socket you now have a potential of 1.84 volts and a few drops of almost anything will start that battery running. Gold might not oxidize, but it also does not resist corrosion, reacting with other metals (how do you think they gold-plate cheap jewelry?). "Like-metal to like-metal" is the only way to get a ZERO volt reaction.

Pools

Mike "Catfish" Dosch of Axia Audio recalls working at PR&E where he saw "many a Coke spill ruin a console motherboard. The vertical cards didn't get so much damage as the exposure was minimal, just a bit of residue left behind on the liquid's journey to the bottom of the console. But the motherboards would get pools of liquid," he said. "The worst was soda, as it would eat away at the copper if left to do its nasty business — and operators wouldn't admit they spilled the Coke, so of course it would sit on the motherboard until something failed."

**I remember a
Gates Yard and a
Gates Executive that
seemed amazingly
impervious to spills.**

Designers are thinking about this stuff. Dosch said the Axia Element control surface, for instance, minimizes damage from spills. There's nothing on the bottom of the console pan; the modules are connected to a small distribution board in the meter panel area via Cat-5 cables.

"We carry +48VDC power and signals — CANbus in this case — over those cables. I guess in the case of a very nasty spill, the jackets of the Cat-5 cables will be sitting in cola. Hard to imagine any damage that could be caused really; but if a cable is damaged, it is easily replaced. Click-click.

"Of course, we would much prefer operators not to bring their Big Gulp soda into the studio."

What's the acidity of common liquids found near your on-air equipment? Here's a list. (A pH of 7 is neutral. The lower the pH, the more acidic the solution.) Coke and other carbonated soft drinks have pH of 2.5. Diet Coke and similar carbonated diet soft drinks are 3.1. Orange juice and carbonated water are 4. Milk is 6.5. Neutral at 7 are water, flavored water and sports drinks. Coffee and tea are 7.5.

Jeff West tells me carbonation is a major factor in lowering pH. Carbonic acid is formed when carbon dioxide is dissolved in water. However, if you read a label of a soft drink, you'll often notice phosphoric acid and citric acid are also present, just to name a few. These also lower pH.

Steve Lampen's book "The Audio-Video Cable Installer's Pocket Guide" is published by McGraw-Hill. Reach him at shlampen@aol.com.

Ethernet path to...

IP-based equipment control

Remote mirrored servers

Transmitter remote control

RBDS

Surveillance and security

Backup audio path

...the transmitter site.

Innovative IP-based applications save money, save time and protect valuable station assets. But how to get IP connections at remote transmitter sites?

LanLink HS-900 provides an IP Ethernet and RS-232 data where no wires or cables exist. And without licenses, leases or new antennas.

Ask the digital STL experts today.



Moseley

Dave Chancey 805.968.9621 Bill Gould 978.373.6303 www.moseleysb.com

GSelector™

Spread your wings!

Welcome to the world's first demand-based goal-driven music scheduling system: GSelector. Now there's a brand new software program designed for the diverse ways radio is delivered. Create new HD stations faster, have more control over your many satellite channels or just make better Internet or terrestrial radio. GSelector will change the way you work. It's time to spread your wings and fly into the future with GSelector.



Channel Picker

Multi-Station Design

With one library and many stations, GSelector helps you create multicast channels by cloning your terrestrial stations in seconds. Then, the patented demand-based software provides tools to reshape your new channels in minutes. GSelector is HD ready.



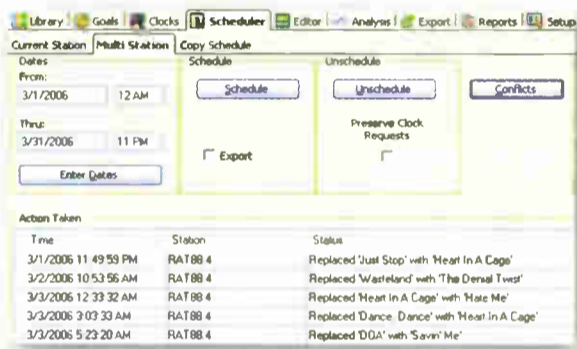
Song History Map

Better schedules

With GSelector you have virtually no unscheduled positions! GSelector is constantly flexing and always selecting the best possible song for each position. The new color-coded quarter-hour history shows that your songs were rotated more precisely. GSelector makes a better playlist every time.

More control of your music

GSelector's exclusive, cross-station protection guarantees the same songs will never again play simultaneously on any of your stations. GSelector finds, repairs and tells you what it did to resolve conflicts on each station. Its Audio Analyzer identifies song tempo, runtime, intro posts, BPM, mood and energy, automatically.



Song Conflict Resolution



Import Research Scores

PL	Name	Adjustment	Demand
✓	Green Day	0	High Demand
✓	Black Eyed Peas	0	High Demand
✓	Dave Matthews	0	Medium Demand
✓	U2	0	High Demand
✓	Coldplay	0	High Demand
✓	Weezer	0	High Demand
✓	AudioSlave	0	Medium Demand
✓	Incubus	0	Medium Demand
✓	Seal	0	Medium Demand

Optimize Artist Goals

Smart technology

GSelector's easy-to-use demand sliders help you make improvements faster. GSelector automatically adjusts your library so that you achieve desired rotations without a lot of busy work. You get immediate indications on the effect of your changes. GSelector lets you upload research scores right into your station to improve your sound in minutes.

Work anywhere, anytime

GSelector is web ready, too. Using your Internet-enabled laptop you can adjust programming from anywhere, improving your stations and getting your changes on the air even faster. Isn't it time for you to spread your wings and fly through your workday? See the GSelector demo and learn lots more right now at www.gselector.com.

music scheduling reinvented™

NAB booth #722
R&R booth #4

www.gselector.com
In the U.S. call 866.432.7727



SBE NEWS

Four Shows for Your SBE Calendar

by Vinny Lopez

The fall season marks the busy time for SBE regional conferences and conventions. Typically, each year brings us at least a half a dozen events around the country. In the fall of 2006, there are four regional conventions scheduled, with two taking the year off to return in 2007.

In today's world, one cannot underestimate the value that each of these shows provides to SBE members and other industry professionals. Face it, not everyone gets to go to the big dance in April in Las Vegas. These SBE regional shows can provide a valuable alternative and opportunities for educational experiences through a workshop or session, and most feature an exhibit floor overflowing with the latest technologies. Many times, the smaller, more relaxed pace may lead to an equipment discovery that you did not know existed.

I encourage you to check to see if a regional convention is near and make the effort to attend. Who knows, you may learn something and have a good time in the process.

Two regionals that are not occurring this year plan on being back in 2007:

SBE Chapter 67 in Dallas/Ft. Worth has hosted the BEE (Broadcast Equipment Expo) since 2003. This convention was also the site of the 2005 SBE National Meeting.



Bos-Con is held this month in Marlborough, Mass.

Due to the location and timing of the NAB Radio Show in Dallas this fall, Chapter 67 has decided not to hold a BEE for 2006; however, the chapter is working with the NAB to provide an SBE Day that includes a technical session on the morning of Sept. 20. In addition, an SBE Certification exam session will be offered that afternoon. The chapter promises that it will be back in full force with a brand-new expo for 2007.

SBE Chapter 16 in Seattle has long hosted Sea-Con in the fall of each year, and it was the scene of the 1998 SBE National Meeting. Chapter 16 has decided to take a year to retool and focus its show, and is also planning to return for 2007.

Now, let's look at the four other regional conventions occurring this fall.

✓ Sept. 12-13 brings us to Massachusetts and Bos-Con. Originating in 2002, Bos-Con has grown steadily since. It is being held at the Best Western Royal Plaza Hotel & Trade Center in Marlborough, Mass. There will be an Ennes Workshop on Sept. 12 and a full

stantial growth through the years, moving several times to larger facilities.

For 2006, it will be held at the Events Center at Turning Stone Casino Resort in Verona, N.Y. One of the larger SBE regionals, the B&TE boasts more than 150 booths and 100 exhibitors, two days of technical sessions and almost 1,000 attendees. Admission to sessions and exhibits is free. New this year are sessions presented by Adobe and a 2 GHz relocation session. More info on the 2006 B&TE, along with free registration, can be found at www.sbe22expo.org.

✓ On Oct. 12, we move to western Pennsylvania for the Pittsburgh Regional Broadcast Expo, presented by SBE Chapter 20.

This show is another member of the old guard on the SBE circuit, having been presented since the early 1970s. Pittsburgh was the site of the 2000 SBE National Meeting. The 2006 Expo will be held at the ExpoMart in Monroeville, Pa., just outside of Pittsburgh. It will feature a day of technical sessions and an exhibit floor. Admission to the Expo is also free. Get more information at www.broadcast.net/~sbe20.

✓ Our trek across this great country brings us to our final stop on the fall SBE convention tour, the Dairy State.

Oct. 24-26 brings us to Madison and the annual Broadcasters Clinic, presented by the Wisconsin Broadcasters Association and SBE Chapter 24. The Broadcasters Clinic began many years ago as a program of the University of Wisconsin Extension and picked up its current management about 11 years ago.

The Clinic features three days of technical sessions and an exhibit floor. It is held at the Madison Marriott West Hotel.

Autumn brings four regional conventions, with two others taking the year off to return in 2007.

day of exhibits on the 13th. The convention features a large exhibit floor with more than 140 booths and 100 exhibitors. Bos-Con was the site of the 2004 SBE National Meeting.

The Ennes Workshop on Sept. 12 will feature such topics as "Engineering Considerations for Digital Microwave STL, TSL and ICR," "Over Modulation in FM Systems" and "Facility RF Safety."

The cost to attend the Ennes workshop is \$25 for SBE members and non-members. Admission to the equipment exhibits is free. More information and exhibits registration can be found at www.bos-con.com.

✓ On Sept. 26-27, the 2006 Broadcast & Technology Expo, presented by SBE Chapter 22 of Central New York, takes place. It will also be the site of the 2006 SBE National Meeting, previously held there in 2001 and 1997.

The Broadcast & Technology Expo is one of the elder statesmen on the SBE regional convention circuit, having begun in 1972 at the Treadway Inn in Owego, N.Y., the brainchild of then-Chapter 1 member Larry Taylor. It has seen sub-

The Broadcasters Clinic was the site of the 1999 and 2002 SBE National Meeting. Admission to the exhibits is free, but there is a charge to attend the sessions depending on the number of days you wish to attend. Visit www.wi-broadcasters.org for more information on the Broadcasters Clinic.

The SBE chapters mentioned here take great pride in being able to present these opportunities for education, window-shopping and networking with friends and colleagues to SBE members and potential members throughout the country.

Each of these conventions is unique and most are within easy travel distance of many major metropolitan areas. The SBE Regional Convention Strategies Committee is working with other chapters, notably in the southwest and southeast regions, about starting their own regional conventions to help make these educational events more accessible to engineers in those areas.

Vinny Lopez, CEV/CBNT, is chairman of the SBE Regional Convention Strategies Committee. ●

EXPECT MORE FROM YOUR AM TRANSMITTER

Armstrong Transmitter X-1000B
1KW HD Radio ready AM Transmitter for under \$10K

Built with dual hot-swappable 600 Watt RF modules capable of 150% modulation, X-1000B can bring that major market sound to your radio station. Engineered with the latest technological innovations, X-1000B offers high reliability, built-in redundancy and it is HD Radio ready.

Best of all, our customers tell us that the money they save running the X-1000B pays for itself with savings in electricity and maintenance costs over an older transmitter...and as a bonus they get exceptional reliability and that major market sound for free.

But, don't take our word for it. Talk to our customers already on-the-air with the X-1000B. Call or email for a users list and decide for yourself why owning this transmitter is a no-brainer.

ARMSTRONG
TRANSMITTER CORPORATION
Tel 315-673-1269 / sales@armstrongtx.com / www.armstrongtx.com

● HD Radio is a registered trade mark of iBiquity Digital Corporation.



SANITIZED FOR YOUR PROTECTION



SOME WORDS SHOULD BE OBSCENE AND NOT HEARD



Eventide Broadcast Delays are designed to keep profanity off your air, and angry listeners, embarrassed advertisers, and the FCC off your back. We invented the obscenity delay and have a solution for stations large and small that provides up to 80 seconds of the highest quality revenue and license-protecting delay.

Our new HD compatible BD600, 24-bit delay, comes standard with AES/EBU, and provides up to 80 seconds of memory — twice as much as other delays. There are fully adjustable Delay and Dump functions, and a Sneeze function which “edits” audio entering the delay, allowing the host to sneeze, cough, or make a short comment without being heard on air.

The BD600 offers two different methods of delay buildup and

reduction: Eventide’s catch-up and catch-down system, and an exclusive fast-entry-and-exit feature which allows starting a broadcast with the delay already built up to a safe amount and ending it with a rapid reduction of delay.

For HD, the BD600 offers MicroPrecision Delay™ mode which allows up to 10 seconds of delay to be adjusted in real time in 100 nanosecond increments. This is useful for synchronizing analog and digital signals while on-air, without audible artifacts, to maintain a seamless user experience.

Whatever your size, whatever your format, you can’t expect to protect the integrity of your air and the foundation of your business without an Eventide Broadcast Delay in your rack.

Eventide®

HD COMPATIBLE

One Alsan Way, Little Ferry, NJ 07643 tel.201.641.1200 www.eventide.com
Eventide is a registered trademark and MicroPrecision Delay is a trademark of Eventide Inc. ©2005 Eventide Inc.

World Radio History

An Overview of T1 Service

by Ted Nahil

The author is broadcast channel sales manager for Harris Networking Solutions.

In this and two subsequent articles, we will present an overview and in-depth description of T1 service and its application for the broadcaster facing the increasing bandwidth demands placed on today's radio facilities. This installment focuses on the T1 basics and is designed for novices and as a refresher for radio engineers.

Why consider T1?

As station consolidations continue and HD Radio takes hold, more stations have discovered they are running out of studio-to-transmitter bandwidth.

The amount of bandwidth required to deliver audio and data services to the transmitter site has grown as the end-to-end radio infrastructure has become more complex. The days when a single equalized stereo pair and a data circuit for remote control, both historically provided by the local telephone company, com-

prised the station's STL are long gone. Most telephone companies, which historically provided this STL equipment, are no longer offering new equalized service to broadcasters — it's too hard to maintain and no longer cost-effective.

The 950 MHz STL band is at capacity in almost every market. As stations move and consolidate, a once-viable microwave shot may no longer be the case. Perhaps there's no line of sight to the transmitter from a new studio location. Perhaps the licensed frequency can no longer be coor-

dated from the new site.

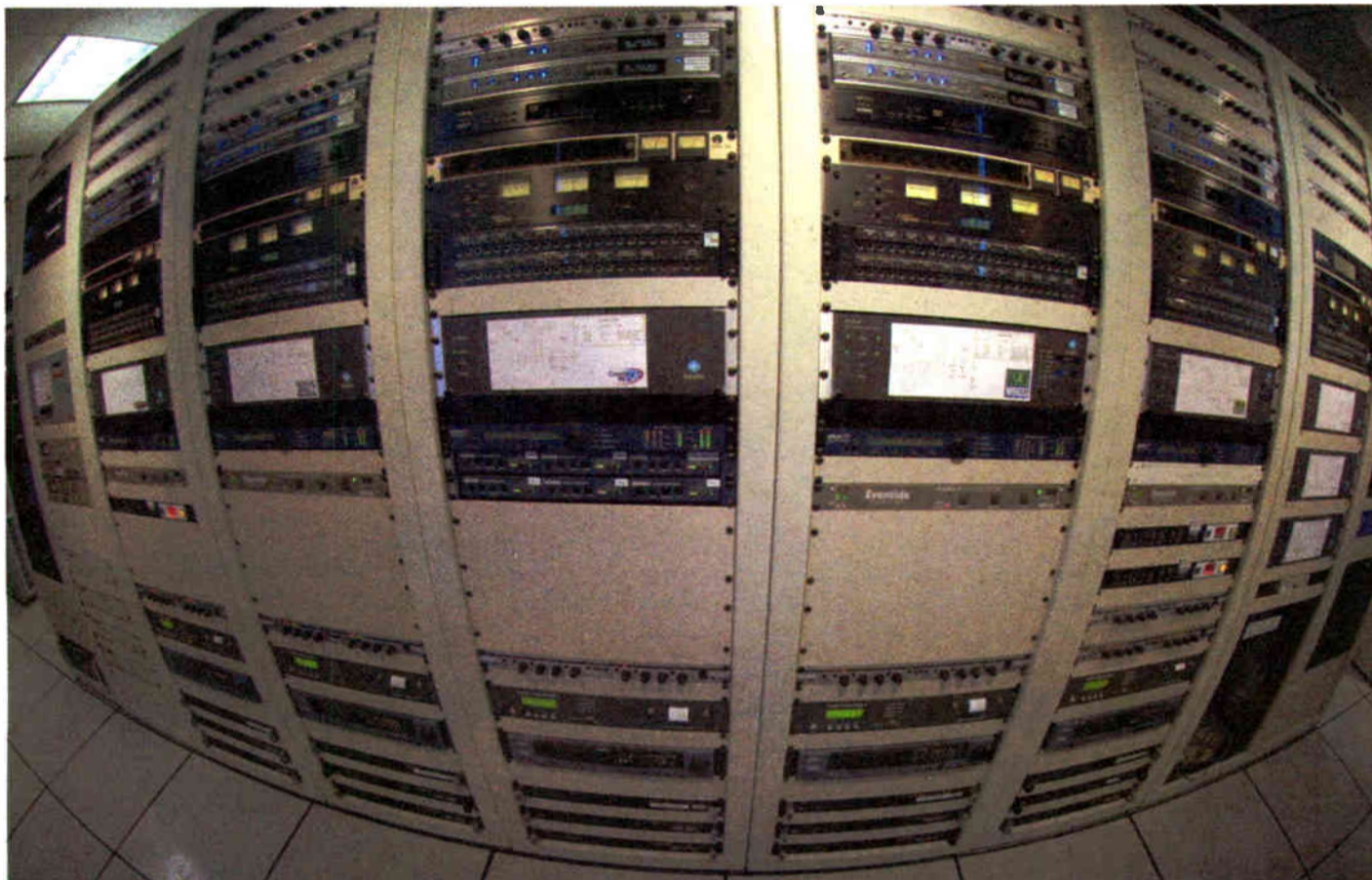
A facility may need not only deliver audio and data to your transmitter site, but also receive audio and data back from that site. There may be the need to provide multiple channels of audio and data to a transmitter site. Station consolidation and HD Radio implementations are placing a large burden on the bandwidth requirements for today's STL links.

In addition, facilities are finding they must connect two studio locations together and share audio, telephones and data. T1 service, whether provided by the local telephone company, a third party, via a fiber link, or on a spread-spectrum wireless link, is a viable and affordable solution for the broadcaster facing any of these challenges.

What is T1?

T1 service initially was used by the telephone company as a means to conserve cable. A T1 circuit allowed 24 simultaneous telephone calls to be carried on only four wires. Each call was multiplexed with the others using TDM (time division multiplexing) technology. This technology allowed the telephone company to realize a 12-fold reduction in the amount of cables needed to route calls from one office to another.

T1 service initially was used by the telephone company as a means to conserve cable.



Fish-eye photo depicts Intraplex T1 frames for five FM stations at Greater Media in Boston. Originating at the studios, four frames serve the Prudential Building for WMJX, WROR, WBOS and WTKK. A fifth goes to the Andover tower site of WKLB; another backs up the Prudential feeds with 4:1 audio on a landline T1. Two more frames feed a radio link to the Newton site where a backup, site-diverse transmitter is located for the Pru stations.

T1 technology is still in use today by the telephone company. The difference now is that the service is available to third parties — broadcasters — with the need to move much more than telephone calls.

A T1 circuit is bidirectional. One pair of wires carries information in one direction; the other pair carries information in the opposite direction. Each channel on a T1 circuit consumes 64 kilobits of bandwidth. For telephone calls, this is more than enough to move voice-grade audio. Since each channel uses 64 kilobits and there are 24 channels on a T1 circuit, the aggregate bandwidth is 1.536 megabits.

Broadcasters need better frequency response than what is available on a voice-grade telephone circuit. Channel module cards in the T1 systems that allow higher-quality audio to pass on the circuit is one superior alternative. The bandwidth usage goes up, but the frequency response is preserved.

T1 circuits also have 8 kilobits of overhead that contains data for framing and other "housekeeping" functions (see the sidebar for a more technical description of a T1 circuit). Therefore, a full T1 circuit equals 1.544 megabits.

Sources for T1 circuits

The local telephone company can provide most broadcasters with T1 facilities. Long-distance companies like AT&T, as well as third-party companies like XO Communications, can provide cost-effective T1 circuits for distances that traverse the local LATA (local access and transport area).

See T1, page 36 ►

The Fabric of Time



Broadcasters have woven ESE precision master clocks and timing-related products into their facilities for over 35 years. ESE products accurately synchronize broadcast operations using a choice of GPS, WWV, Modem, Crystal or line frequency for affordable, reliable, perfect time.

Spend a few seconds on www.ese-web.com to discover a vast universe of timing systems that are designed for easy installation, set-up and operation.

**Precisely
measured
and
delivered
by**

ESE

142 Sierra Street
El Segundo, CA 90245 USA
Tel: (310) 322-2136
Fax: (310) 322-8127
www.ese-web.com

To meet with one of
our representatives at the
NAB Radio Show, please
call 202.513.2626

wherever. whenever.



Prime C-band satellite capacity, digital system design, and expert field engineers to assist you. To cover the U.S., Mexico, and the Caribbean. Faraway affiliates, distant stations, hard-to-reach areas are all within easy reach. With reliable, low-cost solutions, maximum flexibility, and engineering support 24/7. Wherever you want us, whenever you need us. Call NPR Satellite Services at 202.513.2626, or visit www.nprss.org/rwo-ld.

npr
satellite
services

space segment | equipment | uplink services | system design | engineering support | 24x7 customer service

T1

► Continued from page 34

Options exist when local telephone service won't work or isn't available. Fiber is an alternative for campuses and statewide networks. Many third-party companies and T1 broadcast equipment vendors make or can provide fiber line drivers that allow a broadcaster to "light up" a fiber with a T1 circuit. A private fiber link affords an additional advantage: The circuit can be built as an E1 rather than T1 link.

E1 is not available in the United States or Canada from the telephone companies. However, it is available for use on private circuits or private microwave links and provides 2.048 megabits of bandwidth instead of T1's 1.544 megabits. E1 is used exclusively in Europe and other parts of the world.

An alternative choice to copper or fiber is a spread-spectrum radio link. These wireless links provide the backbone circuit for a system. The circuit is created on the radio instead of a copper circuit. External T1 or E1 equipment is still required to interface with the radio. One major advantage of using a spread-spectrum link is that the recurring costs of a telco circuit are eliminated.

The good news with this scenario is that the broadcaster owns the equipment. The bad news is that the broadcaster owns the equipment.

Obviously, the burden for maintenance and operation falls to the user rather than the telephone company. However, there

are circumstances where this alternative makes perfect sense. For example, telephone service may be unavailable at a transmitter site. The use of a spread-spectrum link allows the broadcaster to move not only audio to and from the site, but also telephone extensions, serial data and LAN. All of a sudden, a site that was completely isolated from any communications network can have complete service available.

Prices for these links vary depending on the manufacturer, type of radio chosen for the link (split vs. composite, for example), antenna size and transmission line lengths, and the actual capacity of the radio. Many radios provide multiple T1 or E1 circuits, which gives any system designed around these radios capacity for future expansion.

With a spread-spectrum link, the broadcaster can move directly to an E1 capacity, further increasing available bandwidth. A multiple E1 link can mean the difference between using all linear audio vs. using some sort of compressed audio. There are many reasons to choose E1 over T1 when considering a spread-spectrum system as the path medium.

Spread-spectrum links are not for everyone. They operate in the unlicensed ISM bands of 2.4 GHz and 5.8 GHz. Although most radios are immune to interference due to the nature of the transmission medium, they are subject to any interference from any source. A link that was working perfectly one day may experience problems the next because a new, unlicensed service has appeared.

Sources for this type of interference

tend to be ISPs trying to provide wireless LAN to customers. They can also include portable telephones and other consumer devices allowed by the FCC in the two bands. Careful planning, spectral analysis and frequency coordination can mitigate or eliminate interference issues between competing services.

Many advantages

T1 or E1 service offers many advantages for broadcasters faced with moving more than just audio to a transmitter site or with connecting two studio locations together. Among the benefits are:

- The ability to send multiple channels of audio between end points;
- The ability to move voice, data and telephone service between end points;
- The ability to combine existing telco

services onto one high-capacity circuit, eliminating many recurring costs;

- The ability to move completely away from telco service and the recurring cost it presents;
- The flexibility to handle requirements today and in the future.

In the next installment we'll look at how broadcasters use these high-capacity circuits to deliver program to their transmitter sites; retrieve audio from the transmitter site; handle remote control; extend telephone lines; use low-quality audio circuits for monitoring, two-way radio and IFB applications; and extend data services like Ethernet to a remote site. We'll concentrate on HD Radio applications specifically in the final installment.

RW welcomes comments on this and any article to radioworld@imaspub.com.

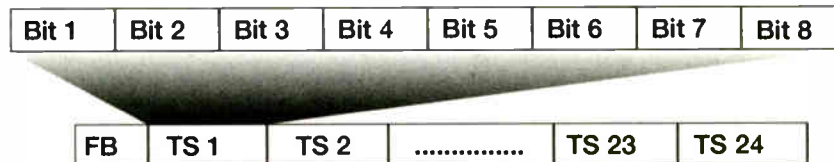
A Technical Look at a T1 Circuit

A T1 circuit provides 24 full-duplex, 64-kilobit time slots to carry payload data for an aggregate data rate of 1.536 megabits. An 8-kilobit overhead channel, used for frame synchronization, brings the actual data rate to 1.544 megabits.

T1 Framing

Each time slot is created using an 8-bit time slot byte generated 8,000 times per second.

One time slot byte (8 bits) generated 8,000 times per second (8 bits x 8,000/sec = 64,000 bits/sec)



One T1 frame is composed of 24, 8-bit time slot bytes (TS1 to TS 24 in the diagram above), plus one frame overhead bit (FB in the diagram above), generated 8,000 times per second, for a total bit rate of 1.544 megabits per second.

T1 circuits have their frames arranged into one of two formats: Superframe (SF) groups 12 frames together; extended Superframe (ESF) groups 24 frames together. ESF formatting provides better error detection and is used almost exclusively these days (it is not supported by some older equipment or networks).

T1 Line Coding

Line coding assists in error detection. All T1 circuits use one of two line coding types: AMI or B8ZS.

AMI (*Alternate Mark Inversion*) is a simple bipolar scheme. Each logical "one" is given the opposite polarity of the one before it; "zeros" are neutral. A transmission error is indicated when two consecutive ones are transmitted with the same polarity (a bipolar violation). One severe limitation of AMI is that the T1 circuit can lose framing synchronization if too many zeros in a row are present in the data stream. This condition is called "insufficient ones density."

B8ZS (*Bipolar with 8-Zero Substitution*) is a far more robust coding scheme that eliminates problems with insufficient ones density. When more than eight zeros in a row appear in a data stream, B8ZS transmits a special sequence of ones and zeros that is reconverted at the receiving end to the original stream of eight zeros. This special sequence actually includes bipolar violations, signaling a zero substitution is being implemented. The multiplexer at the receive end checks the data sequence to make sure the transmission represents a zero substitution rather than a transmission error.

Differences between T1 and E1

E1 service is not available in the United States from the telephone company. However, when other transmission means are used (spread spectrum links, private microwave circuits or fiber links for example), E1 service yields more bandwidth for the user.

E1 circuits have 32 time slots instead of 24. Unlike T1 where the overhead channel is separate, E1 uses the entire first time slot (called DS0) for overhead, reducing the capacity to 1.984 megabits. In addition, the framing choice can consume an additional time slot.

CCS (common channel signaling) framing allows the user to access all remaining 31 time slots. However, if there are any telephone-type cards in the system, CAS (channel associated signaling) formatting is required. CAS uses time slot 16 for all signaling, reducing the available payload capacity to 1.920 megabits.

E1 line coding can be either AMI (described above) or HDB3 (high density bipolar 3). HDB3 is similar to B8ZS but substitutions occur when there are four consecutive zeros in the payload.

— by Ted Nahil

Today's top engineers need a reliable source of deep tech info.

Now they have it.

Radio World ENGINEERING EXTRA

Published six times a year, this "deep tech" version of Radio World is pure technology, with articles written by engineers for engineers, and edited by a veteran radio broadcast engineer. White Papers, in-depth engineering session coverage, technical opinion and analysis articles — if it's important to radio engineers, you'll find it in Radio World Engineering Extra

Sign up now for your FREE subscription at:
<http://www.rwonline.com/eng-extra>

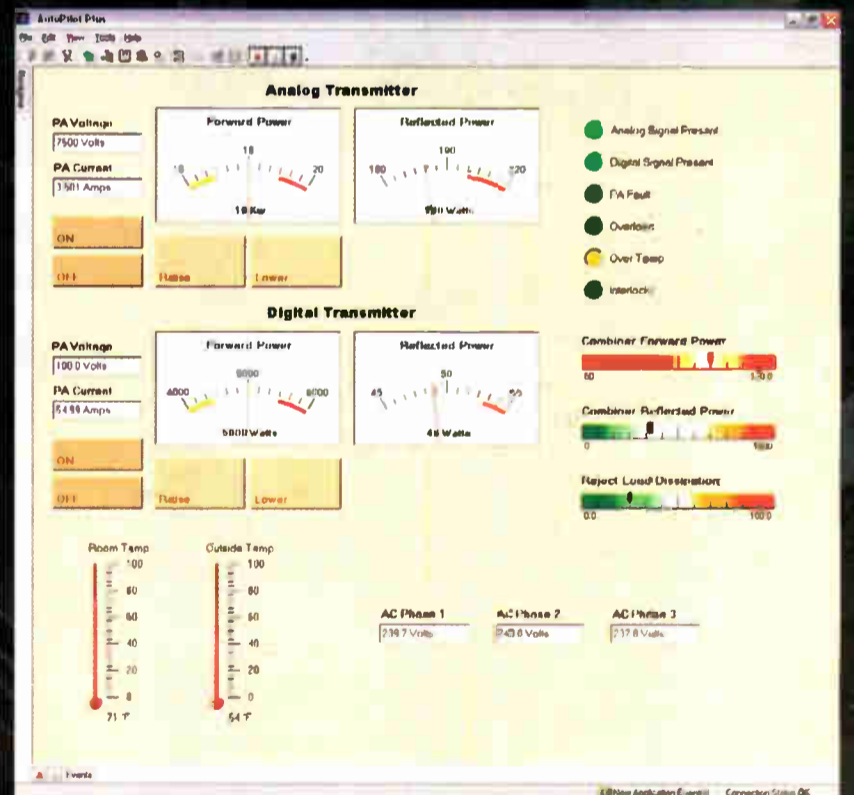
Even if you are a Radio World subscriber, you must sign up to receive RW EE

Welcome to the Next Generation of Broadcast Facility Remote Control

ARCPlus



See it in action at Radio Show booth 519 or online at www.burk.com/arcplus



BURK
TECHNOLOGY
WWW.BURK.COM

Solutions you can use. Experience you can trust.

How You Can Go Off the Grid

As Energy Costs Rise, Broadcasters Seek Alternatives

by Tom Vernon

The recent price climb of gasoline and diesel fuel serves as a constant reminder that energy costs will remain a significant part of the budget for most broadcasters.

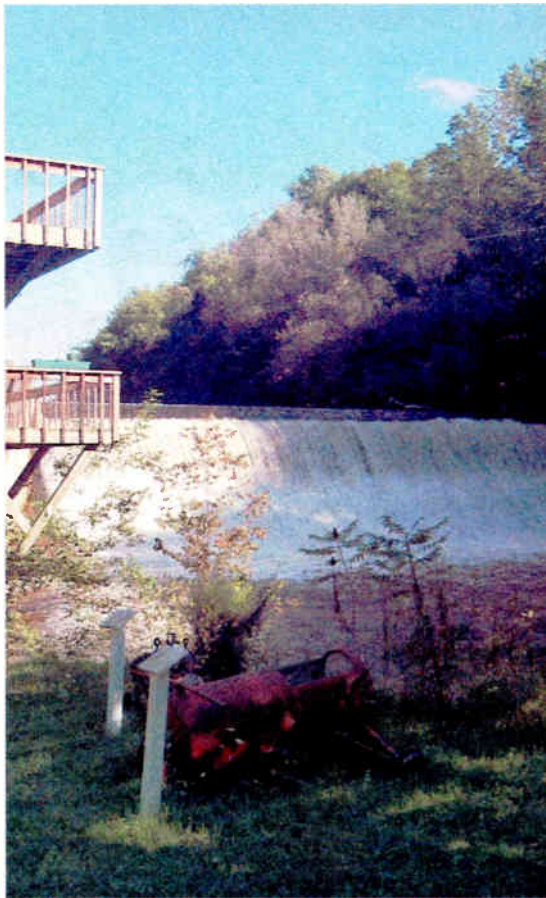
In some cases, fuel costs are changing the way stations operate, causing them to consider alternatives that were once too expensive or unconventional. At the same time, advances in technology are reducing the costs for alternatives such as wind hydro and solar power. We talked to engineers who are going off the grid to meet some of or all of their energy requirements.

In the air

Renewable energy sources such as wind and solar traditionally have been the option of last resort for broadcasters. Mike Bergey, president of Bergey Wind Power Company, notes that in the past, demand has come from customers at remote sites far from the power grid.

"When someone gets an estimate from the electric company that it will cost between a quarter of a million and a million dollars to extend the grid to their site, the capital costs of alternatives like wind or solar become attractive." He adds that companies that have to fly diesel fuel in to remote sites may also be candidates for alternative energy.

Bergey notes that there are more wind-



WJFF generates about 70 percent of the power for its studios from this small dam near the station.

powered sites in the West, where the penetration of the power grid is less extensive than on the East coast. That may start to change. "The rise in diesel fuel costs is causing more people to look at the alternatives. We've been getting a lot more calls and inquiries lately."

Bergey's company provided wind turbines and expertise for a hybrid wind/solar installation at KRNG(FM), a Christian station in Wadsworth, Nev. Dr. Bill



The turbine and generator of HCJB's 2 MW Loreto hydro plant, completed in 2002.



A combination of wind and solar energy powers KRNG's 8,000-ft transmitter site in Wadsworth, Nev.

Bauer, the station program director, said, "Our 8,000-foot mountaintop site was far from the grid. Surveys suggested that a hybrid arrangement would work for us, and the system went on the air in 1997."

At first, KRNG got too much of a good thing. Sustained 70 mph winds burned out the wind turbine. Adjustments were made, and the system has been reliable ever since. The only maintenance required involves backpacking jugs of distilled water to the site every other month to top off the lead-acid batteries.

KRNG has no backup generator, although diesel or propane-powered units often are used to recharge batteries during periods of overcast skies and low winds when solar panels and wind turbines can't keep up.

Efficient use of the limited battery power is an important consideration at all off-grid sites. Rather than running the transmitter off an inverter, the battery pack powers the transmitter directly, also providing slightly better hum and noise specifications than AC-powered units.

Batteries at KRNG are deep-cycle lead acid types, although in low-temperature environments where freezing is a possibility or site access is limited, sealed gel-cell batteries are an option. Bergey notes that these types typically cost about 50 percent more than lead-acid cells.

Healthy rays

For stations located in the Sunbelt, solar power may be a logical choice.

Sara Allen of Ciara Enterprises Inc. was chief engineer of KTAO(FM) in Taos, N.M. when it moved to a solar-powered transmitter site. The remoteness of the site ruled out grid power, and preliminary tests suggested that solar would work.

"I didn't know much about solar at the

outset of the project, and most of my education came in the form of on-the-job training," Allen said. Working with station owner Brad Hockmeyer, Allen installed the radio gear and coordinated the efforts of architect Mike Reynolds, solar specialists Paradise Power, tower riggers and financial backer Guy Spiller of BES Teleproductions.

The system includes 135 solar panels and 60 lead-acid batteries. KTAO has no backup generator at the site, and relies entirely on the sun. While the system was designed to run entirely on batteries for five days, that turned out not to be enough.

"We once had 26 consecutive days of bad weather," Allen said, "and really had to conserve battery power. If I had it to do over again, I would put in twice as many batteries."

Allen notes some of the unique features of the system.

"The 600-watt QEI transmitter is a custom job that runs directly off the battery bank, which supplies from 55 to 70 volts depending on the charge state. A voltage regulator in the transmitter provides 48 VDC to the final stage." KTAO monitors battery voltage from the studio via the remote control. An inverter at the site is only used to provide AC power for lighting.

Although a skeptic at the outset of the project, Allen is enthusiastic about solar energy.

"The track record of KTAO speaks for itself. It's been on the air for 14 years with no backup. Solar power works."

Water power

For other broadcasters, particularly in the Northeast, hydro is a means of going off the grid.

WJFF(FM), Jeffersonville N.Y., is

See GRID, page 40 ▶

Product Showcase



Model AFS-3 Audio Failsafe

- silence sensor--balanced or unbalanced audio
- provides contact closure on loss of audio
- adjustable from 30 seconds to 5 minutes
- dry relay contacts or logic level voltage
- front panel alarm indicator and audible alert
- optional audio detect mode

innovative solutions

Sine Systems, Inc.

615.228.3500

more information: www.sinesystems.com

End-to-End Solutions From SCMS

Moseley SL9003Q Studio Transmitter Link

Get your **STL** Solution from
the Dealer That Knows Radio.



Whether you are faced
with a studio move or IBOC
conversion, make the right STL
choice for today and tomorrow.

Moseley Starlink SL9003Q-2SLAN is the
first STL to provide AES digital audio and
Ethernet over the traditional 950 MHz STL band.

For T1 lines and license-free links, the Moseley Starlink
SL9003T1 gives you bidirectional digital audio, Ethernet
LAN extension, remote control, and telephone.

Your best value for the future is the right STL choice today.
Moseley Starlink is available from the most reputable supplier
in radio broadcast – SCMS.



Contact SCMS
at any of its offices
to discuss your needs.
1-800-438-6040
Bob, Ernie, Matt or Mike
HQ in Pineville, NC

Mid-South: 1-877-391-2650 Bob Mayben
Central: 1-731-695-1714 Bernie O'Brien
West Coast: 1-866-673-9267 Doug Tharp
Mid-West: 1-513-899-3036 Mary Schnelle
South-Atlantic: 1-770-632-1295 Art White
North-East: 1-315-623-7655 Jim Peck
South-West: 1-877-699-9151 Tyler Callis
Pro Audio: 1-877-640-8205 Ric Goldstein



www.SCMSinc.com

Grid

► Continued from page 38

located in the Catskill Mountains, where water-powered turbines provide 70 to 75 percent of the power for the station's studios. "It gets tough in August, when water levels are low," said Station Manager Christine Ahern, "then we have to go back on the grid."

The project began when then-owner Malcom Brown purchased a 21-foot-high dam, knocked a three-foot hole in the side and installed pipes that ducted the water to two turbines; they drive the generators. The entire endeavor cost Brown \$100,000 and was preceded by a decade of research on hydroelectric power.

The plant provides ample energy to power Brown's house and the WJFF studios. He used to sell surplus power back to the utility company, but administrative hassles eventually made that impractical.

The station's commitment to renewable energy lured the annual Grassroots Radio Conference to Jeffersonville, which WJFF hosted last year. Said Ahern, "Many of the 200 delegates were talking about it, and felt we were an example to encourage them to think about ways of getting off the grid."

WJFF has additional plans for sustainable energy. "We've already got anemometers up at the transmitter site," Ahern said, "and if conditions are right, we'll look at powering everything up there with the wind."

Big power

While WJFF uses hydro on a small scale, powering much larger operations with water is also possible. HCJB World Radio in Quito, Ecuador, has been running its shortwave transmitter site with power from the headwaters of the Amazon since 1965. Charles Jacobson, manager for International Broadcast Technology at HCJB Worldwide, explains: "We were far from the grid, and started out powering the site with surplus diesel generators, which were very expensive to operate. The station



An array of 135 solar cells provided 100 percent of the power for KTAO's mountaintop transmitter site near Taos, N.M.



Part of the lead-acid battery bank charged by KTAO's solar array.

Buying Green Power

Installing wind, hydro or solar gear isn't the only way that broadcasters can benefit from renewable energy sources. They can also purchase energy from green sources.

KRCL(FM), a community station in Salt Lake City, recently signed up to purchase 53 block increments of wind-generated energy from Utah Power's Blue Sky program. The voluntary program enables Utah Power customers who pay an additional \$2.95 per month to purchase wind power in 100-kwh block increments. Another Utah broadcaster, public station KZMU(FM), also participates in the Blue Sky program, deriving 100 percent of its power requirements from the wind.

Similar programs exist in other states. Entercom Radio of Madison recently became the first Wisconsin business customer for Second Nature, a voluntary program that allows Alliant Energy customers in Iowa, Minnesota and Wisconsin to support energy generated from renewable resources. Second Nature contracts with a landfill gas facility, wind farms and solar providers to provide renewable energy.

ity to help defray operating costs.

Jacobson adds that most of the hydro and civil engineering expertise for the project has been provided in-house by the HCJB engineering staff. Power from the dams is reliable, with an average of only four hours of down time per month, and many of the outages come from the 30 miles of transmission lines that cross the Andes to connect the hydro plants to the Pifo transmitter site.

"Most of the difficulties come from high winds, but our worst problems came after a volcano erupted nearby, and volcanic ash, which is conductive, settled on the lines and towers. Then it rained."

While renewable energy sources often save money in the long run, capital and startup costs often are prohibitive. Help is

Easy Ordering In Nanoseconds



With the **ONLY** 1,800+ page catalog of the **NEWEST** information **4 times a year**, and daily updates to over 700,000 products on-line, you can depend on Mouser for easy ordering in nanoseconds!

mouser.com (800) 346-6873

MOUSER
ELECTRONICS

a ti company

**Newest Products
for Your New Designs**

The **NEWEST** Semiconductors | Passives | Interconnects | Power | Electromechanical | Test, Tools & Supplies

Mouser and Mouser Electronics are registered trademarks of Mouser Electronics, Inc. Other products, logos and company names mentioned herein may be trademarks of their respective owners.



The Lake Loreto dam is one of three in HCJB's hydro system.

obtained a scrap 1.8 MW generator in 1965 and refurbished it for the first hydro site." He adds that HCJB continued to expand the generating capacity, until today it produces 7.8 MW.

Located in Pifo, 18 miles east of Quito, the transmitter site houses 11 shortwave transmitters, plus one 25 kW MW standby, two 20 kW SSB and two 1 kW SSB transmitters. A 1.2-million-watt power station consisting of four diesel generators is available for backup. The station sells its surplus hydro capacity back to the local power util-

available in some locations. Many states, including Arizona, California, New York, Nevada and Texas, have enacted pioneering laws, and more governors are professing the benefits of renewable energy for their states.

Additional information is available from the Database of State Incentives for Renewable Energy, which has a state-by-state listing of information on state, local, utility and selected federal incentives that promote renewable energy. The Web address is www.dsireusa.org.

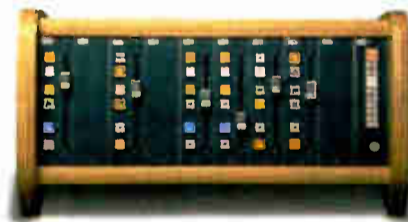


**INTRODUCING THE EXPANDING FAMILY OF
THE SAS CONNECTED DIGITAL NETWORK.™**



New Rubicon-SL Console Control Surface — A "junior" Rubicon™ for less demanding studio applications. Offering full router source select, four mix buses, an unlimited number of mix-minus, mode, pan/balance, talkback, and more, SL is an ideal replacement for a dated analog console. Rubicon-SL fully integrates into an SAS 32KD Mixer/Router System.

New Rubi-T Mini Console Control Surface — Ideal for voice tracking rooms, news booths, edit booths, announce booths, effects mixing, and more. Just 6" high, Rubi-T's input module features a full-length 100mm P&G fader, channel ON/OFF, and four programmable source select or bus assignment buttons. Input, monitor, talkback, meter, remote control, and other modules are easily configured.



New RIOGrande Stand-Alone Mixer/Router — RIOLink, the SAS Remote I/O chassis for the 32KD, has grown into a full-featured stand-alone mixer/router, a junior version of the 32KD. Use it with Rubicons, SLs, Rubi-Ts, or simply as a powerful 32x32 analog and digital router. Connect two RIOGrandes with CAT5 or fiber for a great 64x64 mixer/router system.

With Rubicon, Rubicon-SL, Rubi-T, 32KD, and RIOGrande, the SAS Connected Digital Network has evolved to meet a wide range of budgets and requirements. In fact, it is now the "go-to" solution for hundreds of stations across the country moving into router-based networked control systems—providing the industry's most versatile and flexible user-friendly consoles, powerful routing of thousands of channels, integrated IFB/talkback/intercom, serial/ GPI/IP control, and so much more.

Whether you're building a Top-10 multi-station facility or a simple single air studio, SAS has the perfect system for any market, any where.

For more information, call 1.818.840.6749, or email radio@sasaudio.com.



**SIERRA
AUTOMATED
SYSTEMS**

www.sasaudio.com

Disaster Preparedness for Broadcasters

Speakers Reiterate Importance of Planning, Documentation & Diversity

by **Mario Hieb**

As a teenager, I recall the flash flood of June 9, 1972 in my hometown of Rapid City, S.D. Throughout the night, we listened to a broadcast from KKLS(FM) as water filled their studio. A mix of terror and jocularity was conveyed to the listening audience as the air staff held on to the last.

We had no water, electricity or natural gas. For the next several weeks, KOTA(AM) broadcast non-stop news of missing persons, emergency information

and the unfolding story of thousands of destroyed homes and over 200 people dead. Daytime-only AMs stayed on past their scheduled sign-off times. Commercials and format somehow were forgotten as the disaster loomed top of mind.

My memory of radio as a vital link to the community and the selfless efforts of the broadcasters came back to life as I listened to the stories of Katrina and other disasters during the session "Disaster Preparedness for Broadcasters" at NAB2006.

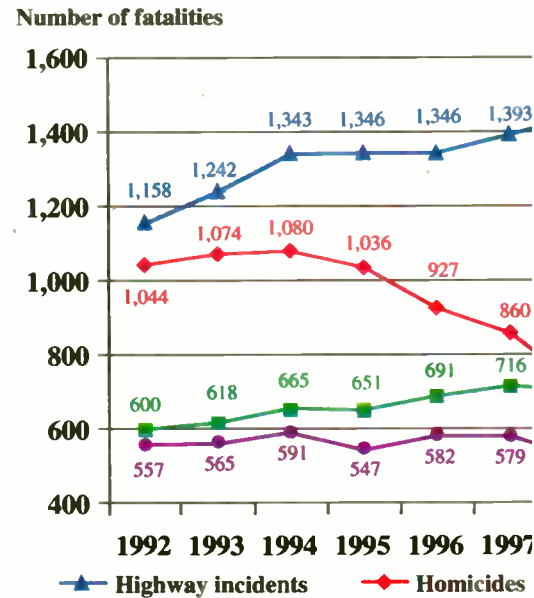
Michael Patton of Michael Patton Associates spoke of the damage and the emergency measures taken in the New Orleans metro area following Hurricane Katrina. Patton had to get several stations back on the air despite the chaos.

"I actually got someone to issue an all-area access letter of authorization for WWL radio ... that served us the entire time, nobody ever turned us away at a police checkpoint."

WWL was the only AM station on the air in New Orleans, and also covered a large part of the United States, sending news and information to the diaspora.

He and his crew improvised satellite

The four most frequent work



NOTE: Data from 2001 exclude fatalities resulting from the September 11 terrorist attacks.

A Labor Department graphic from that for most of the past decade outnumbered those from hom

DYNAMIC DIGITAL DUO!

Digital DA 2X8 and DigiMatch 2X6 are ideal whenever you need to **distribute** digital audio, or **convert** between AES/EBU and SPDIF formats!



Digital DA 2X8 distributes AES/EBU signals to 8 places. Use it as either a 1X8 DA, or as a pair of independent 1X4 DAs!

- Transformer balanced I/O
- Zero delay or latency
- Built-in AC power

DigiMatch 2X6 converts between AES/EBU and SPDIF, and functions as a mini-DA!

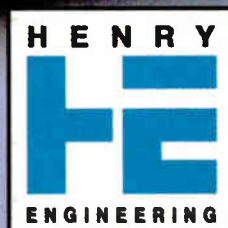
- Format-converts in both directions
- 3 outputs for each format
- No changes to data



In stock at all Henry Engineering dealers. Visit www.henryeng.com for full specs.

626.355.3656

We Build Solutions



and STL dishmounts, threw together whole studios from spare parts found in closets, ran a radio station in his shop's backyard, and generally saw and did amazing things, including some very frightening moments.

"Every C band dish that I knew of in New Orleans was either blown off or destroyed. Most of them were just destroyed, ripped off their mounts. Lord knows where they went to," Patton said.

Explaining how he coped with the disaster recovery, Patton said, "I have the best crew in the world ... my people did extraordinary things, they worked very hard ... they took personal risks, they had very little to eat."

Concerning the future in the disaster area, he said, "As bad as this storm was, there is a worse one waiting to happen."

Big Top

Andrew Janitschek, director of production support for Radio Free Asia, spoke about commonsense rules for uncommon events.

Referring to a disaster, "It can happen, it does happen. Have a plan...one of our plans is called 'Operation Big Top.' Like a circus, you take everything you need on the road."

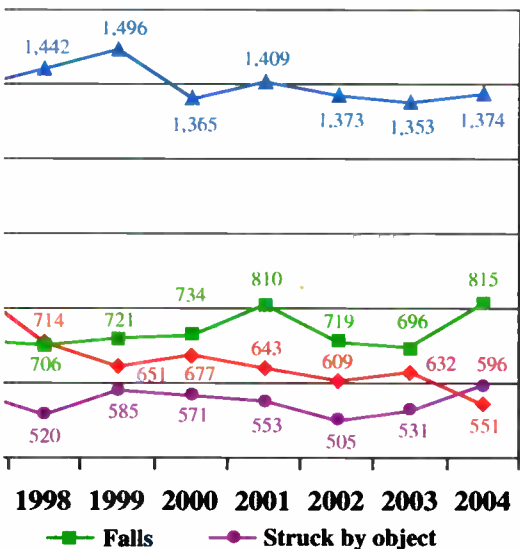
He discussed recent disasters and how they affected radio and television broadcasting, how the stations handled them, what worked well and what did not and what broadcasting engineers and management can do today.

Mixed with the commonsense guidelines were interesting statistics regarding workplace crime, such as the average number of homicides in the workplace — 20 per week — and the water requirements for an individual — 1 gallon per person per day for 3 days.

He also examined alternatives to in-studio productions; transmission sites and emergency management of station knowledge and data; and management of customer relationships.

got racks? cables & connectors
racks
tools
problem solvers
test gear
& much more
www.systemsstore.com

related fatal events, 1992-2004



SOURCE: US Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2004.

Josh Hadden's presentation shows workplace deaths from falls have cides — a change from years past.

Diversity

Given the World Trade Center attacks of 1993 and 2001; the power blackouts of 1966, 1977 and 2003; and anthrax scares, does it seem as if New York City is disaster-prone?

That's what Josh Hadden, director of engineering and IT for Clear Channel Radio in that city, thinks; and that's why he's done something about it.

Beginning in 1997, Hadden began a project to help the Clear Channel cluster stay on the air.

"After the 1993 WTC bombing, WYNY [now WKTU(FM)] was off-air for days. Then it was at severely reduced power for months," said Hadden. "Smoke damage from the bomb contaminated electrical gear throughout the building and the transmitters were never 'right' again."

And the station lost revenue.

"With just a little bit of pre-planning, a lot of these revenue losses could have been avoided," Hadden said.

"Broadcasters need to think about the 'perfect-storm' scenario and develop plans to ensure that we can get through it. Engineers must be able to translate this need for preparedness into a valid, strong and persuasive financial argument to 'sell' to upper management."

So what should be done?

"Redundancy is only half of the equation. Diversity is the second half," Hadden said. "Redundant systems, backup power, multiple STL paths, automatic data protection. Backup facilities/location. Where to start? Develop a written plan. Come up with some likely scenarios."

Redundancy, he said, can rescue you from failure of a server, an STL transmitter and many other systems. But "diversity is better because you can lose an entire plant or path and stay on air."

In NYC since 1995 there have been 10 times when WKTU alone has had to evacuate its studios, and twice that its main transmitter site was not available for more than 48 hours. Redundancy was worthless.

Hadden listed points to keep in mind:

How protected is your studio? Is it in a low-lying area prone to flooding? Are there tall trees around it? Is it near an

industry that might be a target? How well do you screen potential employees?

Regarding generator and UPS, remember to service these at least annually, and run live load tests as frequently. Don't forget the automatic transfer switch service. What kind of STL/TSL redundancy do you have? Above-ground lines are prone to wind damage. Underground lines prone to water damage and backhoes.

Finally, Hadden said, "Looking at New Orleans most recently, you can see the value of having a plan. People do depend on us and we shouldn't let them down."

In the binder

Kerry Cozad, senior vice president of engineering and technology for Dielectric Communications, spoke on "Disaster

Recovery Plans for Antenna Systems," focusing on alternatives for emergency use of antennas, transmission lines and transmitter RF systems including filters and combiners.

Like other speakers, Cozad emphasized the importance planning prior to any disaster.

"One thing I highly recommend is to have a three-ring binder that will have your documentation of what you will need to implement your plan ... this will cut your emergency install time in half.

"If you're off the air and give us a call, we'll ask you several questions," he said: "Where do you plan to put the antenna? What kind of transmission line is there? Do you have the tower space? What's the orientation of the tower? What kind of coverage are you looking for? What kind of mounting brackets are

necessary?

"Too often, the answers come back, 'Don't know.'"

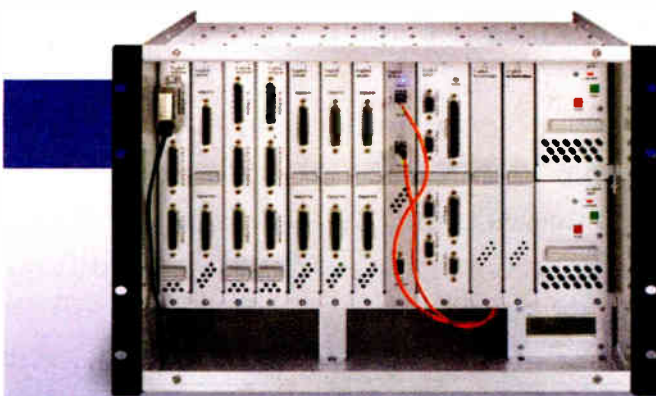
He suggested keeping a few spare bays on site that could serve as replacements for a main antenna or act as backup antenna.

Recalling Katrina, Cozad said, "One thing you should remember is that if you haven't had power to your transmission line for a few days, it probably has water in it and will need to be re-pressurized before applying power."

Broadcast Engineering Conference Proceedings are available at the NAB Store (www.nabstore.com) on CD (\$99), book and CD ROM set (\$125) and in other formats.

Mario Hieb, P.E., is a consulting engineer and founder of Phasor Physics Inc.

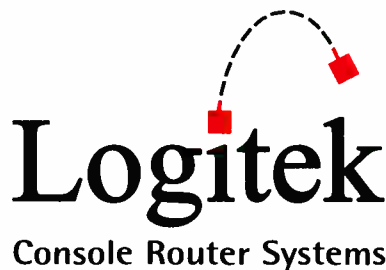
$$96^2 < \$20K$$



The new math of audio routing

With Logitek, you don't have to spend a fortune to move audio signals around your facility. Our Audio Engine router does it all—X-Y routing, mixing, gain control, EQ, compression, limiting—for a great price.

Learn more about the Audio Engine and Logitek's line of console control surfaces at www.logitekaudio.com.



Logitek Electronic Systems, Inc. 5622 Edgemoor • Houston, TX 77081
713.664.4470 1.800.231.5870
info@logitekaudio.com www.logitekaudio.com



NewsBuilder

Covering news today is much different from how it was even a decade ago. There is more competition than ever, as the 24-hour cable channels, news-talk radio stations, internet news magazines and even bloggers fight to get that story first. In such a competitive universe, radio news directors are finding that new technology can help them do their job more effectively. And many of these news professionals are using NewsBuilder.



“My 7:30 rocked because of NewsBuilder!” – R.C. Bauer

One NewsBuilder user is Steve Versnick, Director of News and Programming at NewsRadio 600 WREC in Memphis. He comes from a radio family (his dad is a general manager in Lima, OH) and he has seen first-hand how the industry has changed since he first got into it. One big change is that his market is far more spread out. “We cover a really diverse area,” he says. “Memphis and Shelby County are the focus, but many more people are moving out to the suburbs, into DeSoto County, MS.

So we cover that too.” Steve’s busy day includes training and assigning reporters in a growing news department. He sees NewsBuilder as a time-saver. “It’s a great tool. It puts everything in one place, and it allows us to multi-task,” says Versnick.

That’s what NewsBuilder was designed for, says Prophet Systems’ Steve Schneider. He is the product manager for NewsBuilder. “You can customize it to do whatever you want it to do,” he says. “For example, you can create your own hot keys, and set up your own layouts.” And because NewsBuilder is so flexible, it can be adapted to the style of the reporters at a station, making mistakes less likely to happen.

One of NewsBuilder’s most enthusiastic users is R.C. Bauer, news director and morning news anchor at Cleveland’s NewsRadio 1100 WTAM. Not only does he anchor at WTAM, but he also anchors for stations in Akron, Youngstown and Milwaukee. The reporters at those stations send their news packages via NewsBuilder, and R.C. is able to introduce the report. It sounds natural, and the packages can be changed as often as breaking news demands.

R.C. gives an example of how NewsBuilder helped a recent morning newscast improve quality. He and his editor were in the midst of an especially hectic morning during election coverage.

“Because of the craziness...my editor and I [couldn’t] talk as much. So...it turns out that he teased a story on the air at 7:15...then noticed I didn’t have it written into

my 7:30. All he had to do was tell me on our intercom. I went back to a story we had used at 5:30 a.m. ... and switched back and forth between the 5:30 and 7:30 newscasts seamlessly.”

Had the bite not come up, the liveshot would have been messed-up. And the listeners were unaware of what was going on behind the scenes, because the changes could be made with so little effort. Says R.C. about that day’s newscast, “My 7:30 rocked because of NewsBuilder!” And since WTAM does news updates every fifteen minutes, that flexibility and ease of use matters a lot. R.C. is also happy that with NewsBuilder, he can pull up stories from earlier newscasts and insert them whenever he needs to use them.

NewsBuilder was recently released, and contains a number of features users asked for including teleprompting. While NewsBuilder is an independent product, many stations using it are also using NexGen. We’ve made it easier to send elements from one to the other. You can make changes without having to do any manual editing. You can change your traffic report as often as you need to. And you can send a file with an end date, so that even if somebody forgets to change it or update it, it will stop airing at a certain time. This helps stations that are totally automated to still sound live and current.

Call 1-877-774-1010 for complete information on NewsBuilder.



DYNAMIC!

*Prophet Systems
is your
TECHNOLOGY RESOURCE.
Look no further.*

Digital Content Asset Management

Over 2,000 stations trust NexGen to keep them running everyday.

HD Radio

Prophet's Importer is leading the way, with new iBiquity features first.

Music Scheduling

Perfect music scheduling AND perfect promo scheduling with MusicGen.

Podcasting

XLR8R creates podcasts 8 times faster than real time.

Newsroom Software

NewsBuilder gives you the features you expect, with a smaller learning curve than you expect.

Streaming Software

Use the same technology the big boys use. PS1101 gives you the control you need over your sound.

Logging

DigiLogger makes logging up to 8, 16, (insert any number) stations simple.

WANcasting

Send your audio and logs anywhere by clicking a button with WANcasting.

PrizeWatch

Central location for contest inventory and reconciliation.

On-Line Academy

Train on the latest software updates from your own desk. Live Web-ex sessions.

PROPHET SYSTEMS

1-877-774-1010 • Sales@prophetsys.com • www.prophetsys.com

Visit Us at
NAB Radio
Booth #209

TECH TIPS

Here's Your Own Power Source

A Hybrid Electrical System Can Be Used to Deliver Electric Power Wherever You Take Your Vehicle

by Richard Factor

In Radio World's March 29 issue, Paul Kaminski offered valuable tips on choosing a station vehicle. I was pleased to see that hybrids were among the suggestions, albeit with the caveat of long delivery times.

The advantages of using a hybrid such as the Toyota Prius or Highlander as a station vehicle were only sketched in his article, and I thought it would be valuable to expand on one that wasn't mentioned.

As you probably know, a hybrid makes use of a robust battery and electrical system to augment the gasoline engine. You may have even read about "plug-in" hybrids, the so-far-experimental vehicles that allow you to charge

them at night from a wall outlet, and approach 100 miles per gallon during daily usage!

Of greater interest to a radio station, both for remote promotions and field engineering work, is that the hybrid electrical system can also be used to deliver electric power, in substantial amounts, wherever you take the car.

Your own resource

I purchased a Prius after I read the specifications and realized that it could literally supply enough power to run my house in emergencies.

My personal project over the past year was to implement this, and a project Web site, www.PriUPS.com, abundantly details this.

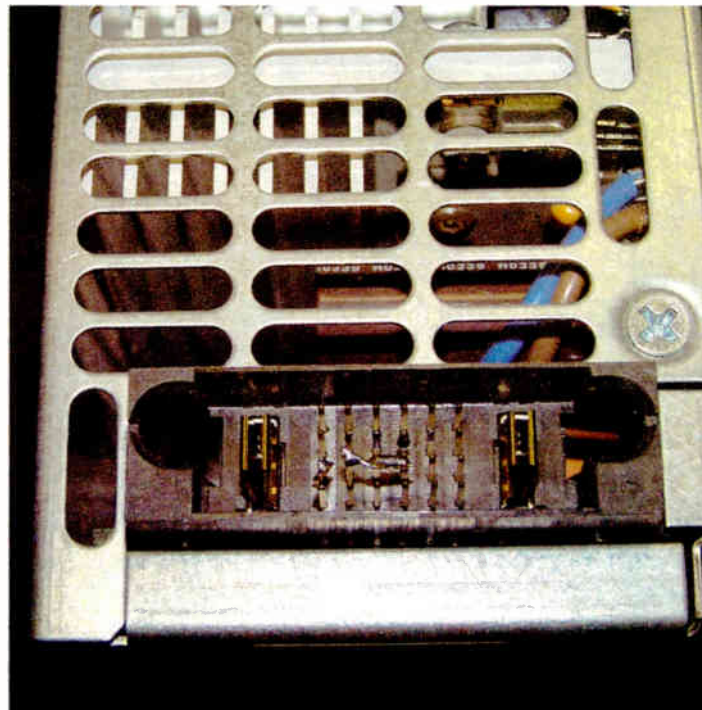
See HYBRID, page 48 ▶



This is what it looks like with the cover removed. At the top is the empty battery compartment.




I found a Compaq R1500XR UPS on eBay, without batteries or faceplate. It was inexpensive. This is only one of many models that will suffice.



I was able to find a 48V switching supply that was perfectly matched to the UPS; they both have 48V/30A ratings. I jumpered a few pins on the connector, shown, so that it didn't need to be plugged into its shelf as in normal operation. The large connector pins are the floating 48VDC output.



Other than jumpering the connector block and modifying the input voltage sense circuit to compensate for the peak detecting 'voltage good' detector, the supply was perfect as-is. The supply is mounted in the empty battery area of the Compaq UPS. I punched a hole and put a fan guard on the side to provide ventilation for the switcher. Although there are holes on top, it's possible to stack the assemblies for extra power, and I wanted to make sure there was air for the fans to move.



Radio World
The Newspaper for Radio Managers and Engineers

Our readers have something to say

"I have read RW religiously for the past 18 years. I would be lost without it."

Darren J. Morton
Director of Media Services
& WSAJ Radio Director
Grove City College
Grove City, Pa.

Shown: Heil CLASSIC PRO offers a retro look of the '40s with the dynamic sound of today.

The most AFFORDABLE

**DIGITAL CONSOLE
on the MARKET**

D-16

Analog and Digital Outputs

Rackmount Power Supply

**Accepts Analog, Digital &
SPDIF Inputs**

Any Input to Any Fader

Super Phone Feature

Routable Logic

4 Mic Preamps

16 Faders



With a **lower list price** the D-16 is even better suited for small to medium size stations that are ready to go DIGITAL.

 **AUDIOARTS® ENGINEERING**

Contact a Certified Dealer Today



RF Specialties®

Please check our website for the office nearest you.

www.rfspecialties.com



SCMS MAIN OFFICE:
1-800-438-6040



BSW MAIN OFFICE:
1-800-426-8434

Hybrid

► Continued from page 46

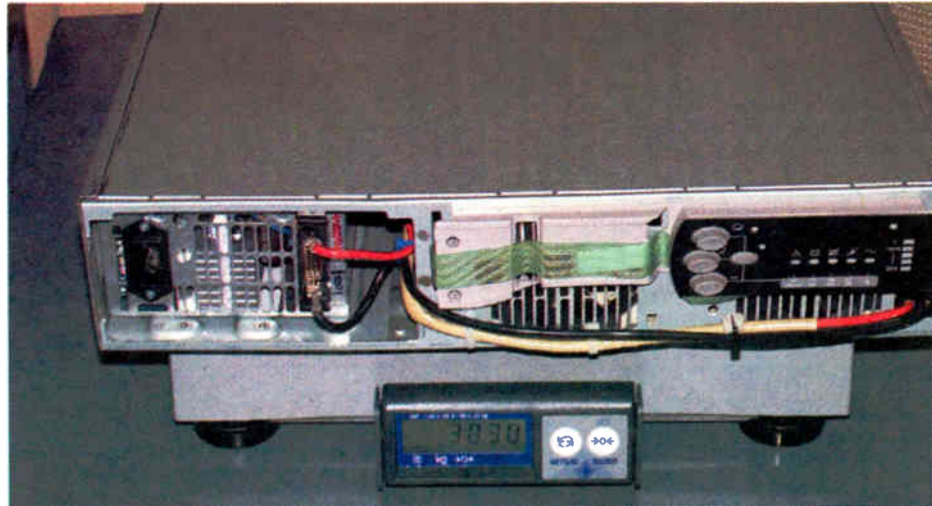
The PriUPS project uses a large (12kVA) UPS in my basement, and when there's a utility power failure I connect the Prius to it with welding cable. For portable usage, you are much more likely to simply need a standard 15Amp AC outlet to run the PA, power tools, illuminated signage, station uplinks, etc.

Wouldn't it be nice to be able to have your own resource, without either relying on the venue or needing a small gasoline generator that must be located in the next county to make the noise bearable?

If your station vehicle is a hybrid, here's how to provide your own power. It's easy and *cheap*!

The first step is to think of the car as having a big, always charged battery. In a normal 12V car, the engine runs continuously and turns the alternator to keep the battery charged. Horribly inefficient, but the 12V battery is always charged and you can plug an inverter in and get a few hundred watts before blowing a fuse. With the hybrid, the 12V battery is now 220V!

The Prius, for example, can deliver 3 kW continuously, and the internal combustion engine will only start up, typically on a 10–20 percent duty cycle, when needed to keep the battery charged. Want to run a big PA or to provide for motor starting surges? Although the 3 kW average is dictated by thermal considerations, you can easily take 50–100A from the battery, i.e., 10–20kW for peaks. Once you have access to the hybrid battery, everything is possible.



The final system! It supplies 115VAC at 1.3 kW (1500kVA) at a weight penalty of less than 40 pounds, and without any drain on the vehicle's low-voltage electrical system.

AM RF Systems...



without the surprises.



LBA Technology, Inc.

Reach Farther, Sound Better.SM

LBA Technology is your proven, worldwide supplier of HD radio ready AM antenna systems. Our array of RF products includes directional antenna systems, duplexers and triplexers, ATU's, and components for every power level. LBA systems are designed and custom fabricated to your distinct requirements.

We put our 40 years of AM RF experience into helping you reach farther and sound better! See what we can do for you at www.LBAGroup.com or call us at 252-757-0279

252.757.0279 • www.LBAGroup.com • 3400 Tupper Drive • Greenville, NC 27835

Convert

"Well, great," you say, "except my equipment runs on 115VAC, not 220VDC."

Don't be shocked but I might have actually considered this. It is, after all the key to the whole project.

Consider the following:

✓ Converting 230VAC to 24VDC or to 48VDC is the routine job of inexpensive and efficient switching supplies, such as those used in computer servers and telephone company "rectifier shelves," where they are used to keep telco batteries charged. In order to do this, they first must rectify the 230VAC to 230VDC to run the downconverter. By starting out with 220VDC, we're eliminating the middleman! In other words, many of these supplies will run on DC with little or no modification.

Converting 24VDC or 48VDC to 115VAC is the routine job of inexpensive and efficient computer UPS units. Units in the 1 to 2 kW class typically have 24V or 48V battery packs and can cost only a few hundred dollars even if bought new.

✓ Both as a proof of concept and as a convenient 115VAC outlet to have when needed, I picked up some hardware on eBay. The photos accompanying this article show my conversion of an HP/Compaq R1500XR, rated at 1500VA/1.3kW, to a UPS running from the Prius "traction battery." There is no need to imitate my system; you have many choices of usable hardware.

Here's what you should look for in the UPS:

1. A power rating around 1 to 2 kW. These will normally have either 24V or 48V battery packs. Make sure you check before you buy it so you can match it to the switcher.
2. "Cold start capability." You want to be able to start it from battery only, rather than having to plug it to AC power.

HD Conversion Digest

Get the inside track on HD technical questions with **Cris Alexander**.

Visit www.radioworld.com and click on the new **HD Conversion Digest** tab.



But where is it?

The Prius trunk floorboard can be removed to reveal a space large enough for the system and then some. Of course you can put it wherever you like. For permanent use it should be mounted securely, with the controls accessible, the air port clear and room to connect to the AC sockets. For casual use, just make sure it doesn't shift while driving. While it's only 38 pounds, it's still 38 pounds.



er first. Most units have this feature.

3. A way to disable the warning beeper. Since it will be running on "battery," it will always want to beep. As a last resort, you can simply find and disconnect the beeper.

4. If you can find a UPS with an external battery connector, it may be easier to attach to the switcher, and it will also tell you that the UPS is robust enough to run for a long period

5. Hint: You can frequently find a UPS without batteries for a fraction of the cost of one with good batteries. Or you might even ask the seller to just discard the batteries before shipping; this will make getting it to you much cheaper.

The downconverting switchers usually are sold in large quantities and even new ones are inexpensive, typically a few hundred dollars. "New" is therefore an alternative it you're not keen on eBay. Here's what you should look for in the switcher:

1. 24V/40A or 48V/20A or greater output. You can easily connect them in series if necessary, and you can usually connect them in parallel as well since many have provision for output power sharing. The total power should be commensurate with the requirements of the UPS.

2. 240VAC input. Most will work at this voltage, some will *only* work at this voltage. Try to check the manufacturer's specifications to confirm that they have power factor correction and a full wave bridge rectifier at the input.

3. Getting the right form factor so the supply can be inserted in the space vacated by the UPS batteries is a benefit.

4. Bonus: It's likely that a 230V unit will work with much higher battery voltages, such as those of the Toyota Highlander hybrid SUV, since they have to rectify high line (240V) plus a safety factor (1.2?) plus the RMS-to-Peak conversion (1.414), or about 400VDC.

The photos show the switcher and UPS combined in a single unit and ready to roll.

Selecting an "environmentally correct" hybrid vehicle for your station can be a boon for your corporate image. The practical benefits of great mileage and abundant power may tip the scale when making your decision.

The author is founder and chairman of Eventide Inc. Write to him at rcf@eventide.com.

Got a handy tip of your own? Tell us at radioworld@imaspub.com.


Your Best Move!

**Visit Us in Booth 414
at the NAB Radio Show**

Make ERI part of your Broadcast Strategy.

- Antennas
- Filters and Combining Systems
- Transmission Line and RF Components
- Broadcast Towers and Structural Products



ELECTRONICS RESEARCH, INC. ERI

Your Single Source for Broadcast Solutions™ • Call 877 ERI-LINE • Visit www.eriinc.com

FlashMic

THE WORLD'S FIRST
DIGITAL RECORDING MICROPHONE



**Forget tapes, discs,
cards and cables.
Just pick up a
FlashMic and go.**

Combining a broadcast-quality Flash recorder with a Sennheiser mic capsule, HHB's new FlashMic is perfect for interviewing, journalism and any type of voice recording.

One button press is all it takes to start recording in either linear or MPEG 2 formats. 1GB of built-in memory stores a massive 18 hours/999 tracks of recordings and it's easy and quick to transfer files for editing or onward transmission via FlashMic's built-in USB interface.

Power comes from standard AA batteries and the included FlashMic Manager software makes it easy for individual users or news organizations to configure single or multiple FlashMics for particular applications and file naming protocols.

FlashMic is all you need for broadcast-quality recording.

So just pick up a FlashMic and go.

www.flashmic.info



Distributed in the USA and Latin America by:

Sennheiser Electronic Corp.,

1 Enterprise Drive, Old Lyme, CT 06371 USA • Tel: 860-434-9190 • Fax: 860-434-1759 • www.hhbusa.com

Latin America: Telephone: 52-55-5639-0956 • Fax: 52-55-5639-9482

Distributed in Canada by HHB Canada: Tel: 416-867-9000 Fax: 416-867-1080

FlashMic shown actual size

Shared Towers, Brotherly Love

*Greater Media's WPEN in Philadelphia
Completes Decade-Long Signal Upgrade*

by Scott Fybush

It's a common complaint for AM broadcasters in the 21st century: trying to make a directional pattern designed in the 1940s serve a market that's sprawled out into suburbia and beyond.

At Greater Media's WPEN(AM), Philadelphia, the problem was especially severe.

"It's an old station ... with severe protection requirements to the northwest," said Milford "Smitty" Smith, vice president of engineering for Greater Media. Unfortunately for WPEN, the transmitter site it has used for more than six decades sits at the western edge of the city. When the 950 kHz station would switch from its 5,000-watt nondirectional day signal to its 5,000-watt directional night signal,

WPEN effectively vanished for hundreds of thousands of listeners along the "Main Line" (the wealthy older suburbs to the west) and in newer suburban areas to the northwest.

Site problem

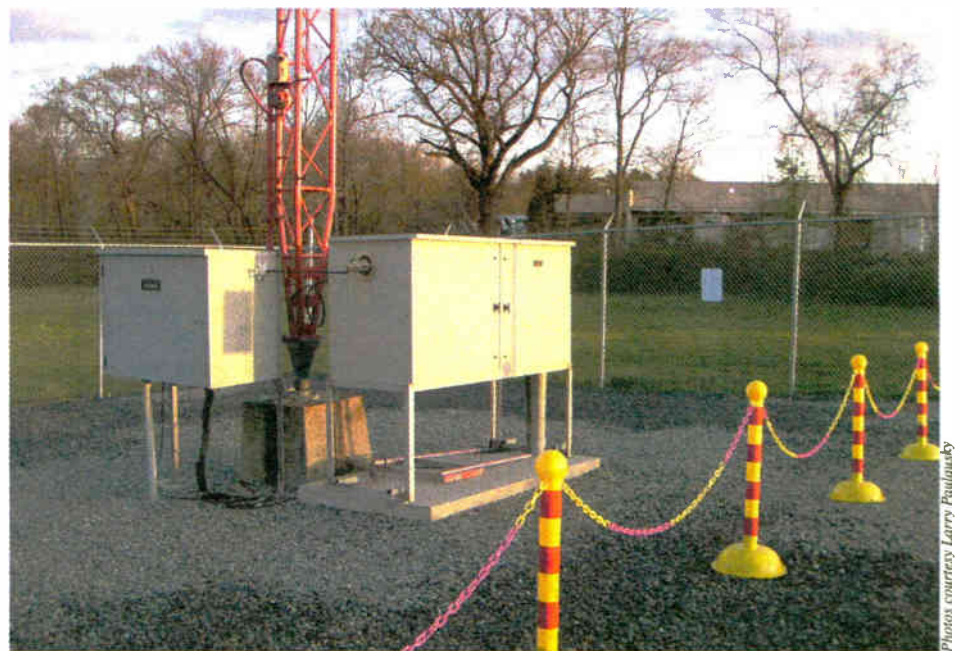
As far back as the mid-1990s, Greater Media was trying to solve WPEN's signal deficiencies.

"When the power limits came off on regional channels, we got a construction permit for 50,000 watts day and night," Smith said.

That turned out to be the easy part. Finding a suitable site on which to build the six towers that would have been required was much more of a challenge.

"We spent the better part of the last 10

See WPEN, page 54 ▶



The output of WWDB's antenna tuning unit, left, at 860 kHz now is intercepted by the new 950 ATU of WPEN; a switch inside the new box connects the tower to one ATU or the other.



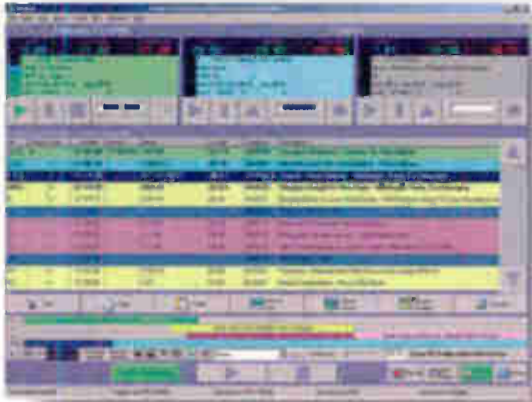
A look inside WPEN's ATU shows the 'station switch' contactor at left. There is a similar arrangement at each of the four towers. These contactors are controlled by a GPS clock system that connects the correct station to the tower at the licensed sunset and sunrise times each day.

Broadcast Software

1-888-274-8721

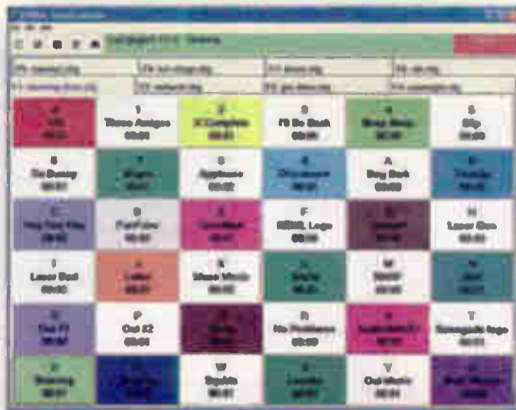
www.bsiusa.com

Radio Automation



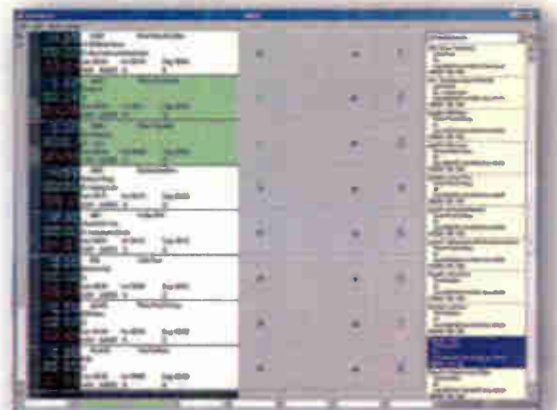
Simian - radio automation and digital playout system.

Instant Audio



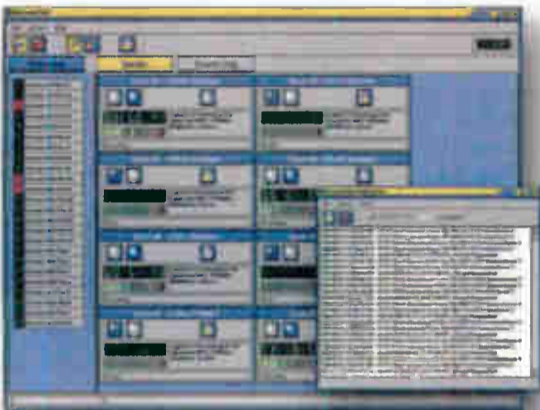
Stinger - Instant Access to 288 'rapid-fire' audio files.

Digital Cart Player



WaveCart - the original on-screen cart machine replacement.

Audio Logging



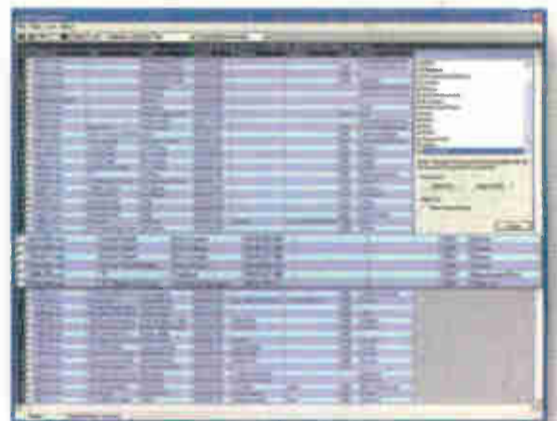
SkimmerPlus - skimming and audio logging with web playback.

Complete Systems



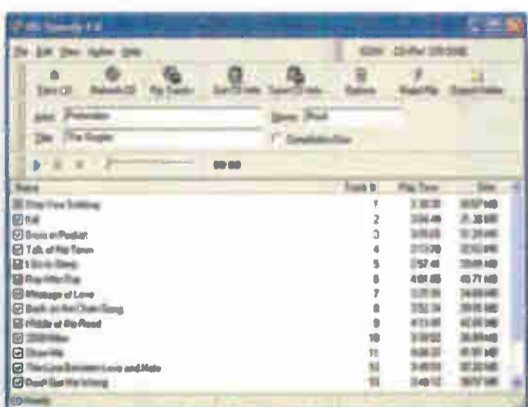
Systems - fully configured with hardware, software and music.

Music Library



MusicStore - select from over 48,000 ready-to-play songs.

CD Ripping



Speedy - fast CD ripping with automatic file tagging.

Sound Cards



AudioScience - professional sound cards built for broadcast.

Remote Control



Trigger & Relay Kits - for GPI/O and satellite operation.

Broadcast Software International

503 E. 11th Avenue

Eugene, Oregon 97401 USA

Direct: 541-338-8588

Fax: 541-338-8656

www.bsiusa.com sales@bsiusa.com



AMERICAN SHORTWAVE

The 'Isle of Dreams' Goes Shortwave

*In the 1930s, WIOD Launched W4XB
At 6040 kHz in the 49-Meter Band*

by Adrian M. Peterson

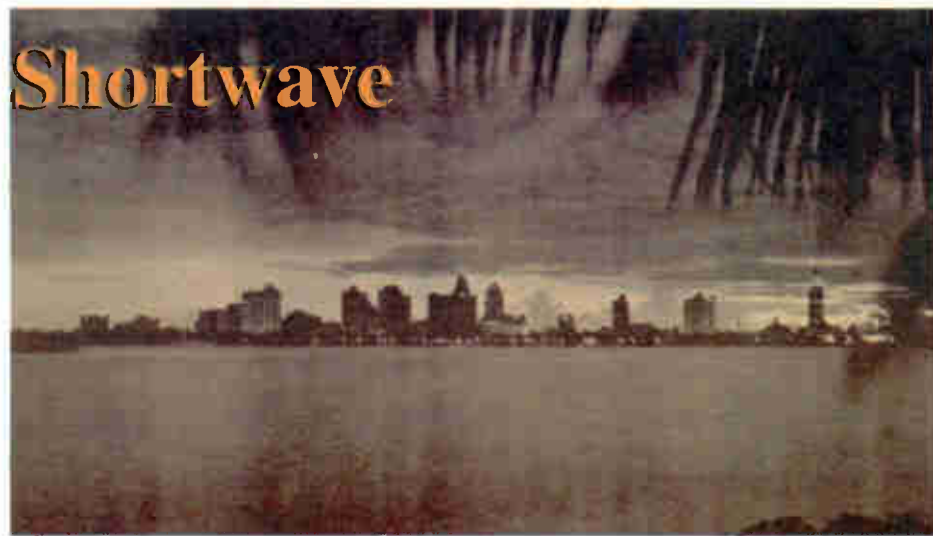
This is the first in an occasional series on the stories behind shortwave broadcasting stations in the United States and its territories; it is published in cooperation with the National Association of Shortwave Broadcasters. Some stations are gone and almost forgotten, others can be heard today.

Florida — vacation state for admiring tourists, winter haven for shivering north-

erners, holiday playground for traveling families, jumping-off destination for tour boat devotees — also has featured prominently in the international shortwave radio broadcasting scene.

Currently on the air is the large facility of Family Radio, with its 14 shortwave transmitters located a little north of Lake Okeechobee, as well as commercial station WRMI, with its two shortwave transmitters just north of Miami.

In earlier years, there was W4XB-



The Miami Beach skyline, circa 1939, is shown on a postcard from WIOD.

WDJM, the shortwave counterpart of AM station WIOD. Here's the tale of that operation.

Promotional

In the spring of 1925, Carl Fisher commenced construction of an AM medium-wave station on Collins Island in Miami Beach. He had built several luxury hotels in the new vacation area, which served as a winter haven for tourists from colder northern regions. The goal of the station was to publicize the tourist facilities on this sandspit between the Atlantic Ocean and Biscayne Bay.

A Western Electric WE106A transmitter, rated at 1 kW and tuned to 1210 kHz, was installed in a two-story building on Collins Island; it also housed studios and offices. The antenna towers were erected behind the main building, standing 250 feet and spaced 385 feet apart. The counterpoise ground system consisted of nearly 14 miles of wire buried in saltwater marshy areas.

Test broadcasts from the new WIOD were authorized by the Department of Commerce on Jan. 5, 1926, and the official license was dated four days later. A regular radio broadcasting service was commenced on Jan. 19, the second radio station in the Miami area. The call sign WIOD, as many Miami residents can tell you, stands for "Wonderful Isle of Dreams," an idyllic reference to Fisher's tourist area at Miami Beach.

Over the years, station WIOD has moved several times, with studios in the Fleetwood Hotel; the Miami Herald and Miami News Buildings; on Cameo Island; and in North Bay Village and Miramar. The transmitter and antennas have been moved on several occasions, from Collins Island, known later as Clauton Island, to a tower atop the Miami News Building.

It was common practice in those days to erect antenna masts on top of a tall building in an endeavor to gain greater height and therefore an extended coverage area. This practice was discarded after it was discovered that the poor grounding system of a tall building did not enhance the coverage area of a medium-wave transmitter. Thus WIOD's transmitter soon moved to Little Cameo Island.

Among the developments experienced by WIOD were changes in call sign from WIOD to WCKR and back again. Transmitter power, originally 1 kW, was increased to 5 kW in 1941 and to 10 kW in 1981. Likewise there have been several changes in frequency, seven in all, though the current channel, 610 kHz, has been in use since 1937.

Today, there are seven AM and FM stations clustered in the large studio complex

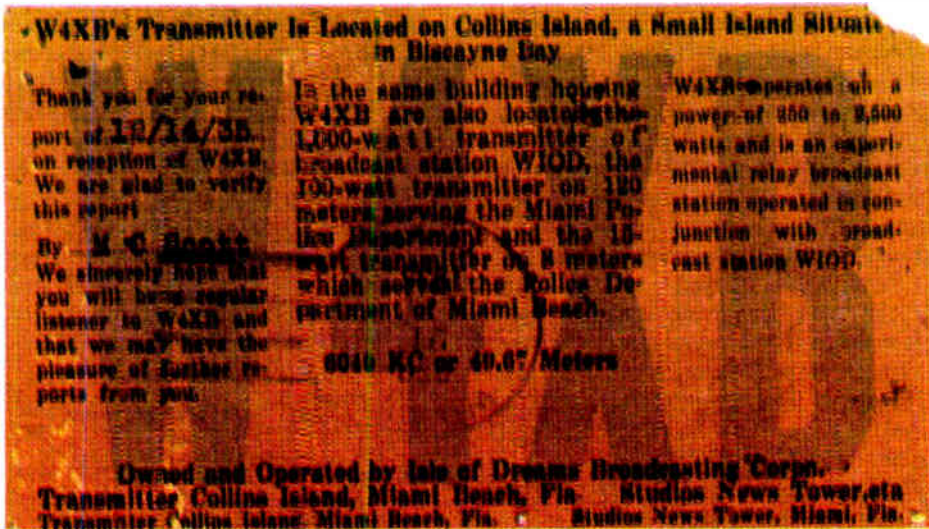
WE GIVE RADIO SUPER POWERS



YES.
REALLY.

Continental Electronics' 816HD FM offers the highest power transmitter on the market for low-level/combined digital HD and analog FM. The 816HD can deliver 28kW of power for the strongest, cleanest signal on the airwaves. And since the 816HD FM is built "Continental" tough, its performance and reliability will make you a superhero! For more information, call 800.733.5011 or visit our web site at www.contelec.com





Text side of postcard from shortwave station WIOD-W4XB during the earlier experimental period.

nance. Available information suggests the shortwave transmitter remained at the original WIOD location on Collins, or Clauton, Island. This land is long since gone, taken over by a highway and a hospital, with nearby marshy areas filled in.

The original call sign W4XB makes the station look like an amateur operation, but this was not the case. In that era, call signs with this type of configuration were looked upon as being experimental, as indicated by the X; they could be amateur or professional.

With armed conflict looming in Europe, federal licensing authorities required shortwave broadcasting stations in the United States to discard their experimental call signs and register regularized call signs, effective Sept. 1, 1939. Thus the shortwave unit operated by the "Wonderful Isle of Dreams," station W4XB,

became WDJM.

In another directive a few months later, the licensing authorities required that U.S. shortwave broadcasting stations operate at a power of 50 kW, or have submitted a CP for 50 kW, effective April 1, 1940. At this stage, WIOD decided to drop out of the international shortwave scene and concentrate on local coverage, AM and later FM. The final broadcast from shortwave WDJM, the usual relay from medium-wave WIOD, took place some time during the month of September 1940, and the transmitter quietly was switched off.

What was left of the two home-brew units, now combined into one 10 kW unit, was loaded onto a truck and taken up to Scituate, Mass., south of Boston. At station WRUL, the legendary Walter Lemmon reactivated the equipment a few weeks later

See W4XB page 54 ▶

at Miramar.

However, as far as the international broadcasting facility is concerned, its era of shortwave broadcasting is of greatest interest. Parallel relay of programming via shortwave would increase the coverage area of the AM medium-wave station, encouraging winter tourism and publicizing the vacation advantages to be found in Florida

In 1932, just six years after the medium-wave station launched, WIOD announced that a shortwave transmitter was under construction. This unit, assembled by the engineering staff, was inaugurated in July of that year, with programming in parallel with the medium-wave unit, which was on 1300 kHz at the time.

In 1932, just six years after the medium-wave station was launched, WIOD announced that a shortwave transmitter was under construction.

The new station, under call sign W4XB, was noted internationally soon afterwards, with test broadcasts in the 49-meter band. The shortwave station operated on 6040 kHz. The printed schedule for the new broadcast operation showed a few hours in the afternoons and evenings, with extended programming on Sundays.

Interestingly, in February of 1933, W4XB was noted in Australia, with test broadcasts in conjunction with Radio Manila in the Philippines. In those days, distant stations would observe a pre-arranged schedule for the purpose of exchanging live programs; thus listeners in Florida and throughout North America had the opportunity on this occasion of hearing radio programs from a distant country.

Short life

Throughout its lifetime, shortwave W4XB was on the air from the same transmitters — a pair of home-brew units at 5 kW — and always on the same channel. On occasions, it was off the air for extended periods of time due to what would be described as transmitter mainte-

WPEN

► Continued from page 50
years looking at one land deal after another," Smith recalled. "We must have gone through a half-dozen scenarios."

In the meantime, WPEN's signal issues were thrown into the spotlight when the station became the flagship for the Philadelphia Phillies in the 2002 season. Accustomed to the 50,000-watt nondirectional signal of longtime flagship WPHT (1210), Phillies fans protested loudly when they discovered that many of them simply couldn't hear the games.

The Phils moved back to WPHT several years later, but by then WPEN was pursuing other options to upgrade its signal by sharing space with existing sta-

tions that already had towers standing.

"It wasn't very long before we stumbled across WWDB's site," Smith said.

The Beasley-owned station, a daytimer at 860 on the dial, was in an ideal spot for WPEN's needs, with four towers some 20 miles northwest of center city Philadelphia in the suburb of East Norriton.

While the WWDB array "wasn't the optimum design that we would have used at the 50 kilowatt level, it allowed us to do a substantial increase," Smith said.

Greater Media quickly worked out an unusual arrangement with Beasley under which WPEN would share WWDB's towers without resorting to diplexing, which would have been a challenge with two stations as close in frequency as 860 and 950 are.

Under the agreement, WPEN remains at

its original site during the day. At sunset, moments after WWDB signs off, WPEN's signal switches to the East Norriton site, where it runs 21,000 watts into the four-tower array, putting some 125,000 watts of ERP into the main lobe, towards Philadelphia. A GPS-controlled switcher ensures that only one of the two stations is connected to the towers at any time.

Work on the project began in the middle of 2004, but was slowed a few months later when vandals sliced a guy wire and brought down one of WWDB's towers. The tower was rebuilt, and Greater Media continued with the task of replacing the site's ground system and building a new facility to operate alongside WWDB's existing transmission system.

Most of the work took place during the winter of 2004-05, in what Smith recalls as "just terrible conditions," but by sum-

mer of 2005 everything was in place, including a pair of Harris 3DX25 transmitters fed by two T1 paths and a 950 MHz microwave STL path, a 250 kW diesel generator and new antenna-tuning units at the base of each tower. (The existing ATUs for WWDB now feed into the new WPEN ATUs en route to the tower.)

Once WPEN was ready to begin proofing its new pattern, another challenge arose. Normally, proofing a night

Greater Media worked out an unusual arrangement with Beasley under which WPEN would share WWDB's towers without resorting to diplexing.

pattern is done during the day, but the site in East Norriton was very much in use during the day by WWDB.

WPEN asked the FCC for a waiver to do the proofing after dark, but it was denied. The solution turned out to involve building a temporary transmitter for WWDB at the old WPEN site.

During the day, WPEN uses only the center tower there, allowing WWDB to operate temporarily with a 1,000-watt nondirectional facility from one of the end towers while WPEN used the East Norriton site for proofing.

The new night signal signed on for real at the end of summer 2005. Ironically, it came just as Greater Media was announcing a major format change to WPEN, transforming what had been a "Real Oldies" outlet into a sports-talk station.

Smith says Greater Media isn't finished with WPEN yet. The company would still like to improve its day signal as well and is underway with a power increase to 25,000 watts, up from 5,000, at the current daytime (and former nighttime) site. He expects the station will be on air with the improved daytime facility this fall. 🌐

Audio processors for FM, AM and HD

Compared to O....,



100% the features,



100% the performance,



50% the cost.



The small processors with the big sound



www.audio-processor.com

W4XB

► Continued from page 53
and returned it to the air at its new location with 10 kW under a new call sign, WRUX.

During its somewhat spasmodic on-air operation over eight years, station W4XB-WDJM in Miami was heard throughout North America, Europe and the South Pacific. This pioneer shortwave station is long gone; only the oldest among us can remember the events as they occurred. These days, just about all that is known about the station can be seen in a few old, yellowed QSL cards and crinkled radio magazines.

Dr. Adrian M. Peterson is a board member of the National Association of Shortwave Broadcasters. Since 1944 he has since written several thousand articles on radio history, which have been published in 25 languages. He is an advisor to the program "Wavescan" and is coordinator of international relations for Adventist World Radio. 🌐



THE NAB RADIO SHOW®

NAB Radio Show Preview
Dallas, Sept. 19-22

Big Engineering Topics in the 'Big D'

by Scott Fybus

Everything's big in Texas — including the radio engineering.

North Texas boasts one of the nation's biggest AM directional arrays, the 12-tower night site of KFXR 1190, 25 miles east of Dallas in Rockwall; one of the biggest FM/TV antenna farms, at Cedar Hill; and a long history of engineering innovation that includes names like Marti and Continental.

During the NAB Radio Show, engineering sessions will bring together industry experts to discuss the ever-changing world of analog and digital radio.

Broadcast Electronics is sponsoring an afternoon event on Tuesday Sept. 19, from 2–5 p.m., focused on "HD Radio: All the Basics and More." It's divided into three hour-long sessions. NAB lists this as part of the convention, though an attendee badge is not required; the seminar is free and held at the Miro Room at the Hilton Anatole.

The first hour focuses on the "processes, pitfalls, strategies and successes" of HD Radio implementation to date and is intended for both non-technical and technical attendees. The second hour is about technical planning and realization, including current and future system architectures, and is aimed at engineers and decision-makers. The third is for engineers and covers "nuts and bolts" tech issues.

BE repeats its seminar Wednesday afternoon.

Attendee registration for the convention opens Tuesday at 4 p.m., and there is a "meet and greet" reception from 4 to 7.

The Wednesday, Sept. 20, convention schedule offers a day of technical presen-



Steve Davis of Clear Channel Radio looks at radio studio buildouts.



Product Manager Ted Lantz will participate in an HD Radio seminar offered by Broadcast Electronics.

tations sponsored by NAB in cooperation with SBE Dallas Chapter 67.

Morning presentations will include "Planning Considerations for Upgrading to HD," with Alan White, Continental Electronics broadcast product engineer; "Transmitter Installation, Setup and Tuning," with Richard Garrett, a field service manager with the company; and "System Verifications and Measurement Procedures," with Continental Vice President for Engineering Dan Dickey.



Dan Dickey of Continental speaks Wednesday on system verifications and measurement procedures.

On Wednesday afternoon, the SBE will give certification exams to candidates who have signed up in advance.

Buildout lessons

On Thursday morning, Sept. 21, the Radio Technology Forum kicks off with Geoffrey Mendenhall, vice president, radio engineering for Harris Broadcast Communications, speaking on "Real-



What: NAB Radio Show

Where: Hilton Anatole Hotel, Dallas

When: Sept. 19–22

How: www.nabradioshow.com

Who: 3,789 registered attendees at last year's Radio Show

How Much: NAB Members, full conference, \$495 before 9/15, \$595 after; spouses add \$100. Non-members are \$795/\$895. Marconi tickets not included.

Time Adaptive Correction" for HD Radio and DRM installations.

Steve Davis, Clear Channel Radio senior vice president, engineering, will share his recent experience on "Radio Studio Buildouts," a subject he says has changed considerably with the advent of digital networked audio systems.

"There's less equipment in the control rooms these days," Davis says of his company's recent projects, which have moved an increasing amount of gear to centralized rack rooms, leaving only control surfaces and microphones in the studios themselves.

"The typical radio station today, yes you have a live DJ," Davis says, "but he's playing music off an automation system, so why have all the servers in the studio?"

An increased focus on emergency preparedness is changing the face of studio

See TECH TOPICS, page 56 ▶

Ever wish you could just move the post?



Program logs can't map out the surprises in your broadcast day. But serving your listeners means getting severe weather bulletins, Amber alerts, and other breaking events on the air immediately.

Audio Time Manager lets you insert important, unplanned content into a network show and still have it end on time. No more make-goods. No more returning "already in progress." No loss of content. No listener whiplash!

If you can press two buttons, you can make extra time when you need it. With audio quality so transparent it will amaze you.

Move the post instead of crashing into it. Contact us and take Audio Time Manager for a test drive.



25-SEVEN SYSTEMS, INC. BOSTON, MA · (888)-257-2578 · WWW.25-SEVEN.COM

See us at NAB Radio Show Booth #322
World Radio History

Tech Topics

► Continued from page 55

design, too. Davis says generator and UPS capability has become standard in his company's buildouts, and there's more attention being paid to the ability to shift broadcast operations to remote backup sites in the event of a disaster.

Davis says the rollout of HD Radio multicasting has changed the way studio complexes are designed, with many production rooms doubling as studios for HD2 multicast signals.

"It's hard to look at the crystal ball and see how much studio involvement there will be" from multicast operations in the future, Davis said.

HD FM multicasting will again be on



Frank Foti of Omnia will explore 'Audio Processing in Transition.'

the agenda on Thursday afternoon, when the second half of the "Radio Technology Forum" begins with a discussion of "Networking and Link Issues When Implementing Multicasting," from Richard Hinkle, director of RF engineering at Broadcast Electronics.

The HD Radio transition encompasses AM, too, and J.S. Sellmeyer of Sellmeyer Engineering will share some of his "Adventures in AM IBOC Implementation," with a focus on the many factors that go into presenting an optimum load to the transmitter.

Before the audio gets to the transmitter, it needs processing, and the Thursday afternoon session will include a chance to learn from one of the industry's audio processing legends.

Frank Foti, president of Omnia Audio,



Doug Vernier of V-Soft Communications is slated to speak about HD Radio coverage issues.

will speak on "Audio Processing in Transition." He says many engineers are still struggling to make sense of the different processing required in the HD Radio environment.

"We've worked hard to demystify this stuff, but you'd be surprised at some of the inquiries we've received," he says, mentioning one recent station visit in which he found audio that had been processed for analog FM being fed to the HD Radio transmitter as well.

"We're a few years into this transition now," Foti said, "into a time when we have an opportunity and a forum" to help engineers learn all the basics of audio processing for HD Radio.

We've worked hard to demystify this stuff, but you'd be surprised at some of the inquiries we've received.

— Frank Foti on processing for digital

In addition to understanding the fundamentals of HD Radio processing, including proper levels and the often-challenging diversity delay, Foti says today's engineers have to come to terms with another reality: constant change.

"Whether you like it or not, we live in a coded world, and the people who develop these codecs are always working to improve them."

Reception

The afternoon will wrap up with discussion of the final link in the chain: signal reception. With his work for National Public Radio and its member stations, Doug Vernier of V-Soft Communications has been in the forefront of research on HD Radio coverage.

As more stations light up their HD signals, Vernier says a growing concern is the impact of digital signals on adjacent-channel analog reception.

"There's some concern about a number of rim-shot stations providing (ana-

See TECH TOPICS, page 57 ►

Keynote Address
Thursday, Sept. 21
10:30 am – 11:45 am
Keynote Address Sponsored by:
BMO Capital Markets

Keynote
Former Harley-Davidson Spokesman to Tell Radio to 'Make Some Noise'

Panelist
Arianna Huffington
Co-host of public radio's *Left, Right & Center*
HuffingtonPost.com

Panelist
Bill Taylor
Founding Editor *Fast Company*
Co-author *Mavericks at Work*

State of the Industry Address
David Rehr
President & CEO
NAB

Radio Luncheon
Wednesday, Sept. 20
12:30 pm – 2:00 pm
Luncheon Sponsored by:
ASCAP

Special Guest
Troy Aikman
Pro Football Hall-of-Famer,
Sports Analyst & Host, *Sporting News Radio*

NAB National Radio Award Recipient
David Kennedy
Former CEO
Susquehanna Media

Host
Big Boy
Big Boy's Neighborhood
Power 106
Los Angeles

Entertainment provided by broadcasters band, *The Formats*. Led by:
Steve Cropper
Legendary Blues Guitarist & BMI Songwriter

redefining radio

Includes Sessions at:

September 20 – 22, 2006
Hilton Anatole Hotel
Dallas, Texas

www.nabradioshow.com

THE NAB RADIO SHOW

TWO MAJOR EVENTS + ONE GREAT LOCATION
= THE MOST IMPORTANT WEEK IN RADIO



Harris is your end-to-end radio solution provider.

AM/FM Analog or HD Radio™ • Audio Consoles • Broadcast Studios

High Power AM • Systems and Service • Intraplex Transport

HD Radio™ is a trademark of iBiquity Digital Corporation

Harris PR&E NetWave console with optional networking. Available in 8-16-24 channel frames, all with fully modular construction.



FlexStar HDx exciter—the gold-standard for FM and FM-HD excitors, featuring RTAC (Real Time Adaptive Correction for best mask compliance) and Engine, the latest iBiquity platform in HD Radio.



ZX1000, 1 kW tri-mode FM/FM-HD or digital only transmitter. FM transmitters available from 250 W to 70 kW, in analog or HD Radio.



Destiny 3DX-50, 50 kW medium wave direct digital drive high efficiency, high reliability AM transmitter. AM transmitters from 1 kW to 2 megawatts, all fully compatible with HD Radio.

Imagine Harris transmitters... combined with legendary Orban audio processing.



OPTIMOD 9400-AM Digital

No-compromise, independent, multiband processing for analog AM and digital radio—in one box!

For over 20 years, OPTIMOD-AM has dominated the sound of major-market AM radio. Orban's new 9400 offers even better analog AM processing, while its unified analog and digital design substantially reduces costs compared to a two-box configuration.



www.orban.com

Contact Harris at 800-622-0022 or email autoconfirm@harris.com



assuredcommunications™

Government Systems • RF Comm • Broadcast • Microwave

www.harris.com

Dallas

► Continued from page 58

Dallas Cowboys, at a game against the Washington Redskins, 2401 East Airport Freeway, Irving, Texas, (214) 253-6060, www.dallascowboys.com.

History buffs can take a cab to **Dealey Plaza**, site of President John F. Kennedy's assassination. Shaded by Texas live oak trees, the Plaza seems frozen in time, preserving not only the Texas Book Depository, where Lee Harvey Oswald fired the fatal shots, but also the infamous "grassy knoll." Dealey Plaza is between Main and Commerce Streets in the historic West End. Tours are available of Oswald's sixth-floor perch in the depository. Find info about the **Sixth Floor Museum** at Dealey Plaza at www.jfk.org.

For a list of concerts, art exhibits, sports and other events happening during the week of the Radio Show, visit www.dallascvb.com/visitors and click on Event Calendar.

NAB Radio Show Exhibits

Exhibit Hours
 Wednesday, Sept. 20 2 p.m. – 8 p.m.
 Thursday, Sept. 21 9 a.m. – 5 p.m.

The following are exhibit booth numbers at the NAB Radio Show in Dallas. The list was provided by show organizers and was current at press time. Late registrants may not be listed. Check your on-site program for changes.

Company	Booth	Company	Booth
25-Seven Systems	322	LAN International	209A
ABC Radio Networks	621	LARGAN USA Inc.	522
AEQ	521	LEA International	423
Air Force Recruiting	619	Liquid Compass	427
Airshift Media Ltd.	227	Logitek Electronic Systems	314
APT-Audio Processing Technology	316	Mayah Communications	220
Arbitron	505	Media Audit, The	609
Armstrong Transmitter	714	Media Monitors LLC	720
Army National Guard	717	Media Professional Insurance	418
Arrakis Systems	814	MediaSpan Online Services	421
Audemat-Aztec	623	Megatrax Production Music Inc.	115
AudioScience Inc.	317	Micro Communications Inc.	320
Barix Technology Inc.	224	Microboards Technology	235
BIA Financial Network	516	Mid-Atlantic RF Systems	419
Bid4Spots.com	620	Moseley Associates Inc.	301
BMI	618	National Weather Service	818
Boulder Blimp Company	700	Nautel	205
Broadcast Electronics Inc.	305	Non-Stop Music	215
Broadcasters General Store	400	OMT	512
Burk Technology	519	Orban/CRL	413
Burli Software Inc.	201	Practical Promotions	827
Business TalkRadio Network	803	Prophet Systems Innovations	209
CHRSN Christian Hit Radio Sat. Network	819	PTEK	723
Cinital	125	Pulsecom	612
Coaxial Dynamics	817	Radian Communications Services	526
Communication Graphics Inc.	500	Radio Advertising Bureau	109
ComQuest Callout	805	Radio Express Inc.	108
Comrex	513	Radio Music License Committee	110
Continental Electronics	605	Radio Systems Inc.	300
D.A.V.I.D. Systems	206	Radio Traffic.com	820
Detail Management	420	Radio World/IMAS Publishing	104
Dielectric Communications	309	RadioAd	204
Digigram Inc.	217	Radiodifusion.com	327
dMarc from Google	705	Radyne-Tiernan-Xicom	716
DocSoft Inc.	527	RandySchell.com	614
Dolby Laboratories	318	RCS	722
DriveSavers Inc.	248	Rohde & Schwarz	321
ENCO Systems Inc.	616	Roll a Sign, Div. of Reef Industries	315
Energy-Onix	600	Sabre Towers	319
ERI-Electronics Research	414	Shively Labs	501
Exhibit Arts LLC	719	Sierra Automated Systems & Eng. Corp.	520
Federal Communications Commission	115	Stainless	426
Feed the Children	626	StreamtheWorld	811
FirstCom Music Inc.	701	Studer Soundcraft	219
Flip4Mac by Telestream	514	Superior Electric	202
Global Security Systems LLC	709	Telos Systems	208
Globalstor Data Corp.	105	TicketsNow	821
Harris Corp.	405	Tieline Technology	807
Hay House Inc.	221	USA Radio Network	223
Hippie Radio	809	Valcom Limited	601
IMAS Publishing	104	V-SOFT Communications	523
Inovonics Inc.	715	Warner Concept System	226
iSEERadio	323	Wheatstone Corp.	615
JAM Creative Productions Inc.	422	WideOrbit Inc.	627
Jampro Antennas/RF Systems Inc.	417	WireCAD	816
Klotz Digital Audio Sys.	326	WireReady NSI	800
KLZ Innovations Ltd.	718		

OMB FM TRANSMITTERS

All transmitter powers with the best quality price ratio

NEW EM 5000 S

- Solid-state FM 5 kW transmitter.
- Improved design with three independent 2 kW power amplifiers, exciter and control unit in one 19" rack cabinet.
- Redundant design.
- Record in memory of events and alarms.
- Programmable automatic power control as energy saving feature.
- Fold back SWR protection system.

OMB, the future of communication

MT/MR PLATINUM

- Studio to transmitter link system.
- Link transmitter with 20 W power output.
- Available in frequencies from 200 to 960 MHz supplied in 20 MHz bands.
- High stability oscillator.
- LCD screen display for parameter selection and readings as follows:
 - frequency (6 digits).
 - forward / reflected power.
 - modulation level.
 - pilot signal (19 KHz) sampling while in transmission.
- Audio inputs: mono balanced, stereo (MPX), and 3 SCA.
- Fold back SWR protection.

www.omb.com

OMB AMERICA
 telephone (305) 477-0973
 (305) 477-0974
 fax (305) 477-0611
 3100 NW 72nd Ave. Unit 112
 MIAMI, Florida 33122 USA
<http://www.omb.com>
usa@omb.com

OMB EUROPA
 sales and customer service
 telephone 976-504 696
 fax 976-463 170
 Avda. San Antonio, 41
 CUARTE DE HUERVA
 50410 Zaragoza, ESPAÑA
<http://www.omb.es>

factory
 telephone 976-503 580
 fax 976-503 855
 Camino de los Albares, 14
 CUARTE DE HUERVA
 50410 Zaragoza, ESPAÑA
europa@omb.com

Top Ten Reasons to affiliate your AM Radio Station with our Network.

#10: Money.

(and the other nine reasons aren't really that important)

If you own/operate an AM Radio Station (even a daytimer!) in a Top 150 Rated market and can commit four hours a day (Mon-Sat) to our programming, call 800-681-1053 today for an appointment to see us at the Radio Show in Dallas.

We're Clubnet Communications, and we offer quality programming by experienced owners/programmers, plus, we pay CASH for carriage!

Call 800-681-1053 for information

Tune in to a FREE Informational Webinar...

Audio-Over-IP

Wednesday • September 27, 2006 • 12-1 p.m. EDT

Addressing the reliability and benefits of audio over IP as a delivery method for radio

Hear and learn about professional audio-over-IP delivery from the perspective of industry experts, who will explore not only the benefits of this technology for radio, but what advances the future holds. And you don't even need to leave your desk!

HOST:

Bob Band
Channel Manager,
Harris Networking
Solutions



HOST:

Ted Nahil
Channel Manager,
Harris Networking
Solutions



MODERATOR:

Paul McLane
Editor in Chief,
Radio World U.S.



A panel of industry experts will join Bob, Ted and Paul, including:

- Josh Sparks, Head of Product and Service Development, VT Communications
- Vince Walisko, CEO, The Walisko Group
- Rob Speicher, VP Operations & Distribution Development, Clear Channel

Sponsored by:

HARRIS

Radio World

Register now for this important webinar at
<http://www.radioworld.com/webinars/2/>

Show Highlights

In addition to the sessions described in this section, here are selected highlights of the NAB Radio Show; for the full program visit www.nabradioshow.com.

Tuesday Sept. 19

Meet and Greet Reception
4-7 p.m.

Wednesday Sept. 20

Broadcast Financing 2006:
Transition to a New Era
Dickstein Shapiro
8-11 a.m.

Radio's Future: What Is
and What's Next
9-10:15 a.m.

HD Radio: State of the Union
10:30-11:45 a.m.

Radio Luncheon
Featuring Troy
Aikman and David
Kennedy
12:30-2 p.m.

Programming
HD Radio
2:15-3:30 p.m.

Text Messaging:
where u @?
2:15-3:30 p.m.

Opening Reception/
Blues in the Gazebo
5-9 p.m.



Red Pitcher accepts 2005 Small Market Station Marconi for WJBC.

Thursday Sept. 21

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

Opening up the Kimono:
Harnessing the Power of
Blogging
9-10:15 a.m.

State of Radio Sales
9-10:15 a.m.
Ken Schmidt, Keynote Address;
State of the Industry, NAB
President/CEO David Rehr
10:30-11:45 a.m.

Exhibit Hall Lunch
Noon-2:15 p.m.

The Power of Radio in the
Hispanic Community
3:30-4:30 p.m.

Marconi Radio Awards Dinner
& Show
6 p.m.-Midnight

Friday Sept. 22

Washington Insider Update
Breakfast
7:30-8:45 a.m.

Career Fair
9 a.m.-noon

Extreme Thinkers Super Session
10:30-11:45 a.m.

Tech Topics

► Continued from page 56

log) service in cities now, that may not be able to provide service in HD," he says.

Vernier says engineers are still learning about real-world interference issues in a world of mixed digital and analog.

"It's the analog that takes the hit," he says of situations where analog and HD signals on adjacent channels overlap.

Recent studies for the Corporation for Public Broadcasting are also changing some earlier ideas about the coverage range of FM digital signals. Vernier says operators of HD2 and HD3 subchannels are learning that they may enjoy solid, usable coverage only to their 93 or 94 dBu contours, a much smaller area than the typical 60 dBu contour for reliable AM coverage.



David Maxson of Broadcast Signal Lab will discuss the measurement of signal levels for AM and FM HD.

"That's a big concern for Class A stations," Vernier says, as well as for any stations hoping to build a reliable listener base for separate programming on HD2 and HD3 multicast subchannels.

The engineering sessions will conclude Friday with David Maxson, managing partner of Broadcast Signal Lab, presenting an in-depth look at measuring signal levels for AM and FM HD transmission, a topic that's of growing interest as engineers learn that their usual field-strength meters may need to give way to more sophisticated spectrum analyzers.

Maxson and Don Lockett are the authors of the "IBOC Handbook," to be published later this year by Focal Press.



all the audio and communications for broadcasters

BROADCAST AUDIO CONSOLES

EQUIPMENT FOR REMOTES



ARENA Console
Ultimate digital audio console.



BC 300
Analogue audio console with built-in telephone hybrid and power amplifier at incredibly low price.



BC 500
Cost effective analogue audio console with built-in digital telephone hybrid.



BC 2500
Top level analogue audio console.



PAW 120
Palm-size digital recorder. New and improved design.



Swing
Portable codec, audio mixer and telephone hybrid.



Eagle
ISDN audiocodec with phone hybrid capabilities at a great value!



Course
The COURSE, a 4-unit chassis, with control software and dual power supplies accommodates up to 10 communication boards: dual channel ISDN codec, Digital Hybrid (analog line) or V35/X21, and soon to be released IP codec.



TH 02
Digital telephone hybrid with frequency extender.

AEQ USA

Phone: +1 954-381-7999
Toll free: 1-800-728-8536 (US only)
e-mail: sales@aeqbroadcast.com

For more information please visit us at
www.aeqbroadcast.com

Dallas Is Cowboy Nouveau

by Jackie Broo

Dallas and its sister city Fort Worth offer a Southwestern version of ying and yang.

Dallas suddenly springs up from the plain with a glitzy skyline made famous from the 1980s television show and namesake, conveying a bold future-forward optimism. Fort Worth revels in its cowboy heritage by preserving and promoting its Wild West beginnings.

In the land that gave us toad stranglers, frozen margaritas, chicken fajitas, chili and oil gushers, the metropolitan area typifies the larger-than-life attitude of Texas citizens. The official slogan of the Dallas tourism board is "Live Large. Think Big!"

Dallas is the ninth-largest city in the United States by population. Arbitron puts the market as No. 5, with 4.7 million folks age 12+ in Dallas/Ft. Worth.

The city is known as a center for telecommunications, computer technology (Texas Instruments), banking and transportation. Dallas has a marvelous blend of old and new destinations for out-of-town guests.

Welcome to Cowtown

Fort Worth is affectionately called Cowtown by locals. The city was a major stop on one of the legendary cattle drive trails, the Chisholm Trail, and became

the world's second-largest cattle market. The Fort Worth Stockyards stand empty, but the area has become a national historic district with restaurants, museums, shopping and entertainment including venues like **Billy Bob's Texas Nightclub**, 2520 Rodeo Plaza, (817) 624-7117; **Cattlemen's Steakhouse**, 2458 N. Main Street, (817) 624-3945; and the historic **White Elephant Saloon**, 106 Exchange Ave., (817) 624-8273.

To catch a glimpse of real cowboys driving a herd of Longhorns, mosey on down to **Exchange Avenue in the Stockyards** for a twice-daily "drive" at 11:30 a.m. and 4 p.m. daily; call (817) 336-HERD or see www.fortworthherd.com. And if you're

itchin' to see a working cattle ranch firsthand, there are several in the area open for tours. Contact the Fort Worth Convention & Visitors Bureau at (800) 433-5747 for information.

Upscale with a capital U

For fabulous shopping, direct your feet to the one of one of the grand old department stores and major



Texas barbecue specialties like ribs and beef brisket are available around the city.



The Sixth Floor Museum in the former Texas Schoolbook Depository tells the story of the assassination of President Kennedy.

Photos courtesy Dallas Convention & Visitors Bureau

Steakhouse, 702 Ross Avenue, Dallas, (214) 744-3287, www.yoranchsteakhouse.com. The restaurant is modeled after lodge and chuck wagon of the actual Y.O. Ranch with prime aged beef and exotic meats like buffalo filet mignon.

Or try **Hoffbrau Steaks**, 311 N. Market Street, (214) 742-4663; **Truluck's** at 2401 McKinney Ave., (214) 220-2401; or **Dakota's Steakhouse**, 600 N. Akard Street, (214) 740-4001.

For well-heeled cowboys and cowgirls, the Dallas/Fort Worth area offers a number of nationally recognized and sophisticated dining establishments.

The granddaddy is the restaurant at **The Mansion on Turtle Creek**, 2821 Turtle Creek Blvd., (214) 559-2100, www.mansiononturtlecreek.com. A jacket is required, and tie recommended. It is located in the former palatial home of a Texas cotton magnate. Dishes include barbecued duck quesadillas with lime sour creme, venison tenderloin with persimmon sauce, barbecue-accented black-eyed peas and cowboy shrimp on white corn grits.

For more traditional gourmet fare, try the **French Room at the Adolphus Hotel**, 1321 Commerce Street, downtown, (214) 742-8200, www.hoteladolphus.com. The Zagat Survey named the French Room the number one hotel restaurant in the United States in April. Baroque décor. Jacket, no tie.

Hootin' and hollerin'

No one likes a good time more than Texans, so it is only fitting that the Dallas area offers more live music nightly than Nashville.

Among the more popular places are **Cowboys Red River Dance Hall and Saloon**, 10310 W. Technology Blvd., Dallas, (214) 352-1796; **Kempi's Nightclub**, located in the Hotel InterContinental, 15201 Dallas Parkway, (972) 386-6000; and **Ghostbar**, of the Palms, Las Vegas fame, at 2440 Victory Parkway, Dallas, (214) 397-4100.

For baseball fans, the **Texas Rangers** will be hosting the Seattle Mariners on Sept. 19-20 and the Cleveland Indians on Sept. 22; they play at Amerquest Field, 1000 Ballpark Way, Arlington, (817) 273-5100, www.texasrangers.com (the Wednesday of convention week is "96.3 KSCS Dollar Hot Dog Night.")

Or come to town a few days early and catch "America's Football Team," the

See DALLAS, page 60 ►

purveyor of luxury goods, **Neiman Marcus** (www.neimanmarcus.com), located in downtown Dallas at One Marcus Square on Main Street.

Remember to bring your American Express or plenty of money, as Neiman caters to cattle barons, oil tycoons and techie executives with upscale clothing, footwear, furniture, jewelry, beauty products, electronics and housewares.

Beef ma'm, just beef

Living along a former major stop of the aforementioned Chisholm Trail, local denizens take their beef seriously and their barbeque as almost a religion. Barbeque Texas style harkens back to the chuckwagon days when Cookie prepared rib-sticking fixins on a campfire after a hard day in the saddle. There was no time for slow smokin' the meat, so these culinary wizards came up with spice rubs for the beef brisket that was enhanced by the smoke of the hot coals of a mesquite fire.

Sample Texas barbeque at:

Risky's Barbeque, 300 Main Street, Fort Worth, (817) 877-3306, www.riskys.com. The meat as Risky's is hand-rubbed with Risky Dust and slow smoked for hours.

Sonny Bryan's Smokehouse, 302 North Market Street, Downtown Dallas, (214) 744-1610, www.sonnybryansbbq.com. Open since 1910, Bryan's has hosted celebrities and presidents for ribs, brisket, onion rings and a secret sauce.

Eddie Deen's Ranch at Downtown Dallas, 944 South Lamar, Dallas, (214) 741-4211, www.eddiedeen.com, promises an authentic Texas experience for barbeque (they've catered all over the world including President Bush's inauguration and the Republican National Convention).

Or if you crave beef in its purest essence, you can't wrong with such downtown steak destinations as **Y.O. Ranch**

"Who says
IP-Audio is
the future?"

"They do."

Some very well-known companies are embracing IP-Audio using Livewire™.



The Livewire logo is proof your new studio equipment can connect compatibly to IP networks for linear, high-resolution audio.

Livewire: professional networked audio over Ethernet.

© 2006 Axia Audio. Livewire™ TLS Corp.; all other marks™ their respective owners.





Harris is your end-to-end radio solution provider.

AM/FM Analog or HD Radio™ • Audio Consoles • Broadcast Studios

High Power AM • Systems and Service • Intraplex Transport

HD Radio™ is a trademark of iBiquity Digital Corporation

Harris PR&E NetWave console with optional networking. Available in 8-16-24 channel frames, all with fully modular construction.



FlexStar HDx exciter—the gold-standard for FM and FM-HD exciters, featuring RTAC (Real Time Adaptive Correction for best mask compliance) and Engine, the latest iBiquity platform in HD Radio.



ZX1000, 1 kW tri-mode FM/FM-HD or digital only transmitter. FM transmitters available from 250 W to 70 kW, in analog or HD Radio.



Destiny 3DX-50, 50 kW medium wave direct digital drive high efficiency, high reliability AM transmitter. AM transmitters from 1 kW to 2 megawatts, all fully compatible with HD Radio.

Imagine Harris transmitters... combined with legendary Orban audio processing.



OPTIMOD 9400-AM Digital

No-compromise, independent, multiband processing for analog AM and digital radio—in one box!

For over 20 years, OPTIMOD-AM has dominated the sound of major-market AM radio. Orban's new 9400 offers even better analog AM processing, while its unified analog and digital design substantially reduces costs compared to a two-box configuration.



www.orban.com

Contact Harris at 800-622-0022 or email autoconfirm@harris.com



assuredcommunications™

www.harris.com

Government Systems • RF Comm • Broadcast • Microwave

Dallas

► Continued from page 58

Dallas Cowboys, at a game against the Washington Redskins, 2401 East Airport Freeway, Irving, Texas, (214) 253-6060, www.dallascowboys.com.

History buffs can take a cab to Dealey Plaza, site of President John F. Kennedy's assassination. Shaded by Texas live oak trees, the Plaza seems frozen in time, preserving not only the Texas Book Depository, where Lee Harvey Oswald fired the fatal shots, but also the infamous "grassy knoll." Dealey Plaza is between Main and Commerce Streets in the historic West End. Tours are available of Oswald's sixth-floor perch in the depository. Find info about the Sixth Floor Museum at Dealey Plaza at www.jfk.org.

For a list of concerts, art exhibits, sports and other events happening during the week of the Radio Show, visit www.dallascvb.com/visitors and click on Event Calendar.



The following are exhibit booth numbers at the NAB Radio Show in Dallas. The list was provided by show organizers and was current at press time. Late registrants may not be listed. Check your on-site program for changes.

Company	Booth	Company	Booth
25-Seven Systems	322	LAN International	209A
ABC Radio Networks	621	LARCAN USA Inc.	522
AEQ	521	LEA International	423
Air Force Recruiting	619	Liquid Compass	427
Airshift Media Ltd.	227	Logitek Electronic Systems	314
APT-Audio Processing Technology	316	Mayah Communications	220
Arbitron	505	Media Audit, The	609
Armstrong Transmitter	714	Media Monitors LLC	720
Army National Guard	717	Media Professional Insurance	418
Arrakis Systems	814	MediaSpan Online Services	421
Audemat-Aztec	623	Megatrax Production Music Inc.	115
AudioScience Inc.	317	Micro Communications Inc.	320
Barix Technology Inc.	224	Microboards Technology	235
BIA Financial Network	516	Mid-Atlantic RF Systems	419
Bid4Spots.com	620	Moseley Associates Inc.	301
BMI	618	National Weather Service	818
Boulder Blimp Company	700	Nautel	205
Broadcast Electronics Inc.	305	Non-Stop Music	215
Broadcasters General Store	400	OMT	512
Burk Technology	519	Orban/CRL	413
Burli Software Inc.	201	Practical Promotions	827
Business TalkRadio Network	803	Prophet Systems Innovations	209
CHRSN Christian Hit Radio Sat. Network	819	PTEK	723
Cinital	125	Pulsecom	612
Coaxial Dynamics	817	Radian Communications Services	526
Communication Graphics Inc.	500	Radio Advertising Bureau	109
ComQuest Callout	805	Radio Express Inc.	108
Comrex	513	Radio Music License Committee	110
Continental Electronics	605	Radio Systems Inc.	300
D.A.V.I.D. Systems	206	Radio Traffic.com	820
Detail Management	420	Radio World/IMAS Publishing	104
Dielectric Communications	309	RadioAd	204
Digram Inc.	217	Radiodifusion.com	327
dMarc from Google	705	Radyne-Tiernan-Xicom	716
DocSoft Inc.	527	RandySchell.com	614
Dolby Laboratories	318	RCS	722
DriveSavers Inc.	248	Rohde & Schwarz	321
ENCO Systems Inc.	616	Roll a Sign, Div. of Reef Industries	315
Energy-Onix	600	Sabre Towers	319
ERI-Electronics Research	414	Shively Labs	501
Exhibit Arts LLC	719	Sierra Automated Systems & Eng. Corp.	520
Federal Communications Commission	115	Stainless	426
Feed the Children	626	StreamtheWorld	811
FirstCom Music Inc.	701	Studer Soundcraft	219
Flip4Mac by Telestream	514	Superior Electric	202
Global Security Systems LLC	709	Telos Systems	208
Globalstor Data Corp.	105	TicketsNow	821
Harris Corp.	405	Tieline Technology	807
Hay House Inc.	221	USA Radio Network	223
Hippie Radio	809	Valcom Limited	601
IMAS Publishing	104	V-SOFT Communications	523
Inovonics Inc.	715	Warner Concept System	226
iSEEradio	323	Wheatstone Corp.	615
JAM Creative Productions Inc.	422	WideOrbit Inc.	627
Jampro Antennas/RF Systems Inc.	417	WireCAD	816
Klotz Digital Audio Sys.	326	WireReady NSI	800
KLZ Innovations Ltd.	718		

OMB FM TRANSMITTERS

All transmitter powers with the best quality price ratio

NEW EM 5000 S

- Solid-state FM 5 kW transmitter.
- Improved design with three independent 2 kW power amplifiers, exciter and control unit in one 19" rack cabinet.
- Redundant design.
- Record in memory of events and alarms.
- Programmable automatic power control as energy saving feature.
- Fold back SWR protection system.

OMB, the future of communication

MT/MR PLATINUM

- Studio to transmitter link system.
- Link transmitter with 20 W power output.
- Available in frequencies from 200 to 960 MHz supplied in 20 MHz bands.
- High stability oscillator.
- LCD screen display for parameter selection and readings as follows:
 - frequency (6 digits).
 - forward / reflected power.
 - modulation level.
 - pilot signal (19 KHz) sampling while in transmission.
- Audio inputs: mono balanced, stereo (MPX), and 3 SCA.
- Fold back SWR protection.

www.omb.com

OMB AMERICA

telephone (305) 477-0973
(305) 477-0974
fax (305) 477-0611
3100 NW 72nd Ave. Unit 112
MIAMI, Florida 33122 USA
<http://www.omb.com>
usa@omb.com

OMB EUROPA

sales and customer service telephone 976-504 696 fax 976-463 170
factory telephone 976-503 580 fax 976-503 855
Avda. San Antonio, 41 Camino de los Albares, 14
CUARTE DE HUERVA CUARTE DE HUERVA
50410 Zaragoza, ESPAÑA 50410 Zaragoza, ESPAÑA
<http://www.omb.es>
europa@omb.com

Top Ten Reasons to affiliate your AM Radio Station with our Network.

#10: Money.

(and the other nine reasons aren't really that important)

If you own/operate an AM Radio Station (even a daytimer!) in a Top 150 Rated market and can commit four hours a day (Mon-Sat) to our programming, call 800-681-1053 today for an appointment to see us at the Radio Show in Dallas.

We're Clubnet Communications, and we offer quality programming by experienced owners/programmers, plus, we pay CASH for carriage!

Call 800-681-1053 for information

Tune in to a **FREE** Informational Webinar...

Audio-Over-IP

Wednesday • September 27, 2006 • 12-1 p.m. EDT

Addressing the reliability and benefits of audio over IP as a delivery method for radio

Hear and learn about professional audio-over-IP delivery from the perspective of industry experts, who will explore not only the benefits of this technology for radio, but what advances the future holds. And you don't even need to leave your desk!

HOST:
Bob Band
Channel Manager,
Harris Networking
Solutions



HOST:
Ted Nahil
Channel Manager,
Harris Networking
Solutions



MODERATOR:
Paul McLane
Editor in Chief,
Radio World U.S.



A panel of industry experts will join Bob, Ted and Paul, including:

- Josh Sparks, Head of Product and Service Development, VT Communications
- Vince Walisko, CEO, The Walisko Group
- Rob Speicher, VP Operations & Distribution Development, Clear Channel

Sponsored by:

HARRIS

Radio World

Register now for this important webinar at
<http://www.radioworld.com/webinars/2/>

Suppliers Look Forward to Dallas NAB

by Ken R.

According to a randomly contacted group of manufacturers who will be showing wares at the NAB Radio Show, today's broadcast buying climate falls along the spectrum between subdued and very optimistic. Buying activity seems tilted toward the transmission end of things — perhaps not surprisingly, given the emphasis on digital radio at some organizations.

Elaine Jones, president of an eponymous public relations firm, is spokeswoman for Logitek Electronic Systems, based in Texas. Jones said transmission gear clearly is a major focus for buyers right now. "The market is slanted to HD

Massachusetts-based Burk Technology President Peter Burk believes remote facility control is an area of continuing interest to engineers. "It can increase efficiency by automating data collection and reducing trips to the transmitter, so it's not hard to prove the return on investment benefits," he said. "Customers are receptive to that."

ENCO Systems offers station and network-wide automation systems; Vice President of Sales and Marketing Don Backus described the buying mood as "practical."

"People are not interested in frills," he said. "They are filling needs and buying to accomplish very specific tasks."

Kris Bobo, vice president of develop-

Suppliers face a different selling challenge than they did before 10 years of consolidation shuffled the broadcast deck.

"The larger the company, the more standardized the buying," said Garardo Vargas, manager of AEQ, which has its U.S. offices in Florida. "It's more difficult to sell to a centralized company because when we knock on their door, they may have already made a decision for X or Y product line or model."

Comrex's Bobo agrees.

"It's group-specific," she said. "Some radio buyers do things the way they always did, but some are aggressively driven to get a price advantage, mostly the larger groups which have very effective buyers."

changing with the introduction of these large organizations but when it comes down to it, it is still people doing business with people."

The next big thing

Demand for floor space at this year's NAB Radio Show meant that the available booths were sold out in August, with 113 exhibitors signed up.

"I don't know exactly what I'm going to see at the other booths in Dallas, but the way live audio is captured is going to be exciting over the next couple of years due to IP technology," said Bobo. "We're going to see that it will be easier to get content back from remote locations. Before we sold our first POTS codecs, a lot of smaller events weren't covered, or they were covered with poor quality. Technology drives content. The sky is the limit."



Don Backus, ENCO



Kris Bobo, Comrex



Johannes Rietschel, Barix



Phil Owens, Wheatstone



Larry Howard, Klotz

implementation, with growth in that area and decreased spending in all others," she said.

At New Jersey-based Radio Systems Inc., Sales Administrator Jo-Ann Dunn is attuned to changes in the marketplace. "Buyers are a little hesitant," she said. "Part of the reason is that their budgets have been cut. They're just watching what they spend their money on."

David Allen is director of broadcast sales for Shively Labs in Maine; he sees an energetic market. "We're quoting a lot of projects which will happen in the very near future," he said. "Clients are in the process of finalizing their details. We're expanding our product line to market smaller, low-power filters for HD Radio."

ment at Massachusetts-based Comrex, said business has been good and that she is upbeat going into the show.

"Radio stations are spending money on HD Radio and IP technologies," she said. "The world is transitioning away from traditional telephony so it's a time of huge growth for us."

Selling in today's world

Barix Technology Inc., a company that specializes in IP-based audio, intercom and control/monitoring, seems well positioned for today's market. CEO Johannes Rietschel said his products are attracting attention because they can replace leased lines or satellite links, allowing stations get a quick payback on investment.

Wheatstone Sales Engineer Phil Owens also said mergers and consolidations have changed the business.

"As more stations are added to groups, corporate directors of engineering are seeing the advantage of not having to reinvent the wheel for each build," he said. "As a result we see increased interaction at the corporate level and standardized packages for various groups."

The constant in the selling process is still the human element, according to Larry Howard, sales director at Klotz Digital Audio, with U.S. offices in Georgia.

"Organizations tend to change but relationships with people last a long time," he said. "We see buying habits

Elaine Jones expects to see more HD gadgets, especially second-channel implementation products. Others agree.

"We'll see a lot of HD Radio stuff, but will it catch on with the consumer?" said Dunn of Radio Systems. "Every convention is pushing it; but I talk to friends of mine about HD and they say, 'Huh?' The average person doesn't have a clue."

Backus of ENCO is excited by what other companies are doing with IP technology.

"Instead of thinking outside the box, you have to understand that now there is no box," he said.

What is the business climate like at your company? Tell us at radioworld@imaspub.com.

Radio Service, Local Style

What earns a Marconi nomination? Here are excerpts of how finalists for Small-Market Station of the Year described themselves to NAB:

KGMI(AM), Bellingham, Wash.

"Although we have no Arbitron service, KGMI's morning news team provides the professional yet personable coverage you would expect in a major city — underscored by the team's receipt of the latest Edward R. Murrow award for Best Newscast in the five-state northwest region. As a community leader, KGMI stepped in when residents complained of no recognition for local veterans who had died serving our country. KGMI conceived, designed and built an expansive granite memorial plaza in 2005 through \$165,000 in donations. ... KGMI mounted an intense weeklong food drive and collected a record-shattering 154,000 pounds. These special efforts occurred while KGMI continued to provide extensive news coverage of

critical issues as well as five hours of provocative local talk shows each weekday."

KMBQ(FM), Wasilla, Alaska

"With 17 strong signals in our market including three powerhouse clusters ... KMBQ [is] the only locally owned stand-alone. We have been the #1 listened-to radio station adults 25-54 for 6 years; in 2005 our listenership increased by 36% 25-54 and 56% adults 18-54 also #1. In November 2005 KMBQ was the most awarded radio station for the entire state of Alaska at the Alaska Broadcasters Association ... including the coveted Best Radio News award.

"KMBQ 99.7 FM was 2001 Finalist NAB Marconi AC Station of the year, losing to WALK(FM) New York, and since, have doubled our staff to 19, and originate all our programming locally. ..."

KOFM(FM), Enid, Okla.

"KOFM is local 24 hours a day. We have fully staffed news and sports departments. Our staff has donated over 8,000 hours and over \$10,000 towards non-profit agencies & events and hosted over 300 on-air guests.

Ratings: 3.1 share Spring 2005 to 13.1 share for Fall 2005. #1 all day parts! Sales: Increased by double digits during past year with no turnover in department! ... Entire sales staff & GM earned the CRMC from RAB, Sales Manager earned CRME (1 of 27), GM earned 2nd degree in computers, three graduated Dale Carnegie, GM graduated Leadership Enid, Emceed national Pay-Per-View event and training is ongoing with the entire staff."

WCHS(AM), Charleston, W.Va.

"During 2005, WCHS(AM) coverage helped scrap a plan by the BRAC Commission to realign a hometown Air National Guard Base. ... Following Hurricane Katrina, WCHS was the first to stage a fundraiser, collecting \$135,000 from listeners in a daylong broadcast held in conjunction with the Red Cross. WCHS broke the Sago and Aracoma Mine Disaster stories and had the first live report from Sago. ... WCHS raised \$80,000 for the Sago Mine Relief Fund. The station's staff of 20 has an unmatched commitment to news, talk and sports with hourly local news, local talk

shows and play-by-play broadcasts of area high school sports."

WYCT(FM), Pensacola, Fla.

"WYCT signed on in 2003, the culmination of our owner's dream: to operate a community-serving, entertaining, informative station. In Cat Country's short life, we're there! WYCT's ratings moved from zero to market leader by delivering quality broadcasting with civic consciousness. 10,400 PSAs and 350 hours of live events dedicated to community; three 'hurricane-rebuilding' concerts raising \$1 million+, sponsoring the largest July 4th celebration on the Gulf Coast. From charity walks and 'mullet-tosses' to 800 kids learning to fish and 1,200 bikers riding for kids, Cat Country has been there.

"Pensacola is a military town and commitment to our troops is paramount. When our 842nd Army Reserve was called to Iraq, we sent our own embedded reporter on their deployment, telling their stories ..."

This text and other finalist submissions are available at www.nab.org/radio/awards.

MARKET PROFILE

Making Radio on Golden Pond

Tourism Dominates the Landscape in New Hampshire's Concord & Lakes Region

by Donna L. Halper

If you were to mention New Hampshire to most people, chances are they wouldn't think of radio.

Perhaps they might think of politics, given that an important presidential primary takes place in the Granite State. But for thousands of people who visit each year, New Hampshire is synonymous with tourism. Among the most popular destinations for folks who love the outdoors is the Lakes Region. The area's natural beauty was on display in the 1981 movie "On Golden Pond," filmed on Squam Lake, one of approximately 270 lakes and ponds in the region.

New Hampshire, though, also is home to several radio markets including an unusual one that Arbitron calls "Concord and the Lakes Region." It's market No. 169, but that doesn't tell the whole story.

Cooper Fox, program director of locally owned WVMJ(FM), Magic 104, in North Conway, says, "The [problem] is that the survey area for our market is so large that none of the stations cover the entire area."

He's not exaggerating. A look at the ratings for the Lakes Region book finds that stations from southern New Hampshire, northern New Hampshire and even Portland, Maine, show up. One station consistently in the top three is Clear Channel's WGIR(FM), Rock 101. Located in Manchester in the southern part of the state, it's nearly 100 miles from where Cooper Fox works.

In order to compete, some stations simulcast from various locations. For example, the perennial ratings champ, country station WOKQ, owned by

Broadcast consultant Clark Smidt observes, "New Hampshire radio has a lot of people with Boston experience."



Anthony Schinella, CEO/PD of WKXL(AM), helps Tony Giunta, former mayor of Franklin, N.H., set up for the first live broadcast of his program, 'Coming to America: Stories of New Hampshire's Immigrants,' which runs every other Thursday.

Citadel Broadcasting, is at 97.5 MHz and licensed to Dover; but it also has sister station WPKQ at 103.7, licensed to North Conway. Nassau Broadcasting's classic rocker WWHQ The Hawk, at 101.5, is licensed to Meredith, while WWHK at 102.3 is licensed to Concord.

Something else about the Lakes region: Many announcers, rather than hoping to step up from a small city like Concord or Laconia to a major market, prefer to go the other way; they've left the big market to work in New Hampshire.

That means many of the jocks have a major-market sound even if they are in market 169.

Smidt understands why people from the big city fall in love with the Lakes region; he is a good example. He spent many years in Boston as a successful PD, became a consultant and in 1989 bought a station here, Oldies 99, WNNH(FM).

Citing localism

Like many small and medium markets, Concord and the Lakes Region has been affected by media consolidation.

As recently as a decade ago, companies with local roots such as Sconnix and Fuller-Jeffrey were still running stations. Some local owners had been in the market for many years. These days, the market is dominated by several large groups.

Las Vegas-based Citadel Broadcasting owns top-rated country station WOKQ as well as several other stations in the state. The other major presence is Nassau Broadcasting, based in New Jersey, which began buying stations here in 2004. Among those it purchased was Smidt's oldies station; in total, Nassau owns 11 outlets in the state, airing such formats as country, classic rock, top 40, hot AC and news/talk.

Broadcasters here continue to cite localism as a trait of the market.

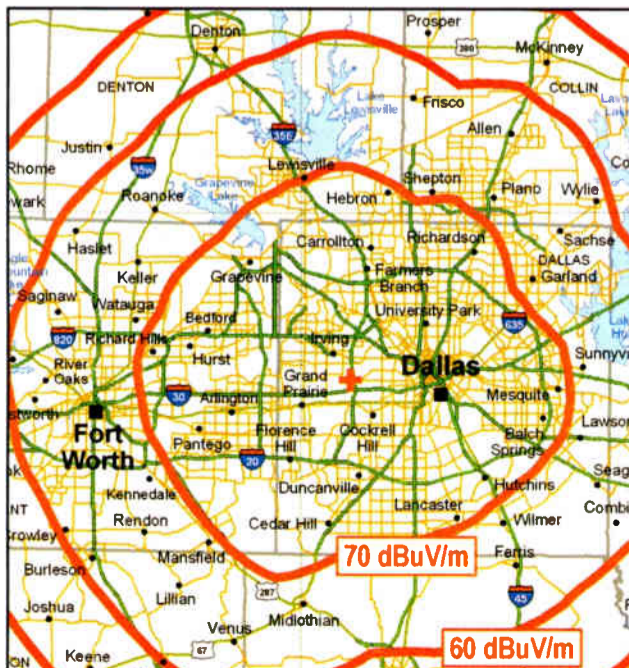
According to Mark Ericson, New Hampshire's operations manager for Citadel, the firm's commitment to community service, charitable giving and involvement in local causes has not changed. Nor has media consolidation diminished the influence of perennial market leader WOKQ, which Citadel acquired in 1999. In the most recent Arbitron book, once again WOKQ was No. 1 in listeners 12+.

Ericson is a long-time radio junkie whose broadcasting career began when he was 15. He goes back to the days of previous owner Fuller-Jeffrey.

"We've had remarkable stability. It's rare in our business," says Ericson, who notes that some WOKQ staff members have been with the station for several decades. WOKQ uses slogans like "Great Mornings and Country Favorites" and "New England's Best Country." Their morning team, led by Mark Ericson and Danielle Carrier, has won numerous local awards.

WOKQ has been widely honored, most recently as Station of the Year by New Hampshire Magazine. But staying tops in the Lakes Region isn't easy, even for a heritage station. "Because we don't have a lot of [local] TV, and there's not a

See CONCORD, page 66 ▶



Map the Details of Your Station

Visit Booth 516 at the NAB Radio Show to win \$150 towards a customized map.

Dataworld makes it simple for you to have a "picture" of your station. Choose a variety of data layers (such as ethnic populations, demographics, boundary data and more) to show the exact information you want.

Dataworld's customized maps are effective for:

- Corporate promotion
- Identifying market opportunities
- Assessing audience demographics
- FCC Compliance



For more information, visit www.bia.com/contourmaps.html

76 Commissioners, 76 Personalities

by Kim Zarkin

One of the most entertaining parts of writing a book on the Federal Communications Commission was researching the interesting characters who have been commissioners.

Sixty-five men and eleven women have served since 1934. There have been nine minority commissioners, including one Asian American, three Hispanic Americans and five African Americans. The average age at which the commissioners were appointed was 45.9. Three commissioners were appointed at the youngest age of 32. The oldest was appointed when he was 64.

There have been 39 Democrats, 35 Republicans and two independents. In the realm of education, there have been three commissioners with Ph.D.s and four who held master's degrees. Forty-eight of the commissioners had some type of legal education.

Fifty-nine had no prior experience at the commission. Fifty-four of the commissioners were serving in some form of local, state or federal government position before being appointed, including three members of the House of Representatives and two governors. The majority of those who came from outside the government were lawyers in private practice.

So who are these people?

Lee and Lee

Some are interesting because of what they did before they joined the FCC.

For example, H. Rex Lee (1968-73) spent six years as the governor of American Samoa. He used educational television to revolutionize and modernize that country.

Robert E. Lee (1953-81) was the longest-serving commissioner at 28 years. Before joining the FCC, he was an FBI agent and an administrative assistant to J. Edgar Hoover. He was also a close personal friend of Sen. Joe McCarthy, a relationship that was one of the dominant concerns at Lee's confirmation hearing.

Another long-serving commissioner was Robert Bartley (1952-72), a man who owed his career in government partly to the fact that his uncle was Speaker of the House Sam Rayburn. In later years, Bartley advocated dismantling the commission because of its inability to keep up with changing technology. He also argued that in order to prevent too much industry influence, commissioners should only serve a single 15-year term.

Some commissioners have attracted public attention for their media habits. Rachelle Chong (1994-97) reveled in her enjoyment of media and was known for wearing a Star Trek "Federation" pin on her business suits. Her replacement, Harold Furchtgott-Roth (1997-2001), other the other hand, was famous for having five small children but no television set at the time of his appointment.

While everyone remembers when

Newton Minow (1961-63) referred to television as a "vast wasteland," not everyone remembers the sentiments of his replacement. Lee Loevinger (1963-68) was appointed by President Kennedy to fill out the remainder of Minow's term; he publicly called television an "idiot box" and refused to buy a set until his daughter could read the front page of *The New York Times* without making a mistake.

But Loevinger also viewed attempts to regulate the quality of television as elitist. He is famous for remarking, "Television is the golden goose that lays scrambled eggs, and it is futile and probably fatal to beat it for not laying caviar. Anyway,

more people like scrambled eggs than caviar." He also said, "It seems to me that television is the literature of the illiterate; the culture of the lowbrow; the wealth of the poor; the privilege of the underprivileged; the exclusive club of the excluded masses." In a nod to the man he replaced, he said, "One man's vast wasteland is another's verdant vineyard."

Hennock

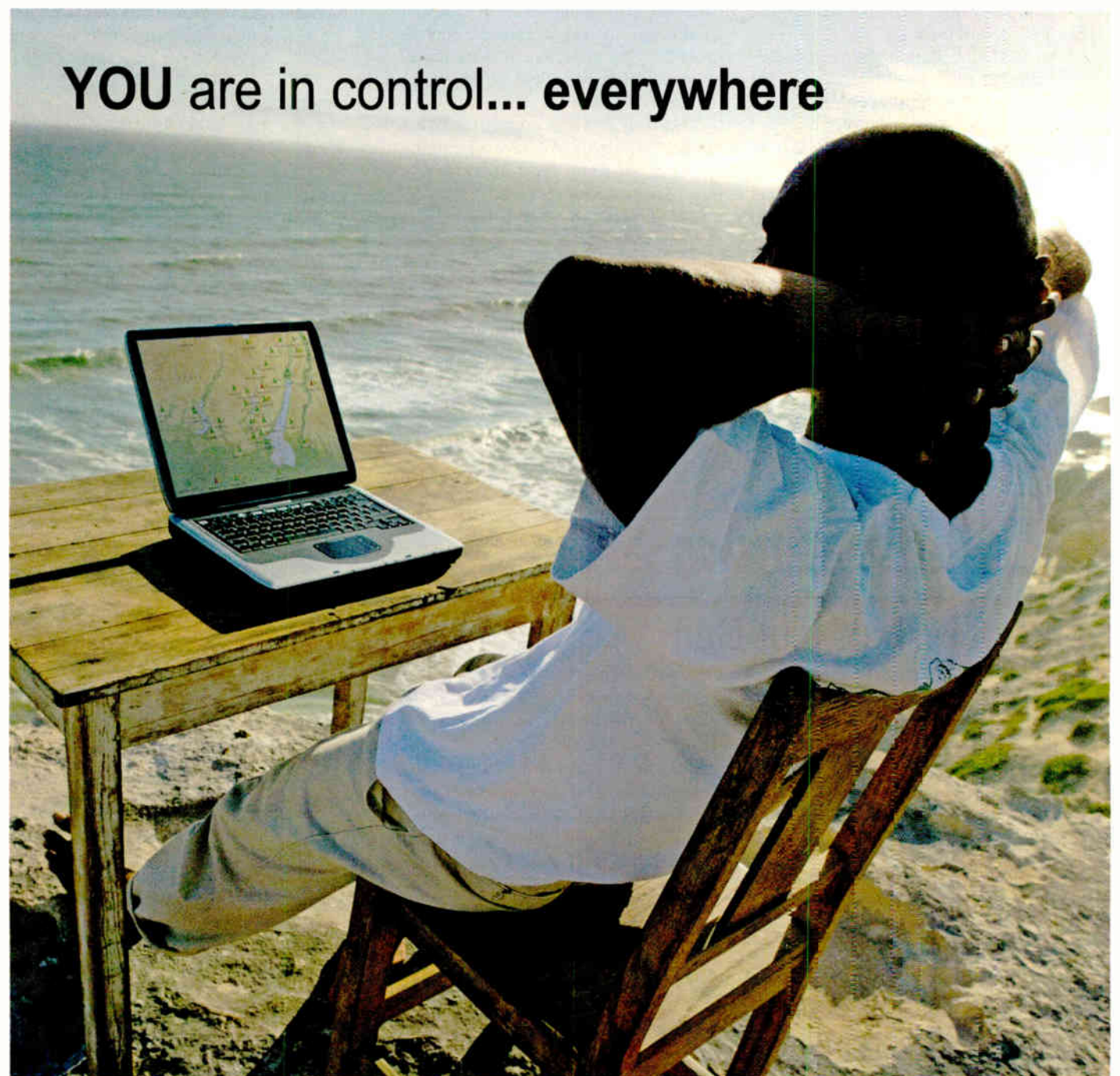
Some commissioners were interesting because they were groundbreakers.

Frieda Hennock (1948-55) was the first woman to serve on the FCC. In fact, she was the first to serve on any federal

See FCC, page 70 ▶



Star Trek fan Rachelle Chong served on the commission in the 1990s.



YOU are in control... everywhere

ANT Group Remote Control for Broadcasters

 NetPOD the new version of system management software

- Easy setup, advanced features
- Client server multi - user environment
- Comprehensive interface
- SNMP compatible
- Map based GUI



ANT Group S.r.l. - Via Giroli, 76 25085 Gavardo Brescia Italy

Tel: +39 0365 34558 Fax: +39 0365 371960 - email: sales@antgroup.it - site: www.antgroup.it

got wire?
cables & connectors
racks
tools
problem solvers
test gear
& much more

www.systemsstore.com

Concord

► Continued from page 64

lot of billboards in our market, that makes it hard to do outdoor promotion. What that means is we have to make the radio station as good as it can be every moment of the day."

Ericson is impressed by the station's listeners.

"Whenever we talk on the air about something that needs to be done, our listeners step up. They get involved. For example, there was a local news story about a seven-year-old kid. He had to spend 10 hours in the hospital getting [regular] medical treatment, and while he was there, all his games and toys were stolen. Our listeners and advertisers responded. People wanted to replace what he lost, and they did."

After 9/11, the station gathered listeners at a local mall to sing the national anthem. More than 5,000 people showed up after a single on-air mention.

Ericson is pleased that WOKQ is known for news as well as music. "When something is happening, we are still the station people turn to, almost like the old days of a full-service AC station."

Citadel owns another property with a long and successful history, 94.9 WHOM, licensed to Portland, Maine. Its transmitter sits atop Mount Washington in New Hampshire. This was one of New England's pioneer FMs, under the call letters WMTW(FM); for a brief time in the mid-1960s it was owned by TV talk host and comedian Jack Paar.

Then as now, it known for its amazing-

ly strong signal: WHOM reaches not just the Lakes Region but five states and Canada. Targeting adults 35+, the station positions itself as "continuous light rock" and promotes "songs you love and can sing along with." Its "no-repeat work-days" make it especially appealing for in-office listeners.

New market

Nassau Broadcasting was active in advocating for the creation of the Concord/Lakes Region as a twice-a-year Arbitron market, which was announced in 2004. Arbitron stated then that the market contained approximately 222,800 persons age 12+.

At Nassau's New Hampshire cluster, Jim Fronk is program director of "The Hawk," WWHQ(FM) 101.5, licensed to Meredith, and WWHK 102.3, licensed to Concord. His stations have a classic rock format, and the Hawk showed impressive growth in the most recent book. Fronk is pleased that Nassau decided to come into the Lakes Region.

"Nassau is very committed to this market," he says. "We have 82 employees working for us in New Hampshire. We buy [Arbitron ratings], and we have our own in-house advertising firm. We present our radio stations as a group that can blanket the market, which is great for the advertisers."

The Hawk is music-intensive, using the positioner "New Hampshire's #1 for Classic Rock." As part of its programming philosophy, says Fronk, "we do a lot of music marathons, and we are commercial-free three times a day."

In addition to making gains in classic rock, Nassau is giving Citadel's WOKQ



On the tube: Mark Ericson of Citadel's WOKQ with co-host Danielle Carrier discusses the 2005 CMA Awards in an image from CNN.

some new competition — at 93.3, listeners can now hear WNHV(FM), "The Wolf." This station uses the slogan "No. 1 for New Country and the Legends."

Nassau also owns CHR station 105.5 WJYY, "Concord's Only Hit Music Station." WJYY is a more traditional type of CHR, using heavy dayparting. The program director and afternoon jock is A.J. Dukette. "We are a family-friendly top-

and New Hampshire for many years.

Magic 104's Program Director Cooper Fox is part of the morning team. He understands the challenges of being in a tourist area while trying to create a loyal audience. Localism, he says, is the key.

"Despite the small [full-time] population, we nearly always have the equivalent of a small city staying within our coverage area," Fox said. "As a result, we

Because we don't have a lot of [local] TV, and there's not a lot of billboards in our market, that makes it hard to do outdoor promotion. What that means is we have to make the radio station as good as it can be every moment of the day.

— Mark Ericson

40," he said. "We're adult-leaning during the day, and we play the rap and hip hop at night. But we pay close attention to lyrics. We picture our daytime audience as teens with their parents — parents driving their kids to school, for example. And we know from our ratings that not just teens but women love the music we play."

Like Citadel, Nassau has a longstanding belief in community involvement. "We've given as much as \$75,000 to several local charities," Jim Fronk says. Dukette adds that Nassau's New Hampshire stations help out during a crisis. "We had some devastating floods recently and a lot of homeowners were not covered by insurance," he recalls. "So we joined up with the Red Cross and raised a substantial amount of money for people who desperately needed it."

Sounding big

Citadel and Nassau are not the only factors in the market, though. The Lakes Region is home to a few smaller groups and locally run operations, such as North Conway's Mt. Washington Radio and Gramophone, home of Magic 104 WVMJ (FM) and sister stations WBNC(AM) at 1050 kHz and WMWV(FM) at 93.5 MHz. Owner/General Manager Ron Frizzell has been involved with broadcasting in Maine

strive to sound like a hot AC station you would hear in a much larger market. Our talent is local and they mix local happenings with national entertainment news. Our news department does an excellent job covering local events, and even our imaging has a local flavor."

A station with local ownership is WKXL(AM) at 1450 in Concord. Owned by Gordon Humphrey, a former Republican state senator, WKXL is known as "Thoughtful Community Radio." It offers an eclectic blend of news, arts and informational programming aimed at the 35+ demographic. In 2005, WKXL earned six New Hampshire Association of Broadcasters Golden Mike Awards, five in the news category and one for sports — more than any other radio station in the state.

Station Manager Tony Schinella comes from the Concord area and knows the market. In addition to doing some news reporting (he covers the city council meetings), and helping to keep the station running smoothly, he hosts an arts and entertainment program that features interviews with local musicians as well as live performances. While the station has some talk shows, says Schinella, they aren't syndicated.

See CONCORD, page 67 ►

STATION/STUDIO SERVICES

Fish or Cut Bait.

You wouldn't think of fishing without bait. And while your advertising prospects are not fish, it is undeniably true that the more attractive your offer to a new prospect, the more likely you are to land him as a new customer.

Our long-time customers know that GBS Sales Boosters can be relied upon to increase their monthly billing. Often quite substantially. Our short radio features and custom commercials help radio advertising salespeople sell more advertising, in less time, and with greater ease and effectiveness, than they would otherwise. Please visit our website; see if there's not an idea that YOU can sell to someone today.



GRACE BROADCAST SALES
Sound Ideas for Building BusinessSM

Questions? Call us toll-free (888) 472-2388.
www.gracebroadcast.com

This is a small ad for a GREAT RADIO AUTOMATION SOFTWARE with a small price, too!

Get your free demo today:
www.radiocube.com

Software for Radio Operators and DJ's

WISHFUL THINKING
WON'T INCREASE YOUR BILLING....
...but market-exclusive
GBS SALES BOOSTERS WILL!

Fully produced :30's/:60's,
ready to pitch, sell, and air!

Visit our website to hear free samples!
Or call us toll-free ... 1-888-472-2388

FREE DEMOS/INFO at gracebroadcast.com

ATTENTION PROVIDERS!

Promote your services to **Radio World's** readers. Reach Radio Station owners/managers and engineers with your message.

For information on affordable advertising call **Claudia** at
1-703-998-7600, ext. 154.

Concord

► Continued from page 66

"We got rid of those. We used to carry shows like Michael Savage and Dr. Laura, but we wanted to be live. We want to cover the issues that matter to people in our market. Our emphasis is always on being local."

WKXL has a commitment to providing useful and usable information, as well as a commitment to the arts community. The station does the full-service format the way it used to be done.

Speaking of local, WTSN(AM), 1270 in Dover, is celebrating its 50th birthday. Veteran talk show host Mike Pomp recently was the recipient of a New Hampshire Associated Press Broadcasters award for his "Open Mike" show, the second consecutive year that he has won it.

WBNC, AM 1050, identifies itself as the "Mt. Washington Valley Visitor Information Station." WBNC specializes in news that tourists will find helpful, including frequent weather reports and extensive information about places to go — such as where to find the best skiing, snowmobiling, fishing and boating.

Shift

Another locally owned station is WTPL at 107.7, The Pulse. Its parent company is Great Eastern Radio, which emerged from the former Vox Radio Group.

WTPL does a format of news, talk and sports and has the benefit of a strong FM signal. General Manager Mike Johnson says WTPL offers listeners the best of both worlds: It has live shows, such as Peter St. James and Ken Cail with the "New Hampshire Wake Up Show" from 6 to 9 a.m. Cail is also a well-regarded sportscaster, as is Operations Manager Bob Lipman. The station has interesting syndicated shows, such as one with former New England Patriot Russ Francis.

"We have our own dining show called 'Chat and Chew' plus we have regional and national sports every day, including the Red Sox, Patriots, Bruins and [University of New Hampshire] games," Johnson said.

A station under the same ownership for more than 30 years is WFTN(FM), Mix 94.1 in Franklin, owned by Northeast Communications. President Jeff Fisher, who has also owned several other New England stations, acquired it in 1974.

PD Fred Caruso, who co-hosts the morning show, has worked with Fisher for nearly three decades. He describes a sense of "circling the wagons" after bigger groups came into the market.

"Our group is one of the few locally owned groups remaining. Did we feel pressured? Certainly, but we have a veteran staff here. I've been here 28 years, our Sales Manager Jeff Levitan 27 years, one of our account execs Tom Hanright 24 years, our Office Manager Cathy Keyser 20 years ... actually, the 'newest' member of our staff has been here almost five years." The principal owner, Caruso says, is in the office every day.

"We've had to get creative with the way we sell due to combo selling by the larger groups; but we've done a tremendous job protecting our territory."

Caruso wasn't thrilled to see the creation of the Concord/Lakes Region market. "I think the market, geographically, is too big. Very few stations cover the entire market. Book placement makes or breaks each ratings period, more so in

this market than any other. We've had solid numbers since its inception, but we're not going to live and die by it."

Jeff Fisher says, "One of the major challenges to selling in a 'spread-out' market like the Lakes Region is a meaningful and sensible account distribution that guarantees maximum coverage while being fair and equitable to the sales staff."

"While every market has its 'fat' territory and its 'thin' territory, the real challenge is to create both a geographic and economic sense to an account exec's list that guarantees a fair distribution of the accounts and creates the most efficient use of his or her time." He tries to avoid putting untrained salespeople on the street with no specific lists or territories and a "survival of the fittest" attitude. He also said finding and keeping good salespeople is another big challenge.

In the latest Arbitron book, stations with improved ratings for listeners 12+, compared to the previous period, include WOKQ, WGIR, WNHW and WWHQ. Among those with declines were WHOM and Nassau's WLNH(FM).

Also on the dial: Religion listeners in the area can tune into WVNH, 91.1 New Hampshire Gospel Radio in Concord, which calls itself central New Hampshire's first Christian station.

For those seeking the public radio experience there is New Hampshire Public Radio, with affiliates throughout the state. The Lakes region has WEVO at 89.1 in Concord and 104.3 in Dover. NHPR was founded in 1981 with one station covering Concord and Manchester; today it operates four transmitters and three translators with service all over the state.

Although the Lakes Region is in the

shadow of Boston, this is a market with its own unique style.

Although Clark Smidt no longer owns a station in the market, he has consulted there and continues to observe how things are going.

"The market has moved from small, local owners to big group owners. What will be interesting is seeing whether the big group owners can connect with the local audience." So far, if the most recent book is any indication, the big group owners are making the market more competitive and giving listeners more format choices.

Donna L. Halper is a Boston-based educator, media historian and radio consultant. She wrote earlier this year about radio in St. George/Cedar City, Utah, ranked as Market 263 by Eastlan Resources. 🌐

model AFS-3 audio failsafe

FUNCTION: dual channel, adjustable length silence sensor

FEATURES: two audio inputs • relay output • optional status voltage output for signaling external devices • silence detection delay from 30 seconds to five minutes in 30 second increments • positive adjustment via rear panel rotary switch • front panel LED status indicators • front panel defeat switch • internal audible alert—continuous or pulsing • audio detect mode • silence alarm output is compatible with RFC-1/B telemetry input and requires only two wires



model DAI-2 dialup audio interface

FUNCTION: remote broadcast or emergency interrupt via telephone

FEATURES: telephone line autocouper and tone decoder • momentary or latched relays for control and audio switching • programmable relay output • front panel relay status indicators • telephone audio output • audio monitor input • AGC on audio feeds • balanced audio I/O • four logic level input triggers • seven DPDT and one 4PDT relays



OPTIONS: CI-1 composite insertion module • DB-1 50ms delay board

model RFC-1/B remote facilities controller

FUNCTION: transmitter remote control via telephone

FEATURES: expandable from 8 to 64 channels of telemetry and control • programmable control activity by date and time • programmable telemetry alarms

OPTIONS: MA-2 modem adapter • PA-2 parallel printer adapter • TS-1 temperature sensor • ACM-2 AC current monitor (tower light monitor) • RS-232 serial data adapter • SP-8 telemetry and telephone line surge suppressor



model RAK-1 intelligent rack adapter for RFC-1/B

FUNCTION: modem, printer output and battery backup for RFC-1/B

FEATURES: parallel printer adapter • modem adapter • backup battery • telephone line surge suppression • front panel status indicators • sleek 1U chassis • available for new installation or as an add on accessory package for existing RFC-1/B installations (use of the RAK-1 does not eliminate the need for the RP-8 relay panel)



OPTIONS: SP-8/TO telemetry input surge suppressor

model MBC-1 message board controller

FUNCTION: studio devices trigger custom messages on LED display

FEATURES: fifteen logic level inputs • selectable input priority • text and graphics can be combined in a single display • communications output can drive multiple displays • displays can have different messages on same input trigger • factory default messages for easy initial setup • works with inexpensive, attractive LED display



OPTIONS: OC-2 Optocoupler senses ringing telephone line

Sine Systems, Inc. • 972 Main Street • Nashville, TN 37206 • (615) 228-3500 • www.sinesystems.com

innovative solutions

Sine Systems, Inc.

NEWS MAKER

Levin Bats Cleanup on WABC

by Ken R.

Mark Levin is disgusted with what he sees as the ever-increasing number of laws that have no basis in the U.S. Constitution. And he has little good to say about judges who try to legislate them from the bench. He felt strongly enough about an over-reaching Supreme Court to write a book about them, "Men in Black," which hit the New York Times Best Seller List in 2005.

His conservative radio talk show, beamed from WABC(AM) New York, went into syndication by ABC Radio Networks in February. After four months in syndication Levin had acquired over 1.5 million listeners weekly on about 50 stations.

But this is no armchair legal dreamer. Levin (pronounced leh-VIN) graduated Phi Beta Kappa from Temple University at age 19 in 1977. After law school he served as a top adviser to several members of President Ronald Reagan's cabinet. He was also chief of staff to the attorney general. Before his radio show kept him too busy, he appeared frequently on cable TV as an expert on constitutional law.

courts than they were two or three years ago," said Levin. "I and others have been working to explain in plain English why the Supreme Court has been out of control for decades. Their rulings affect free speech and freedom of religion. Their conduct is just outrageous."

Referring to a recent high court decision that allows governments to seize personal property so that communities can use it for commercial purposes (*Kelo vs. New London*), Levin said the court was clearly in the wrong.

"In *Kelo*, the court's decision means a flat-out redistribution of wealth by seizing someone's home, which is a violation of the Bill of Rights," he said. "My callers wonder who these people are on the Supreme Court to do such a thing and that's the same question I've been asking for 30 years."

Web sites as diverse as www.freerepublic.com and www.newyorktimes.com have chronicled the list of failed liberal talk shows including those hosted by Mario Cuomo, Julian Bond, Alec Baldwin, Alan Dershowitz and Jerry Brown. Radio World asked Levin to explain this phenomenon.

"There's a museum of failed liberal talk



Mark Levin

little more solution-oriented."

Levin was asked to contrast his approach with that of his fellow New Yorker Couric.

"I have to give her credit," said Levin in response. "Most liberals pretend that they are objective news providers. Couric is saying she should do more than that. If you are providing solutions, you're partisan. Reporters should go back to reporting the news, although maybe they should stop reporting national security secrets."

Tuned to a transistor

Levin has been what he calls a "professional radio listener" since age 12, when he went to sleep with a transistor radio near his ear, picking up stations from his hometown of Philadelphia as well as stations in New York and Chicago.

"Radio always interested me, but I didn't take a straight line to this profession," he said. "But who better to do it than someone who has been elected to local

office, been involved in the Reagan administration, studied history and economics and practiced constitutional law?"

His radio career officially began after he had been guesting on TV cable shows. Limbaugh appointed Levin "the head of his legal division" and frequently mentioned him on his program. Levin also began appearing on Hannity's radio show as a legal expert, then substitute-hosting that program.

Phil Boyce, program director of WABC, gave Levin a shot at his own show on the weekends on WABC in 2002. When a weekday evening slot opened up in September of 2003, Levin officially joined the ranks of full-time radio talkers.

Jim Murphy is program director at WFIR(AM), Roanoke, Va. His station carries Levin's show, as well as other conservative talkers Neal Boortz, Limbaugh, Hannity and Michael Savage.

"Conservative talk hosts may tell you that their shows are more successful than their liberal counterparts because they are more in tune with the majority of America," he said. "But our observation is we're in the radio business and we want to have programming that is entertaining and popular. Stations that have tried to mix liberal and conservative shows have not done well. We never sat down and said, 'Let's be a conservative radio station because of our beliefs.' We never had that conversation."

Boyce, the man who helped Levin reach out to a national audience, said, "I have been blessed to find some great talent in talk radio, and to take them national. But talent alone isn't enough. You have to have a burning inward desire to succeed and Mark shares that with other great talk hosts like Hannity and Limbaugh."

Boyce complimented Levin on his natural instincts.

"He knows how to reach talk radio listeners because he was one," he said. "He grew up thinking he could do it and now he gets to prove that every day. Mark has also become a true friend and I love seeing him succeed. It's such a blast watching this show grow." 🌐

'Reporters should go back to reporting the news, although maybe they should stop reporting national security secrets.'

Levin broadcasts live on WABC and is simultaneously streamed at www.wabcradio.com each weeknight for two hours beginning at 6 p.m. Eastern. Referring to his fellow WABC talkers Sean Hannity and Rush Limbaugh, who are on earlier in the day, Levin described himself as the "cleanup hitter."

"After you've heard from two of the greatest in most cities, then I've got to approach the same issues with my own unique background and viewpoint," he said. "I try to keep the show fresh and still address the issues that are important. If I attain success it will be because I work very hard at it."

Courting disaster

While Levin is interested in all things political, the legal system merits a large measure of his attention.

"I think people are more upset about the

shows out there. I haven't surveyed the whole horizon, but if (network) Air America is the best liberals can do, they're not doing very well," he said.

"The real problem is that liberalism is not a philosophy of substance. It's about expanding the power of elites who control the levers of government, versus the public will. To me, liberals are a danger to liberty. The reason they're not on the air more is that it would make them say what they actually believe and the people would reject it."

On the day Radio World interviewed Levin, Katie Couric, the anchor-elect of "The CBS Evening News," stated the following on a press tour, as quoted in the Drudge Report: "We have heard from many people that the news is just too depressing. Now obviously we can't sugar-coat what's going on in the world, but there are cases where I believe we can be a

'FUV Boat Sets Sail

WFUV(FM) set sail this summer with The 'FUV Boat, a floating dance party to benefit the noncommercial station. Rita Houston and other station DJs spun music while sailing around Manhattan on a three-hour party.

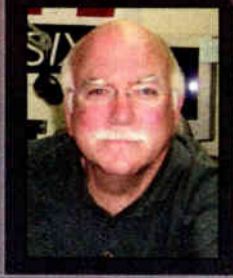
Tickets for the 'FUV Boat — it "rhymes with Love Boat," according to a station announcement — were sold for \$30. WFUV is licensed to Fordham University.

Shown: News & Public Affairs Director Julianne Welby and "City Folk Evening" Host Corny O'Connell.



WE GIVE YOU WITHERS

Name: James G. Withers
Occupation: Radio station owner
Certifications/Honors: Lifetime General Radiotelephone License; past speaker/panelist at NAB, TAB and Digital Hollywood
Hero/Mentor: Robert Shrader, author, "Electronic Communications." Without that book I would never have passed my Second or First Phone.
Favorite Station Growing Up: WIL, St. Louis — Dick Clayton, Gary Owens, Ron Lundy. Best group of Top 40 jocks, ever.
Most Memorable Broadcast: Engineering a live audience, two-way, four-station lash-up for a Bill Clinton Town Hall meeting from KDFW(TV)
Favorite Saying: The only thing in life that's not for sale is your character.



Radio World's pages are home to the finest writers and columnists in the industry. Like James Withers. Just one more reason we're the newspaper for radio managers and engineers.

Radio World

Products & Services SHOWCASE

raduga automation

Automate Your Station in Minutes
...No Degree Required

NEW! Just Released v3.8.7

- Extremely Easy To Use & Understand
- For All Stations, All Formats
- Schedule Spots, ID's, Build Rotations
- Plays All Audio File Formats
- Complete Automation Systems Available
- AirList Music Scheduling Software Only \$259
- Music Libraries Available

...Did we mention **FREE SUPPORT**

Raduga Software



Download your FREE Demo Today
www.raduga.net/frw.htm
(513) 887-0714

Low as \$149* Buyout

BEXT

**FM & TV
Transmitters
Solid State or Tube
Antennas & Combiners**

**20 Years of Service
Asistencia en Español
24 Hour Support
2 Years Warranty**

www.bext.com

Tel 619 239 8462

Fax 619 239 8474

bext@bext.com



**FROM THE TALL
TO THE SMALL**



**NEW
EXCITERS/TRANSMITTERS**
w/stereo generator & audio limiter,
field programmable FSK ID keyer, all built-in!

Talking, Dial-Up Remote Control



Introducing the First Totally New Talking Remote Control Design in Over a Decade!!

- ▶ Voice recordable technology
- ▶ Internet capable
- ▶ 8 channels metering, status, & control
- ▶ Expandable up to 16 channels
- ▶ 2 heavy-duty SPDT relays per channel
- ▶ Self-calibrating, auto-ranging meters
- ▶ Up to 5 alarms per channel
- ▶ Cell-phone interface
- ▶ Audio pass-through
- ▶ Free GUI software to monitor your site & program the Sicon-8
- ▶ X-10 capability for additional control

Learn how the Sicon-8 can help you
take control at www.circuitwerkes.com



CircuitWerkes, Inc. - 2805 NW 6th Street, Gainesville, Florida 32609, USA. 352-335-6555

**SIX MILLION
THUNDERSTORMS HIT
PLANET EARTH EVERY YEAR!
IT TAKES ONLY ONE TO
PUT YOU OFF THE AIR!**



The STATI-CAT LIGHTNING PREVENTION SYSTEM provides a continuous, low-resistance discharge path for the static electric charge on tall structures. Dissipation points are 1/8" stainless steel rods.

This affordable and rugged system has proven itself in the field for over 20 years.

Cortana
Corporation Inc.

Write or call for a free brochure and design
P.O. Box 2548, Farmington, N.M. 87499-2548
Toll Free: 888-325-5336 • Fax: 505-326-2337 • www.cortanacorporation.com

**You're
Here!**



...and so are
the potential
buyers for
your products
and services.



Radio World is a great place
to find things for your business, and
a great place for prospects to find you!

To advertise, call John at:
330-342-8361 (Eastern US) or Dale at
916-721-3410 (Western US)

Buy simplicity,
reliability and service

EAS

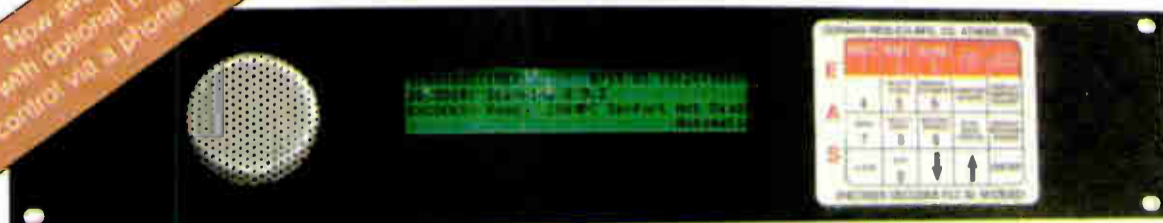
Price \$1750.00

Equipment is in stock for
immediate delivery!

GORMAN-REDLICH MFG. CO.
257 W. Union St. Athens, Ohio 45701

Phone 740-593-3150
FAX 740-592-3898

Now available
with optional DTMF
control via a phone line.



- 5 two-way RS-232 inputs/outputs for computer, remote signboard & character generator
- 6 audio inputs on standard models. All audio inputs & outputs are transformer isolated from encoder-decoder board
- Automatic interruption of program audio for unattended operation
- 4 line 40 character LCD display with LED backlighting
- 20 key keypad to program unit, set modulation level, set input levels
- Will handshake with automation equipment
- 2 year warranty
- 2 minutes of digital audio storage
- 25 pin parallel printer port for external printer
- 52 terminals on the rear to interface with other equipment by removable plugs
- BNC fitting with 600ohm balanced audio out for second transmitter

jimg@gorman-redlich.com Web Site: www.gorman-redlich.com

◆ Also available: weather radios, antennas for weather radios, crystal controlled synthesized FM digitally tuned radios, remote signboards, cables for interconnection, character generators

Listeners Getting Busy Signals?

Text Messaging and E-Mail Contests Are Powerful Tools for Programmers

"It's 5 p.m. and you know what that means," the DJ hypes. "I'll take caller 9 right now at 1-800-554-9789 to win front-row tickets to see Alan Jackson. Call me now and you'll be a winner at 1-800-554-9789 for Q-95!"

The DJ turns the mic off, takes the phone lines off hold and then counts the callers up to number nine. After he records the caller's excitement for playback on the air, he puts all eight phone lines back on hold so he doesn't have to speak with anyone else.

What's wrong with this picture?

Entry methods

Sadly, it's standard operating procedure in radio to make a point of not talking to potential customers! What other business would make this consistent error?

Instead of answering the phone and engaging each of those potential diary-holders in a quick conversation that might generate another occasion of listening, we blow them off with a busy signal.

It's odd that this practice is rarely questioned. Fortunately, high-tech lifestyle creates alternatives for contest entry, but radio has been reluctant to embrace what has become everyday behavior for many of its listeners.

Let's explore a few new methods of entry and also discuss how we can improve on the use of Mr. Bell's invention.

While millions of text messages are sent in the United States daily, few are being sent to radio stations. Why? Because the radio industry doesn't care to invest in leasing or trading SMS (short message service) technology, and because PDs and marketing directors are not vocal enough about the importance of



Courtesy iStockphoto.com © Arne Thøgersen

text messaging.

Text messaging began as a toy for teenagers but slowly has been integrated into the business world and is steadily making inroads with adults. European broadcasters are way ahead of the curve because the technology has caught on so much faster there. Try listening online to any of the BBC radio channels and you'll hear continuous solicitation of text messaging and the use of these messages on the air for contesting and content.

If you're lucky enough to witness text messaging in use at a radio station, the first thing that will blow your mind is how many respondents will participate in a contest.

Instead of nine people talking to your DJ and everyone else receiving a busy signal, all participants — hundreds, sometimes thousands — get through with an entry. Even better, everyone who participates receives an immediate custom-tailored response.

This response can tell them what number entry they are and tell them when to listen for another chance to play. For those concerned with liquidating the expense, the return message also could contain a text ad message or a digital coupon.

Some PDs will reject this method because they feel they're missing out on the traditional audio, but they are clearly not getting the full picture. The DJ has all the phone numbers of everyone who has sent a text message to him, including the winner. All the talent has to do is call the number back and record the call.

Listener ID

Equally impressive and even easier to execute than text messaging are immediate e-mail contests.

All you really need is a way for the DJ to receive the e-mails in the control room. You can set an out-of-office

responder with a custom message on it so that when a person enters a contest or sends you a comment, they receive a tailored message in response that invites them back for an occasion of listening.

Back to our old friend the telephone. If you can't hire part-timers or bring in interns to really answer your control room phone, at least consider installing equipment that enables callers to receive a message through your own phone sys-

Promo Power



by Mark Lapidus

tem, or perhaps through a vendor such as Radio Voodoo.

Do all of your control room phone lines have Caller ID? Come on, it's 2006! Isn't it time your DJs knew whether they'll be talking to that crazy guy who calls every day from prison or to that much-preferred new listener?

These methods are not mutually exclusive. It makes perfect sense to use them all at once, or just combine two of them.

If you're lucky enough to witness text messaging in use at a radio station, the first thing that will blow your mind is how many respondents will participate in a contest.

For example: "To enter, call me at 1-800-554-9789, text me at 94578 or e-mail me at contest@Q95.com. I'll randomly pick a winner that could be you!"

The idea is to create the largest contest universe possible and then truly communicate with every person who shows enough interest to participate.

The author is president of Lapidus Media. E-mail him at marklapidus@yahoo.com.

FCC

► Continued from page 65 independent regulatory commission.

Hennock was born in Poland and immigrated to the United States at the age of six. At 19, she was the youngest woman lawyer in New York to be admitted to the bar. While at the commission, Hennock crusaded for a set-aside of UHF channels for educational use.

In 1951, President Truman nominated Hennock to be a federal district judge but the appointment was vociferously opposed by members of the New York Bar and the Senate Judiciary Committee and went nowhere. In 1952, her greatest victory came when 242 UHF channels were set aside for non-commercial, educational television. Hennock wanted another term on the commission, but she was not reappointed. She blamed lobbying by those who didn't like that she was outspoken about the monopolistic tendencies of the television networks.

Some commissioners were interesting because of what they did after their time at the FCC. Two consecutive FCC chair-



Al Sikes was chairman 1989-93.

men, Charles Denny (1945-47) and Wayne Coy (1947-52), actually left the commission to work in the broadcast industry because the chairman's salary was too low.

Chairman Dean Burch (1969-74) left to become White House political counsel during Watergate and helped orchestrate Gerald Ford's win of the Republican nomination in 1976. Burch also was heavily involved in George H.W. Bush's vice presidential and presidential campaigns.

One of the most interesting post-commission careers was that of Clifford Durr (1941-48). He was an avid New Dealer who clashed with J. Edgar Hoover over the FBI's habit of sending unsolicited political profiles of various radio personalities to the FCC. He refused reappointment to the commission because of the anti-Communist fervor dominating Washington. Durr did not believe in the loyalty oaths being required by the Truman administration.

He left Washington and returned to the South, where he and his wife Virginia were active in the civil rights movement. He was the president of the National Lawyer's Guild when it recommended that the government fund legal aid for low-income people. When he returned to Montgomery, Ala., to practice law in 1954, he often was the

only attorney who would take the cases of African Americans who were claiming that their civil rights had been violated. He and Virginia were friendly with Rosa Parks; when she was arrested for her refusal to give up her bus seat, it was Durr who went to the Montgomery jail to bail her out.

The men and women who have served at the commission have wonderful stories. Some have gone on to important careers in communication industries. A number have chosen to become educators and train future communicators.

Charles Ferris (1977-81) offered this bit of advice, to which Chairman Martin would do well to listen: the commission should not get involved in "the tangle of taste" in judging the content of the broadcast medium.

Kim Zarkin, Ph.D., is co-author with Michael Zarkin of the new book "The Federal Communications Commission: Front Line in the Culture and Regulation Wars," part of the *Understanding Our Government* series from Greenwood Press. The Zarkins are associate professors at Westminster College in Salt Lake City.



RF Specialties®

CALL TODAY FOR D-75 PRICING

Principal Office Locations

RF Specialties of Washington, Inc.
Bob Trimble
Ph: 800-737-7051

RF Specialties of California
Sam Lane, Bill Newbrough
Ph: 800-346-6434

RF Specialties of Missouri, Inc.
Chris Kregar, John Sims, Rick Funk
Ph: 800-467-7373

RF Specialties of Pennsylvania, Inc.
Dave Edmiston, Harry Larkin, Ed Young
Ph: 866-736-3736

RF Specialties of Georgia
Alan Slaughter, Chris Hall
Ph: 800-476-8943

RF Specialties of Texas, Inc.
Don Jones, Wray Reed
Ph: 800-537-1801

Great **DIGITAL SOUND** for less

D-75 Radio Console



Shown here with 12 Input Channels. Also available as 18 Input Channel Mainframe

 **AUDIOARTS ENGINEERING**

EVERYTHING you need in a COMPACT DESIGN:

- ✓ 100 percent modular design
- ✓ Network ready
- ✓ Dual fader superphone
- ✓ Switched meters
- ✓ Table top design



Configuration is SIMPLE using the hinged meterbridge

For more info on our 14 office locations, products, and services visit : www.rfspecialties.com

World Radio History

SHI SHOWCASE SE

THE BEST RF EQUIPMENT GUARANTEED!

- ▶ FM-VHF-UHF-L Band
- ▶ RF Line Components
- ▶ Cables and Connectors
- ▶ Antenna Panels and Systems
- ▶ Loads
- ▶ Filters
- ▶ Combiners
- ▶ Patch Panels
- ▶ Splitters & Couplers
- ▶ Digital Power Meters



TERACOM COMPONENTS

Tel: +1 207 627 7474
Fax: +1 207 627 7473
sales@acomrf.com

Acorn

DUAL STEREO AMPLIFIER

SONIFEX Redbox

Redbox RB-PA2 Dual Stereo RIAA Phono Amplifier

- Dual stereo record player amplifier.
- Clean RIAA response.
- Superbly transparent audio path.
- Adjustable output gain.



INDEPENDENT AUDIO

T: 207 773 2424

E: info@independentaudio.com
www.independentaudio.com

Visit our website for details:
www.sonifex.co.uk

STEREO HEADPHONE AMPLIFIER

THE ALL NEW AF-SH1 FEATURES:



- Integral Long-Life VCA Stereo Level Control
- Balanced or Unbalanced Inputs
- Switch-Selectable Input Sensitivity
- Switch-Selectable Mono (Left) or Stereo Operation
- Amplifier To Drive High or Low Impedance Headsets
- Convenience of APPFLEX™ Mounting Possibilities

Shown in AFM-DC1N tabletop chassis

The AF-SH1 is part of the group of versatile APPFLEX products from Radio Design Labs. These modules combine advanced circuitry, durable all-metal construction, attractive RDL ULTRASTYLE™ colors and versatile mounting possibilities. APPFLEX modules are ready to drop in a cabinet, chassis or panel cutout. Numerous ULTRASTYLE wall mounting accessories and tabletop chassis are optionally available to facilitate system design.

Efficient

Effective

Affordable

RADIO WORLD'S Products and Services Showcase provides a perfect medium for marketing your products and services.

For more information, contact
Claudia Van Veen
at 703-998-7600 ext. 154
to request a media kit.

Radio World

SYSTEMS SOLUTIONS

www.rdl.net.com
RDL • 659 N. 6th Street • Prescott, AZ • 86301



OPTILATOR™

T1-OPELATOR NOW AVAILABLE!



Fiber Optic Modem Protection

Lightning Protection that keeps on working!

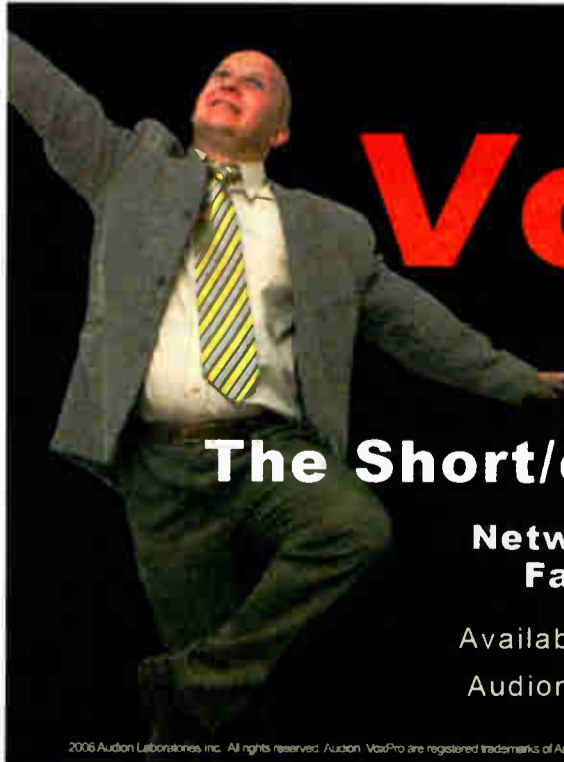
Fiber optic protection impervious to lightning.

It is now a recognized name brand in the RF Industry.

For more technical information call toll free 888-471-1038, Ph: 727-823-6100, Fax: 727-823-6044. For pricing and sales call: Harris, Broadcast General Store, Broadcastworks, Broadcast Richardson, RF Specialists, Crouse-Kimzey, EuroExchange Brokers Inc., S.C.M.S., or your local distributor.

See our web page: www.opticsshield.com It is for real!

The Ultimate Lightning Protection!



VoxPro®

Version 4.1

The Short/cut Replacement

Network-MP3-AGC-Search-Fade-Effects and Fast

Available at all broadcast distributors

AudionLabs.com 206 842 5202 x203

© 2006 Audion Laboratories, Inc. All rights reserved. Audion, VoxPro are registered trademarks of Audion Laboratories, Inc. Other company and product names may be trade marks of their respective owners.

FIRST PERSON

Real-Life Lessons for Would-Be Owners

Things I Wish I'd Known When I Bought My First Radio Station

by Jim Withers

I received e-mail from a young man who'd read an article I'd written in Radio World about one of the FCC auctions. His basic question was, "How do you go about buying a radio station?"

I was tempted to e-mail back, "Start with a lot of money and be prepared to lose it all." But I decided not to burst the bubble.

Seriously, I'm not necessarily an expert; but I have owned, individually and with partners, nine radio stations over 15 years. I have learned several constants that must be applied if one is to avoid the pitfalls that come with owning any small business.

So here you go: "Real Life Lessons for the Would-Be Radio Station Owner."

Lesson 1: Make sure you know why you want to buy a radio station.

I purchased my first station from a real-estate guy who'd wanted to hear music that he liked — classic rock — on the radio.

No matter that he lived in a small town in Texas where everybody else thought Garth Brooks should run for president; he, by golly, wanted to wake up to Led Zeppelin. In the end, he found himself paying a lot more than 25 cents a pop to run a very expensive jukebox. I ended up owning the station after it had been dark for almost a year.

What goal are you going to attain through ownership?

We can assume, since you are devouring every word written in Radio World, that you are smitten with broadcasting; but if your goal is the same as my real-estate buddy's, just buy a CD player. It's much cheaper and the transmitter never goes off the air.

More than wanting to run a radio station, you should be personally committed to running your own business. The fact that you know and love the business of radio simply points you toward running a radio station.

This idea of wanting to run a business is important. Once you own your station, you can forget about being the music director and morning drive guy. You want to be an owner? Leave those other things to people you hire. You will (or should) be way too busy.

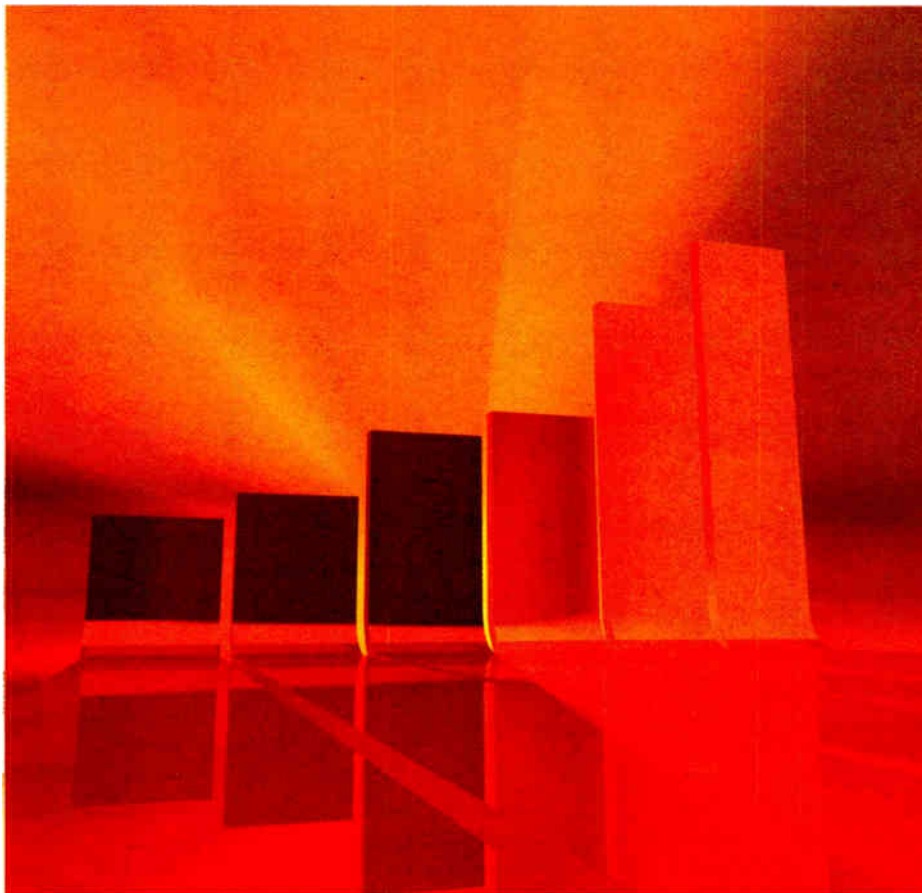
Lesson 2: Do your homework.

Write that one on the blackboard 500 times before you go further.

Owning a radio station is like owning any other small business, except that you're a licensee and have to jump through those hoops, as well.

True, it is more glamorous than running a donut shop (or maybe not); but in the end, you will live or die with decisions you make long before you ever get the grant to operate from the FCC.

Stations for sale are easy enough to find, but *caveat emptor* is the byword; every station is being sold for a reason. Find out what it is sooner, rather than later.



Research the town. Population growing or declining? How are housing prices? What are demographics and wages like? What is the competition like? Do major-market signals spill in and steal most of the audience — or worse, do those stations send salespeople in to steal most of the advertising dollars?

Is this a town in which you want to live for the foreseeable future?

You can get comprehensive data on many of these questions from various government agencies, many of which have excellent Web sites.

Lesson 3: Finding a station you can afford to buy is a lot easier than finding one you can afford to run.

I've found stations people would give away just for the tax writeoff. But nobody could make money running them, so what's the point?

The right station is a combination of purchase price, market size, competition and your ability to fund the deal. You might find the perfect station; but if the price is too high, you may have to "just say no." If you overpay, you might start out feeling you are riding high, but you're really already underwater.

Determining the value of a station is difficult, but you don't have to resort to reading tea leaves and animal entrails. You will, though, have to be able to read and understand financial reports.

Even the smallest station owner should have income/expense statements; most will have a balance sheet. If you do not know how to interpret these basic financial tools, stop here, go to the nearest library or community college and obtain a Finance 101 book or course.

Although there's always room for fudging reports (think Enron), the seller will be making reps — "representations and warranties," in legalese — that his numbers are fundamentally correct. He lies, you sue.

So use the reports he gives you to track expenses, accounts receivable, bad debt, sales costs, etc. From those numbers,

generate your own profit and loss statement. The number at the bottom of this report (hence the term "the bottom line") that will fund your purchase, so you need to know what that is.

A P&L or income/expense statement also is an excellent way to get a feel for where the money is coming from and where it's going.

Lesson 4: Do your due diligence.

Due diligence is a fancy term for verifying the condition of the assets you are purchasing. Prior to signing a purchase agreement, you will have the right to inspect the station. This inspection must include the financial statements, the equipment and the station authorizations. If you, or a partner, is an engineer, fine. If

not, hire someone you trust. Pay particular attention to the "high ticket" items. Does the station own the tower? Are there tower inspection records? Check out the site at night. Do the lights all work? (You would be amazed how expensive a 300 watt light bulb is when it is 500 feet above the ground). How about the transmitter. Are there maintenance records? How old is it? If it's an oldie, are parts still available? Are the licenses all up to date? Broadcast Aux licenses (STLs, etc.) used to be fairly simple to move...now you need a formal frequency coordination study, which of course, costs time and money.

Lesson 5: You are going to be a small businessperson (emphasis on "small").

The federal government defines a small business as one that employs fewer than 500 people. Within the context of that definition, you will be positively microbial in size.

This is OK if you are comfortable with working a whole lot for not much money. As a first- or second-time owner, you no doubt will not be able to afford a cash-flowing station in, say, Kansas City; nor will you be able to buy a profitable cluster in a medium market. No, you will more likely be looking at a small AM or FM or (if you really go for broke), a combo in a small market of maybe 100,000 people.

If you are very good at doing this, you might generate a million dollars of asset value, free and clear of debt, over several years. Really. A million dollars. But to put that in perspective, if you are 30, keep your day job and put the cash you'd give up by going your own way into a 401(k) plan, you'll get there anyway, and with a lot less risk.

When you are ready to buy, you will need to write a check. Where you get the money is the topic for next time.

Jim Withers owns and operates (with the gracious understanding of his long-suffering wife) KSIX(AM) in Corpus Christi, Texas. He has contributed numerous articles to Radio World. Reach him at (314) 345-1030 or by e-mail to jim@koplar.com.

Station Is Sweet On Troops

Beasley station WKML(FM) — "Carolina's Best & Most Country, The Big 95.7" — worked this year with The Pines of the Carolinas Girl Scout Council to collect Girl Scout cookies for troops.

Shown, midday personality Dean O stands with 44,000 boxes of cookies for U.S. troops from Ft. Bragg and Pope Air Force Base stationed abroad. It was the second year of the promotion.

Also, during their sales drive, the Girl Scouts asked for donations to purchase cookies to send to troops overseas. Approximately 3,700 cases, or about 20 tons of cookies, were delivered to Ft. Bragg Family Readiness Groups, which picked up between 75 and 150 cases each to send to troops serving overseas from the North Carolina hometown bases.

Danny Highsmith is vice president and Fayetteville market manager.





FROM ONE LEGEND TO ANOTHER

Win a Heil Classic Pro microphone endorsed by the Rock and Roll Hall of Fame and Museum.

Heil Sound is teaming up with Radio World to give its readers a chance to win this commemorative Heil Classic Pro microphone. It was issued to celebrate the Heil Sound exhibit dedication at the Rock Hall. This special limited edition microphone is a replica of the RCA 74B that Rock and Roll Hall of Fame inductee Alan Freed used to connect rock and roll with radio – the event that forever changed our lives.

If you are interested in purchasing this limited edition Heil Classic Pro broadcast microphone, visit www.musiciansfriend.com and place your order while this commemorative microphone is still available. You won't believe the price! Just think of what a great promo piece this will make at your next remote event. Not only does it look authentic, it sounds fantastic.

All you need to do is register online at radioworld.com. The winner will be selected in a drawing held in Dallas at the NAB Radio Show on September 21, 2006.

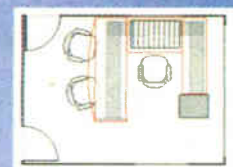


Heil Sound Ltd. | 618.257.3000 | info@heilsound.com

www.heilsound.com

Studio Sessions

Build Your



Own Studio

Radio World

Resource for Radio On-Air, Production and Recording

September 13, 2006

FACILITY PROFILE

The DIY Studio Saves Time, Money

by Daniel Slentz

Part of being a small-market station is sometimes having a small-market budget to work with.

Upon arriving at family-owned WHIZ(FM) in Zanesville, Ohio, as chief engineer, I found some outdated studios and a few pieces of new gear sitting in boxes. One piece that caught my eye was a brand new Audioarts D75 board which, at this point, was almost a year old. It had been purchased to replace a 20+-year-old Harris board in our 50 kW FM station's primary studio.

board, and work up some rough designs and layouts. Some notable limitations outside of the budget had to be addressed; floor penetration for existing cables and power were primary, with existing windows and floor plan becoming secondary.

A friend of mine, Don Archiabile, is a broadcast architect. His company, Archteck, provided me with a lot of inspiration on design. I came up with a modern look for us utilizing more conventional building materials using some of the company's drawings and pictures of major-market studios. I also wanted a

nets. Black cabinets were harder to find, but were much less likely to be perceived as kitchen cabinets and a lot less likely to show wear and tear down the road. Thank goodness for the Sharpie touch up!

Toe-kick

Upper kitchen cabinets are almost perfect by dimension (12 inches deep by 30 inches high) to create the right height for a board that can be used as both a sit-down and stand-up. I knew it would be ideal to give our jocks the ability to either sit or stand while on the air.

To create a "toe-kick" under the cabinet, I had to take 2 x 4s and place them sideways (1.5-inch rise), miter them at 45 degrees for stability and add black vinyl to create a base, which was slightly recessed from all sides of the cabinet. The tops of these cabinets were shimmed with 1/2-inch plywood.

There were a couple of reasons behind



Dan Slentz is seen here after 30 continuous hours of work on the install. 'Between the work of our engineering department and pre-planning, this was probably a 150-hour project,' he said.



WHIZ's original studio. Slentz credits the 'old red acoustic carpet' and the use of card tables for gear as catalysts for the redesign.

After some discussions with management, the decision was made to move forward with the install, but to update the studio image and design in any way within "financial reason."

I evaluated and priced some beautiful studio furniture from various manufacturers. I should say up front that if you can afford to buy furniture built to your needs, I would strongly suggest that. Unfortunately many of us can't afford to buy custom and choose pre-made or pre-fabricated furniture. In our case we wanted to stretch available money as far as we could and invested a lot of "sweat equity" into a minimal budget to get custom results.

The entire studio remodel, including acoustic treatment, decorating, carpet and new studio furniture would have to come in under \$4,500. Designing a studio that would meet our needs and become a showplace for the market, while staying within the budget, was going to be a challenge.

Definitely do-able

The first step was to take all the exact measurements, including the new audio

design that wouldn't date itself in another 10 years as the old studio had.

I'm a big believer in a heavy investment in pre-planning. That was the only way we could have completed this job in the allotted time frame stayed within a tight budget.

I created most drawings using Microsoft Visio. It enabled me to quickly create dimensional views and floor drawings for our upper management to visualize. After creating a couple workable plans, I presented them to General Manager Hank Littick and the PD, and then the on-air staff. I took their input for everything from board layout to room colors and started to incorporate those ideas.

I then created color views of the room from different angles, picked up color samples for acoustic foam, wallpaper and carpet, and presented those for everyone's blessing. Being a former jock, I recognized the importance of getting everyone's involvement, really listening to their input.

The biggest savings were by building the studio furniture. I wanted black cabi-



Because on-air audio still went through the room under construction, it was mandatory that certain equipment remain. There was a continuous two-foot stack of gear and wiring in the center of the construction,' said Slentz.

doing all this: the base increase would protect the cabinets from being kicked, raise them so the doors would open easily and give a combined sit-down/stand-up height of 34 inches with top. The top shim would add to the height and allow the doors to open without hitting the bottom of the countertop. This would still make the existing between-studio windows usable, and let the jocks stand or sit for delivery.

The cabinets were designed in a square "U" shape. Part of the "U" was created by taking one of the old 5-foot baby-blue RCA rack mounts, spray painting it satin black and adding it on the back of one leg of the "U" to create

symmetry.

The base cabinets used to support the countertop comprised six upper kitchen cabinets. With a 3-inch black filler and the rack mount on that end, it created almost equal sides. Note: the 3-inch pine filler painted black was to cover my "miscalculation."

The top was a little tricky. My See WHIZ, page 76 ▶

got tools? cables & connectors racks tools problem solvers test gear & much more
www.systemsstore.com

WHIZ

► Continued from page 75

measurements had to be *perfect* as the top was to be made custom. I really wanted a metal look, and lucked out with a brushed pewter finish. Relaying all the information about the countertop's final use to the counter craftsmen provided them with the information necessary to build the counter with extra support, almost 2 inches thick total. Naturally, this added weight to the install, but it provides much more strength and durability.

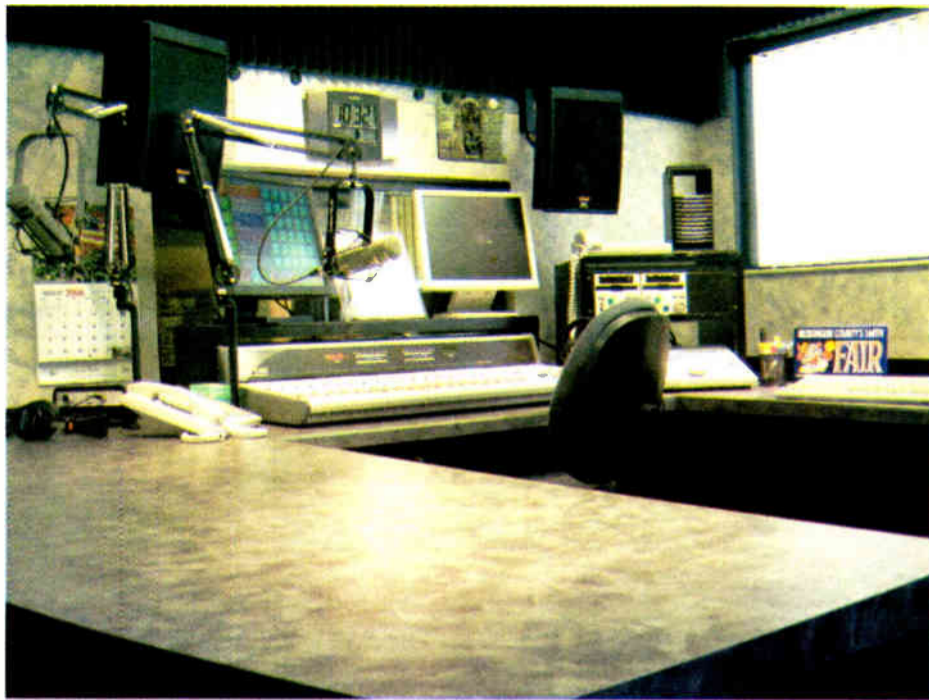
The top was designed so guests, as they walk into the studio, are faced with a rounded top where they can sit or stand to be interviewed. The DJ is in the center of the "U," but can easily reposition to interview.

Little time, lots of work

There was a lot to be done in five days. That was all the time we had to complete the install, start to finish, as the loss of production studio use had to be minimized; FM air moved to our main production studio. I again used Visio to create a solid timeline and would need to stick to it religiously in order to finish in six days.

There was only one part where I lost complete control, and that was on the carpet install. It was necessary for these folks to make the deadline. Murphy's Law took place and carpet was installed 24 hours late due to "unforeseen circumstances." This created a chain reaction requiring two 32-hour workdays to make up time and keep to our schedule.

The studio was stripped of old red acoustic carpet and the myriad of radio station wall hangings. Inner double-pane glass was removed between studios and



WHIZ's New Studio

scot and floor also was used on the backside of the cabinets, which were resupported by adding 3/4-inch plywood across the backsides. This gave a solid backing when mounting Krone blocks, 66 blocks and gear inside the cabinets, plus a solid backing for mounting carpet on the outside of the cabinets facing guests.

Edges of carpet were covered with a black vinyl edging. This really "dressed" the finish and ensured that the carpet wouldn't fray on the ends. The base of the walls and cabinets were bushed out 3.5 inches tall by 1/4-inch thick plywood to make sure the black vinyl base would ultimately be flush with the carpet.

To feed cables, I used a 3-inch door lock drill set for feed-throughs between all cabinets. Each cabinet has its own particular use, with one cabinet (nearest

hour project.

The job started on Thanksgiving and was to be handed over at 5 a.m. on Wednesday, Nov. 30, 2005; the morning jock starts at 5:30. Although the morning talent was in the studio with everything running at 5 a.m., we didn't actually clear

out of the studio until 5:15 a.m. Even with the Murphy's Law setback of almost a day, we were able to catch up and hand over the studio on time — pretty much.

Summary

As I mentioned, there are a lot of custom cabinet and pre-made cabinet manufacturers and suppliers. If time is an issue and money is not, I would certainly go with custom-made. If you can afford the time and effort and want something truly custom, then do-it-yourself may be the way to go.

We received many positive comments, from sales staff to guests, about the new studio. One thing is certain — when you receive praise for a job like this, you really take that praise to heart. Our engineering department is proud of the job and looking forward to creating a new studio for our AM station in 2007.

We also have a full-power TV station we're working on. The next do-it-yourself project will likely be a complete redesign of our TV master control. There's no shortage of projects in small-market radio and TV.

Interested in writing about your recent RF or audio facility project? Send a query e-mail to radioworld@imaspub.com.

Dan Slentz is chief engineer for WHIZ(FM).

Provisions List for WHIZ Remodel

- ✓ One box of Auralex Acoustic Foam
- ✓ Two cans Auralex Spray Glue (for acoustic foam)
- ✓ Three rolls wallpaper
- ✓ 1 gallon wall primer (to finish drywall for wallpapering)
- ✓ 50 lf of Chair Rail
- ✓ 21 square yards of carpet
- ✓ Carpet Glue
- ✓ 60 feet of 4-inch black vinyl Base (around studio and back of cabinets toward guests)
- ✓ 16 feet of 2-inch black vinyl Base (jock side of cabinet base)
- ✓ Two tubes of adhesive glue (for chair rail and baseboard buffers)
- ✓ 1 qt. vinyl base glue
- ✓ (2) 45-degree corner black cabinets
- ✓ (2) 30-inch-wide black cabinets
- ✓ (2) 36-inch-wide black cabinets
- ✓ One custom countertop
- ✓ (7) 2 x 4s (8-foot length)
- ✓ (3) 3/4-inch – 4 x 8-foot plywood (for back of cabinet's strength and support)
- ✓ (1) 1/4-inch – 4 x 8-foot plywood (for baseboard carpet buffers)
- ✓ (1) 1/2-inch – 4 x 8-foot plywood (ship top of cabinets)
- ✓ Three cans Satin Black spray paint (for rack mount and chair rail)
- ✓ 1 qt. Black Satin Rustoleum (for steel door frames)
- ✓ Various finishing nails and drywall screws

Equipment Chosen for the Job

- ✓ Scott Automation and Live Assist CD32
- ✓ Audioarts D75 audio board
- ✓ Two Electro-Voice RE20 microphones
- ✓ OC White booms
- ✓ 360 Systems' Short/cut audio editor
- ✓ AudioMetrics CD10 (to be replaced)
- ✓ Gentner Hybrid (to be replaced)
- ✓ Panasonic SV-3800 DAT
- ✓ Three Behringer UltraVoice VX2496 mic processors
- ✓ Crown D75 amplifier
- ✓ JBL Control 5 monitor speakers
- ✓ Digigram VX222 sound card
- ✓ Adobe Audition software
- ✓ Symetrix 4 x 4 distribution amplifier

If you can afford the time and effort and want something truly custom, then do-it-yourself may be the way to go.

walls were prepped, all prior to starting the project. Jocks were cool about the disruption, as they knew they'd benefit from the new digs.

The first day was really a full demolition day. Almost everything was removed. Because on-air audio still went through that room, it was mandatory that certain gear and wiring remain. There was a continuous two-foot stack of gear and wiring in the center of the construction. During the six days there were a few "bumps" in audio, but nothing really noticeable to listeners.

Sound vs. aesthetics

Walls were given a two-foot top border of acoustic foam. From two feet down to the chair rail — 34 inches — was wallpaper. With the colors of black, gray and white, I approached the interior designer, my sister Jody, on how to "warm" the room without dating it. She suggested adding taupe to the wallpaper color. The carpet was from the satin black chair rail down to the black vinyl wall base and across the floor.

Acoustically, the studio had much less reflection with the new treatment versus the old thin acoustic carpet, even with wallpaper in the middle.

The same carpet that made up the wain-

the rack mount) being used for DJ storage. One cabinet houses original punch blocks and a patch panel. The next has the new Krone punch blocks for the harness to the D75 board.

Two cabinets are feed-throughs for wiring with a couple of "stick-on" circuits for headphone amps, etc., and the last hides a Crown amp. There were no knobs installed on these cabinets to discourage the "unauthorized" from entering. We may add cabinet locks to the top of the cabinets if needed.

The total cost for this project, including cabinets, plywood, 2 x 4s, countertop, carpet, wallpaper and acoustic foam, was just under budget at \$4,500. The custom and pre-made furniture we looked at prior to taking on the project ranged from about \$4,000 (pre-made) to almost \$10,000 (custom), and that didn't include any of the remodeling. If we hadn't remodeled the studio, the furniture cost alone would have been about \$3,100.

These are not bad costs for a do-it-yourself project, and one that was completely custom fit to our needs.

However, another factor is the physical work. I'm salaried, so extra work isn't equated into the cost factor. Between the work of our engineering department and pre-planning, this was probably a 150-

Marketing, Attitude Yield Voiceover Success

Author Joan Baker Says a Voiceover Artist Needs More Than Just a Great Voice to Make It in the Business

by Maureen Anderson

Has anyone ever told you that you have a great voice and should become a voiceover artist? If so, Joan Baker wishes you luck, because it's going to take much more than a great voice to make it in the business. But she has made it, and shares what she's learned in her book, "Secrets of Voice-Over Success: Top Voice-Over Actors Reveal How They Did It (Sentient Publications, 2005)," which goes into its second printing in 2007.

Baker, who lives in New York City, has narrated, with President Bill Clinton, a documentary about the founding of the William Jefferson Clinton Library. Her other clients include American Express, ABC News, HBO, ESPN and Sony Music. The success of the book has propelled Baker onto the lecture circuit and now she's busier than ever. But she took time to share some tips with Radio World readers.

Q: What does it take to make it in voiceover?

Baker: People think, "I've been told I have a great voice and I should get into voiceover." Like that's all there is to it. If I wanted to be an accountant, I wouldn't apply for a job and say, "Someone told me I'd be good at this." I'd go to school and find out for myself.

As a matter of fact, in the voiceover industry your voice isn't even all that important. What's more important is how good you are at marketing yourself, how well you take direction and how consistently you make the copy come to life.

Q: Have you always wanted to be in voiceover?

Baker: I got into voiceover because it was a career I couldn't be seen in. I'm biracial, so there's always been a concern about what category I go in. That's important in commercials. You don't want viewers spending 30 seconds trying to figure out if I'm black or white instead of focusing on the product.

I was feeling low one day, flipping through Back Stage, when I noticed an ad for a voiceover coach, Joni Robbins. Her first name was [similar to] mine and something clicked. I decided to do a voiceover tape, but only because it might be another way to get myself out there.

Joni helped me create a demo with cartoon and character voices, which I'd always been good at, and added a couple of sample spots with my normal voice. I encourage people to have someone direct their demo because it's almost impossible to be objective about yourself.

Once I had the tape I started at the top talent agencies and was going to work my way down, but I didn't have to. The first day I got into a top talent agency. The man started listening to my tape and within seconds told his secretary to hold all his calls so he could listen to the rest of it. I walked into another talent agency the same day and got another interview.

The third agent I talked to was Don Buchwald — he represents Howard Stern — and that's who I signed with. I've been working steadily ever since.

the new one likes to bring in their own people, so you're back out there looking.

Q: You're the exception.

Baker: In terms of how easy it was for me to get started, yes. But I'm like any other voiceover artist in that, even though we have agents, it's still up to us to find work.

An agent can get you the auditions but you have to get the jobs, and you're always looking for the next one. Even if you have a contract with a television network, there's no guarantee. Producers change positions and



Q: What do you love most about the work?

Baker: I love the freedom of expression. I'm reading what someone else wrote, but if what I brought to the message wasn't important, the writer would be in front of the microphone.

See BAKER, page 80



Joan Baker

CALIFORNIA
dreamin'

Audio Engineering Society

where audio comes alive!

121ST AES CONVENTION

exhibits: Oct. 6-8, 2006 conference: Oct. 5-8, 2006
MOSCONE CONVENTION CENTER
SAN FRANCISCO, CA, USA

PRODUCT EVALUATION

PV 10 Flexibility Facilitates Remotes

Peavey's Six Mic Inputs, Monitor Bus, USB Option Enable Crisp Broadcasts From the Remote Site

by Paul Kaminski

When USB sound cards appeared, they offered at first an easy way to get clean sound in and out of a computer. Peavey took the concept and married it to its PV Compact Mixer line. The result is a unit that will solve small-studio and remote problems, with the dependability that gigging musicians have long depended on.

The PV 10 is a stereo console with six microphone/line mono inputs and two pairs of line inputs (for stereo sources) on eight slide pots, hence the "10" designation. The six microphone channels have individual gain controls, so whether you feed them with a large diaphragm condenser like the CAD M-177, a shotgun like an Audio-Technica AT-897 or a dynamic announce microphone, you'll have plenty of gain for even the softest voice.

If you're using a condenser microphone, 48 volts of phantom power is available on each mic channel. The published specs for frequency response were 14 Hz–25 kHz on the mic channels. Three channels of color-coded equalization and an 80 Hz low-cut filter on the mic channels tailor the tone, but if you still want to use an external processor, no problem. Each mono mic channel has a 1/4-inch TRS insert jack.

If you're using a line input on the mic channels (1–6) you'll feed them with a 1/4-inch TRS balanced or unbalanced input (10 k-ohm). Line inputs 7/8 and 9/10 are two pairs each of unbalanced 1/4-inch inputs with a pair of RCA stereo line inputs underneath. You select the input with an A-B switch. The line outputs — left and right channels — are available at the same time on pairs of XLR and 1/4-inch outputs. Each of the eight channels has a mute button and a signal presence

LED over the channel fader.

The PV 10 contains a monitor bus, which can be used to devise a mix-minus feed for a remote or for a telephone hybrid send channel; and an effects bus, which gives the user 16 separate digital effects. There are RCA tape inputs and outputs, too.



The power cord is a standard IEC cord which you can find almost anywhere. It feeds an internal power supply so no wall-wart power transformers are needed. The PV 10 has eight-segment peak-reading LED meters. The power consumption is 13 watts.

With the USB option, there's a standard USB connection on the back of the mixer, and a record level control, which adjusts the level of the left and right main mix being sent to the computer. The signal from the computer can be monitored through the headphones and assigned to the main mix; it's adjusted using the computer's volume control. Effectively, the PV 10 acts like a computer sound card, with much more capability.

I used the PV 10 in a studio setting, to mix and record our weekly "Race-Talk" and "Radio-Road-Test" programs. There was a noticeable difference when we compared the recordings made with the PV 10 and those made directly to the Dell Latitude computer sound card inputs. So as the heart of a small but fully functional studio, or for air talent who want to work from home, the PV 10 works well.

On remotes, the engineer will appreciate the flexibility. Simultaneous line out-

puts of the main mix facilitate feeding a PA and recorder. Six microphone inputs will make a multi-talent game broadcast much easier. The mix-minus on the monitor bus can feed the codec, loop and RPU, while the return can be heard through headphones with the proper routing. Take a USB-equipped laptop and the entire broadcast can be run from the remote site with commercials inserted from the computer.

The dimensions — 12.125 x 14.75 x 3.5 inches — will help in tight quarters. For more flexibility, there's an optional rack mounting kit available. If you're planning emergency backup installations, the PV 10 can provide the flexibility to connect microphones, callers through a

Product Capsule:

Peavey PV 10 Compact Console

Thumbs Up

- ✓ Easy plug-and-play for USB Audio
- ✓ 16 digital on-board effects
- ✓ Aux send for mix-minus
- ✓ Three-band EQ on all channels
- ✓ Plenty of gain for mics; insert capabilities for processors

Thumbs Down

- ✓ Headphone amp clean but low

PRICE: \$299

CONTACT: Peavey Electronics in Mississippi at (601) 483-5365 or visit www.peavey.com.

hybrid, line inputs and commercials from a computer, with two pairs of line outputs, as well as the USB audio connection (streaming, FTP, etc.).

Those who like it loud in their headphones might opt for a headphone amp. We used Koss PRO4-AAT headphones and didn't get loud, even when the headphone channel was adjusted to full open. A game remote or multi-user application suggests that a headphone amp would be useful.

The PV 10 retails for \$299. The company has a reputation for building durable equipment designed primarily for the musician. With 0.02 Total Harmonic Distortion, -129 dBu Equivalent Input Noise, 14 Hz – 25 kHz frequency response and USB digital audio input and output at that price, the PV 10 would seem a bargain for those engineers who need to deliver digital audio on an analog budget in remote, small-studio or emergency backup applications.

Paul Kaminski is the news director for the Motor Sports Radio Network. His e-mail address is motorsportsradio@msrpk.com.

PRODUCT GUIDE

Vadis 212 Integrates Fanless PSU

Klotz Digital has upgraded its Vadis product line with the Vadis 212 audio router and DSP engine. The company says it offers improved aesthetics, an enhanced front-panel display and integration of a fanless PSU, which reduced frame size to 3 RU. It is the successor of the Vadis 210 and handles up to 256 x 256 I/O channels.



The Vadis 212 consists of a 19-inch mainframe with 10 freely assignable slots for interface plug-in cards covering established analog and digital formats. Decentralized signal processing, routing and fiber optic audio networking offer shared access to inputs and outputs, as well as DSP functions.

The router comes with control software. To extend the operation and enable control from different locations Router Control Panels can be attached. The system status is monitored regularly and the last system status is stored automatically on non-volatile memory to ease accessibility after power-off.

The fanless PSU is installed at the front of the Vadis 212 for accessibility and silent operation, which allows the user to install the engine directly in studios or other noise-sensitive areas. A redundant PSU is optionally available.

Multiple DSP cards are available to enable real-time audio processing like EQ, limiting, expanding, compression, level adjustment, level measurement for metering and alert, distribution and mixing.

For more information, contact Klotz Digital in Georgia at (678) 966-9900 or visit www.klotzdigital.com.

Soundelux Offers Switchable Version of U99

Soundelux debuted the U99S, a switchable version of the U99 microphone. It combines two high-grade tube condenser mics in a single unit, which gives users the choice of selecting Normal or Brite sonic signatures.

The company says recent modifications made to vintage mics remove the low-pass filter circuit in order to achieve a more open high-end sound, and that the U99S delivers that performance characteristic by switching to the Brite mode. In Normal mode, a high-frequency rolloff is introduced that replicates the performance of the original vintage mic.

The U99S uses the P99 true linear power supply, which is derived from the original vintage technology. In addition, the unit features a German handmade, one-inch diameter dual-symmetrical backplate and a dual-membrane kk67 type capsule tensioned for warmth and clarity, while avoiding the 5 kHz rise common to some vintage microphones to produce a less peaky mid-range response. Other highlights include high gain, flat mids and a controlled proximity effect.

The U99S retails for \$3,250.

Soundelux Microphones are distributed by TransAudio Group in Nevada. For more information, visit www.transaudiogroup.com or call (702) 365-5155.



The Preferred Choice for Automation and Switching Solutions

STEREO AUDIO ROUTING SWITCHER



SS 16.16

The SS 16.16 provides audio routing of 16 stereo inputs to 16 stereo outputs. This type of routing allows any one stereo input to be assigned to any/or all stereo outputs. The SS 16.16 may be controlled via front panel encoder controls and/or a multi-drop RS-232 serial port. A 40 x 4 LCD back lit display provides for input descriptions and macro setup. Additional features: headphone amplifier with front panel jack and level control, front panel monitor speaker with mute switch and level control, internal audio activity/silence sensor with a front panel ACT indicator and rear panel open collector, and a 16 GPIO port. FREE Windows NetSwitch remote control software, which supports Serial, USB and Ethernet with the optional ESS-1 Ethernet to serial converter, is available for download. Installation is simplified with plug-in euroblock screw terminals.

STEREO SWITCHER



SS 16.4

The 16.4 provides matrix audio switching of 16 stereo inputs to 4 stereo plus 4 monaural outputs. Matrix switching allows any/or all inputs to be assigned to any/or all outputs. The SS 16.4 may be controlled via front panel switches, contact closures, 5-volt TTL/CMOS logic and/or the multi-drop RS-232 or RS-485 serial port along with 24 GPIO's and input expansion port. Installation is simplified with plug-in euroblock screw terminals.

AUDIO CONTROL SWITCHER



ACS 8.2

The ACS 8.2 provides matrix audio switching of 8 stereo inputs to 2 stereo plus 2 mono outputs. Any input assigned to output one has facing capabilities. Matrix switching allows any/or all inputs to be assigned to any/or all outputs. The ACS 8.2 may be controlled via front panel switches, contact closures, 5-volt TTL/CMOS logic and/or the multi-drop RS-232 serial port along with 16 GPI's, eight relays, eight open collector outputs, and input expansion port. Installation is simplified with plug-in euroblock screw terminals.

STEREO SWITCHER



SS 4.2

The SS 4.2 provides matrix audio switching of 4 stereo inputs to 2 stereo plus 2 mono outputs. Matrix switching allows any/or all inputs to be assigned to any/or all outputs. The SS 4.2 may be controlled via front panel switches, contact closures, 5-volt TTL/CMOS logic and/or the multi-drop RS-232 serial port along with 16 GPI's, eight GPO's, and input expansion port. Installation is simplified with plug-in euroblock screw terminals.

DUAL STEREO AUDIO SWITCHER



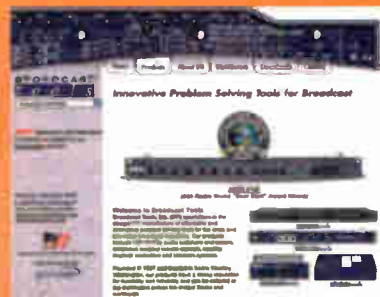
SS 8.2

The SS 8.2 provides crosspoint switching/routing with 8 stereo inputs, 2 stereo plus 2 mono outputs. 3 switching modes, I/O trimmers, internal silence sensor, selectable headphone and powered speaker level controls and outputs. LED VU meters, 16 GPI's, eight relays and eight open collector outputs. Multi-drop RS-232 and RS-485 serial ports, plug-in euroblock screw terminals and input expansion port.

BROADCAST
tools

Ph: 360.854.9559 • Fax: 360.854.9479

support@broadcasttools.com • www.broadcasttools.com



Be sure to visit our website at www.broadcasttools.com for downloadable manuals, complete product information, and a list of dealers.



PRODUCT EVALUATION

Time Tailor Audio Plays Catch-up

Prime Image Inc.'s Time Reduction Unit 'Nibbles Away' at Program Until Desired Length Is Achieved

by Mark Greenhouse

Prime Image manufactures the Time Tailor Audio, a live program time-reduction device intended to create additional time without data compression. It's able to do this without pre-recording, pre-processing, compromising the fidelity or changing the pitch (frequency) of the audio; and, within parameters, without artifacts.

The processor, which garnered a lot of attention in its earlier iteration as Cash, has a new look and is now part of a line of audio time management products called Time Tailor Audio. Though a single rack-space unit, it's deep and very heavy. It also houses a loud fan, which forced me to remote it to the airlock outside my studio. My demo unit offered only XLR analog in



the Time Tailor (preset to add 90 seconds of silence to the 29:59 finished program and routed to air), then sets up his 60-second and his 30-second commercials directly to air.

At the prescribed time, the tech would hit the Start button of the Time Tailor, the first sixty-second commercial and the full 29:59 minute finished program, all at the same time. The commercial would be heard (since it's routed straight to air); the full program would be playing into

transparent to my ear, with none of the glitches I'm used to using other time compressors. As a production person,

this is an indispensable tool that saves me much reliance on my wit to complete my project.

Mark Greenhouse is a member of the NPR Audio Engineering Department, and a frequent contributor to Radio World. He can be reached at mark@markgreenhouse.com.

I tell the device how many seconds to remove, start a recorder connected to the output of the Tailor, and the recorder captures a perfect-time production with no discernable change.

and outs. The front panel offers a Mode button for selecting the three parameters — audio level, time adjustments and preferences. The Set + and – buttons adjust these choices, and the LCD screen reveals your settings. There are four memory slots (F1-F4), and a set of Hold and Stop buttons which, when held down simultaneously, allow you to back out of any settings you have made.

The literature promotes the unit's main function like this: Typically a radio broadcast time slot allows all the way up to 30 minutes of *finished program content* per half-hour block. When local broadcasters rerun the shows, the program time allotment will probably need to be reduced by an unknown amount for insertion of commercials, promo spots and public service announcements.

Previous methods of compressing the running time included editing out audio, dropping credits or even playing the show at a greater than normal speed, resulting in a pitch change or other noticeable artifacts.

The Prime Image Time Tailor allows an operator to determine how much time is needed to be freed up during the programming block, and to activate the Time Tailor at the time of broadcast to nibble away at the program in microseconds and milliseconds, until the desired new length is achieved, permitting a new block of programming to be produced on the fly.

Up to speed

Let's use a 30-minute spoken word block as a demonstration example. The program is 29:59, and the station needs to run 90 seconds of commercials at the beginning of the block. The operator routes the program through the Time

the Time Tailor (but no audio would be coming out of it).

At the end of the 60-second commercial, the tech plays the next 30-second commercial (again, routed directly to air); the 29:59 finished program is still playing, but still no audio is heard. At the end of the 30-second commercial, the 29:59 program begins to play out of the Time Tailor, and 28 minutes and 29 seconds later it would finish.

Curious minds want to know, will it take six minutes out of a 12-minute piece? The answer is yes, but now our spoken word piece is starting to sound like we've had substantially too much stress today and we just want to get out of the studio.

There also is damage to the frequency response, potentially so much so that Prime Image has included a "Q" factor display that reveals a fidelity remaining "percentage"; in other words, the pristine 100 percent audio begins to lose percentage points as the time-reducing process eats away at presence, and eventually, overall frequency response.

Now, as an audio guy, I have to say my interest (and admiration for this invention) is for yet another function entirely. Once assigned a length of time for my piece, commentary or segment to run, I have to edit, rewrite, revise or alter my performance to get it to time. I could end up as much as 30 seconds long on an 18-minute segment. No problem.

I can get it to time with a brief data-entering session with the Time Tailor. I tell the device how many seconds to remove, start a recorder connected to the output of the Tailor, and the recorder captures a perfect-time production with no discernable change. The unit is extremely

Baker

► Continued from page 77

I love knowing I'm inspiring people, informing or entertaining them.

Q: How did "Secrets of Voice-Over Success" happen?

Baker: I was taking a class on self-expression and leadership, and we had to do a project that would impact our community. My father had recently died of Alzheimer's, and one of the cruel things about that disease is losing the ability to communicate. So I created this book in the class, and started working the phones. I talked to top voiceover actors about how they made it in the business, what advice they have for others and how they'd like to be remembered.

'I love the freedom of expression.'

I also included a section in the book about Alzheimer's, written by professionals — what it is and how you can help. All my royalties from the book will benefit the Alzheimer's Association.

Q: How has your life changed as a result of writing it?

Baker: I have a new appreciation for letting go. By that I mean, the more I try to control what happens the less it seems to go that way. Let's face it, your career in show business is at the mercy of a lot of people, which can make you neurotic. You may as well surrender to the magic of not knowing how things will turn out. I'm starting to enjoy that.

Q: I imagine we could all benefit from voice training.

Baker: Absolutely. The voice is a blueprint of who you are. I can tell from the way someone breathes what their issues are. Children breathe through their diaphragm, the way we teach professionals to breathe, but they do it instinctively. As they grow up they accumulate fears and blocks, all of which are reflected in the voice.

Then I think we spend our adulthood trying to get our breath back, trying to recapture the wonderful way we had of

Product Capsule:
Prime Image
Time Tailor Audio

Thumbs Up

- ✓ Real time, on-air operation
- ✓ No audio artifacts
- ✓ Doesn't affect pitch
- ✓ Variable selection: add from .01 milliseconds to four minutes, within 10 minutes to two hours

Thumbs Down

- ✓ Analog-only
- ✓ 30 seconds is the minimum amount of time possible to reduce
- ✓ Noticeable fidelity loss when removing a large chunk of time from a short-program piece

PRICE: \$4,500

CONTACT: Prime Image Inc. in California at (408) 867-6519 or visit www.primeimageinc.com.

looking at the world; which is why when you see someone doing work they're meant to do, you say they've found their voice. That's exactly what happened.

This work never stops, of course. Using my profession to help the Alzheimer's community means a lot to me. I'm giving a voice to people who are losing theirs, and finding my own in the process.

For more information about "Secrets of Voice-Over Success" visit www.secretsofvo.com.

Maureen Anderson is host of *The Career Clinic*, which airs on the Business Talk Radio Network. For more information, visit www.businesstalkradio.net.

Baker's Tricks Of the Trade

- Be a professional; with your clients, your agent and everyone else. This business is about relationships.
- Remember that you're part of a team. Make friends with producers, writers and studio engineers. You won't be sorry.
- Be prepared to support yourself financially while you're building your voiceover career.
- Find your authentic voice, and claim it. Show up for work at your best. Your personal issues have no place in the studio.
- This business is tough and competitive. You have to spend money to make it, so hire a coach and attend industry association meetings and conventions.
- Learn to embrace criticism. The client values you as much for how you take direction as they do your voice.
- Most professional voiceover actors are members of a union. Find out why.
- Competition is not the enemy. As the saying goes, there's no one else exactly like you. You're being paid to be you — at your best.

BROADCAST

Equipment Exchange

"Broadcast Equipment Exchange" accepts no responsibility for the condition of the equipment listed or for the specifics of transactions made between buyers and sellers.

ACOUSTICS

WANT TO SELL

AcousticsFirst™
Toll-Free Number: 888-765-2900

Full product line for sound control & noise elimination.

www.acousticsfirst.com

ANTENNAS/TOWERS/CABLES

WANT TO SELL

AM Ground Systems

Reliable, On-time Installation
Quality Workmanship
Ground System Evaluation and Repair

www.amgroundsystems.com
1-877-766-2999

1,109 Ft Guyed Stainless G-7 Tower constructed in 1970 to hold top mounted UHF antenna as well as several solid reflector microwave antennas. Tower is currently standing on a site near Farmville, NC. Purchaser is responsible for disassembly of the tower and removal from the site. Contractor to remove the tower must be approved by the site owner. Contact Wayne Estabrooks @ 919-549-7265.

WANT TO BUY

Looking for 3 Rohn 65G, 10-foot sections for purchase. I am located in Quincy, California, 80 miles northwest of Reno, Nevada. Contact Jeff at (530) 284-6190, or e-mail at bigandfriendly@frontiernet.net

3 1/8" And 1 5/8" Coaxial Relays Continental Communications 314-664-4497, Cantcomm@Sbcglobal.net

AUTOMATION EQUIPMENT

WANT TO SELL

Three RDS Rack-Mount Phantom Automation Systems. Each system records and plays in the following formats: MPEG, CDI-C 4:1, ADPCM 4:1, ADPCM 1 4:1, PCM 16-bit (WAV). Each system includes keyboard, monitor, and Broadcast Tools SS8.2 dual stereo crosspoint switcher. \$1600/ per system. Contact Greg Garrett 864-414-4140.

Now available, radio automation for the Linux operating system. Schedule music, voice track, create shells, auto or announcer assist mode, set intro and ending cues, hit the vocal every time with your voice tracks, execute exact time events, join networks, and more. The software is free, there is a small duplication fee. For more info call 406.665.1832.

CASES/RACKS

WANT TO SELL

Two (2) Borg-Warner 19 inch x 5 feet equipment racks. Asking \$100.00 each or \$200.00 for the pair. (Must be picked up @ location) Call Jim 850- 878-5746 vintageradio@unr2.net

CHAPTERS

Who you know can make all the difference

SBE Get connected to an SBE Chapter
www.sbe.org
(317) 846-9000

CODECS

WANT TO SELL

Two Musicam USA Netstar 500s about 1 year old, Good Working Condition - \$3600 for the pair. Call Bill Lacy 561 912-9002 or email bill@billacy.com

COMPLETE FACILITIES

WANT TO SELL

NEW OR USED COMPLETE PACKAGES

STUDIO/STL/TRANSMITTER /ANTENNA OR ANY COMBINATION OF ABOVE.
-LEASE OPTIONS-
-EMERGENCY RENTALS-
-REMOTE BROADCAST RENTALS-

SCMS, Inc. (800) 438-6040
"You Know We Know Radio"

CONSOLES/MIXERS

WANT TO SELL

Auditronics 424P Production Audio console recently retired with its power supply. Call for details and pictures- \$600.00 Aaron Savage 808-961-0651

WANT TO BUY

Sparta A-20, A-20-2, AS-30, or A-15 Mid 1970s "lift-top" Sparta Grey and Silver console. Should be in working condition and complete. Prefer S/N 191 through 303. Prefer you send me information on your unit and your price to my email account- Duane Williams, djwillia@libby.org but you can also call me at 406-293-6234.

Amplex AM-10 mixer in operating condition. Bill Cook, 719-687-6357.

LIMITERS/AUDIO PROCESSING

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, 972-271-7625.

LOGGING SYSTEMS

WANT TO SELL

Texscan MSI EAS Xpress Control - Remote logging for TFT EAS 911 Good working condition - about 1 year old Make an offer - Call Bill Lacy 561 912-9002 or email bill@billacy.com

MICROPHONES

WANT TO SELL

AKG D12E, unused, with carrying case, in original case w/papers - \$400 email glen.kippel@gmail.com or call KWCY 760-328-1104

BAY COUNTRY BROADCAST EQUIPMENT

BUY - SELL - TRADE
Your #1 Source
For Quality Used Radio Broadcast Equipment

View The Latest List Online at: <http://www.baycountry.com>
Or call and we will fax it to you.

7117 Olivia Rd., Baltimore MD 21220
Toll Free: 877-722-1031 • FAX 443-596-0212 • E-mail: sales@baycountry.com

WANT TO BUY

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 972-271-7625.

MISCELLANEOUS

ROBSON BLOWERS AND FLARE BLOWERS, new & rebuilt for Elcom, Harris, CCA, CSI, McMartin, Goodrich Ent. 11435 Manderson St. Omaha, NE 68164 402 493 1886 FAX 402 493 6821

DONATION NEEDED

Non-profit radio station/ organization seeks donations of radio equipment. We specifically need a console, a P3 or higher computer, studio and field microphones, mic processor, studio monitors, CD players, a hard-drive based field recorder and a telephone audio interface. Email: ColinCruz@TheBlast.FM

REMOTE & MICROWAVE

WE RENT FOR LESS

Blueboxes	FM Exciters
Zephyrs	FM Power Amps
POTS Codecs	STL's
RF/Audio Gear	Test Equipment

If we don't have it, we will get it!
SCMS, INC. (800) 438-6040
"You Know We Know Radio"

WANT TO SELL

Circuit Werkes DR-10 Dial Up Remote Control - works great. \$249.00 Call Bill Lacy 561 912-9002 or email bill@billacy.com

Sine System DAI-2 Dial Up Interface - Good Working Condition and about 1 year old. \$540.00 Call Bill Lacy 561 912-9002 or email bill@billacy.com



WANT TO BUY

Burk TC-8 Remote Control...need transmitter bldg unit only. Call Lincoln Hubbard 401-781-2066

Marti RPU Equipment Continental Communications 314-664-4497, Cantcomm@Sbcglobal.net

SATELLITE EQUIPMENT

WANT TO SELL

Satellite C/KU Reception Parts - www.davefant.com 479-471-0751

SCA/SUBCARRIERS PRODUCTS/SERVICES

WANT TO BUY

Modulation Sciences SCA-186 sub carrier generator - used. Please contact: Lisa Bordner, Radio Reading Service, 7615 DiSalle Blvd., Fort Wayne, IN 46825 Phone: (260) 421-1376 Email: NEIRRS@acpl.info

STATIONS

WANT TO SELL

SELL OR TRADE FM TRANSLATOR CPs in Montpelier Idaho on 95.7; Salmon Idaho on 101.1; West Yellowstone Montana on 105.7 & Bozeman Montana on 105.5. Call 208-709-2694 & ask for Max.

Profitable Small City 25kw FM in Maine. County seat, nice facility great upside for good operator. \$595,000. salesgroup@beld.net or 781-848-4201

OWN YOUR OWN!! FM Duopoly within 200 miles of Atlanta, Owner retiring! New Fulltime AM sleeper with real estate and limited competition...great terms! RETIRE DOWN SOUTH-CALL DAVE HEDRICK-256-613-2630

STUDIO-TRANSMITTER LINKS (STL) AND RPU

WANT TO SELL

Starline, Moseley T-1 - used 10 months. Like Brand new. \$6500 - call Jerry Evans 775-884-8000

Two Musicam USA Netstar 500s about 1 year old, Good Working Condition - \$3600 for the pair. Call Bill Lacy 561 912-9002 or email bill@billacy.com

SWITCHING, PATCHING, DISTRIBUTION

WANT TO SELL

Broadcast Tools SS4.2 Stereo Switcher -Good Working Condition and about 1 year old - \$239.00 - Call Bill Lacy 561 912-9002 or email bill@billacy.com

TAPES/CARTS/ REELS/CDs

WANT TO SELL

900 Plus 45 Records Broadcast quality - Mostly 70s & 80s \$400 plus shipping. Call Peter Russell 207-833-5473

VSoft COMMUNICATIONS The Leader in Broadcast Engineering Software

R.F. Communications Software and Engineering Consulting

Professional Software packages for FCC applications and predicting coverage.

- Create stunning "real-world" coverage maps and interference studies using Longley-Rice, PTP, FCC, ITU-R P.1546-1, and Okamura/Hata with Probe 3™
- Search for FM channels under spacings and contour to contour protection using FMCommander™
- Prepare AM skywave and groundwave allocation studies and map FCC contours with AM-Pro™
- Plot STL paths over 3D terrain with Terrain-3D™

Quality custom mapping and FCC engineering consulting available.
www.v-soft.com (800)743-3684

WANT TO BUY

Large or small collections of 16" transcriptions or 12" transcriptions, not commercial LPs. Bill Cook, 719-687-6357.

TRANSMITTERS/ EXCITERS/ TRANSLATORS

OFF THE AIR? Emergency Back-up Rentals

FM Exciters - STL's - FM Pwr Amps - Antennas - Studio & Test Equipment

SCMS Inc (800) 438-6040
"You Know We Know Radio"

WANT TO SELL

FM Translator at 104.5 - Manchester, KY Call Joey Kesler 606-843-9999

CCA 25 KW FM Transmitter w/new tubes, new spare tubes, original manuals, LPF. Reliable unit in above average condition. No exciter. Easy frequency change. \$11,000 Call Bob Hawkins 812-587-5637

Elcom Bauer 2.5 Kw transmitter. Excellent condition with new Bext Exciter - frequency agile - \$4000 - call Jerry Evans 775-884-8000

BESCO World Leader in AM - FM Transmitters

"Now in our 34th year"

AM & FM Pre-Owned Units in Stock

All Powers • Manufactures • Instruction Books • Spares & All Complete

Visit our Website: www.besco-int.com

Or Call Rob Malany, National/Int'l Sales at 321-960-4001

PROMOTE YOUR BUSINESS! ADVERTISE!

For more information, call Claudia Van Veen at 703.998.7600, ext. 154.

Rest Assured! FCC Certified FM Stereo Transmitter

- 50W RF output, continuous duty!
- Auto protect with auto soft fail & auto restore!
- Automatic battery backup!
- Digital display of all parameters
- Perfect for LPFM, Translators, as well as stand-alone exciters

www.ramseyelectronics.com
800-446-2295 In Our 33rd Year!

Reach Broadcast Professionals!

For more information, including rates & deadlines, call Claudia Van Veen at +1-703-998-7600 ext. 154.

Advertise Today!

Radio World at the Top

Prestige and Long Hours

Consultants

**Consulting Communications Engineers
EMC Test Lab**

- FCC Applications and Field Engineering
- Frequency Searches and Coordination
- AM-FM-CATV-ITFS-LPTV
- EMC Test Lab-FCC and European (IEC)

OWL ENGINEERING, INC.

651-784-7445 Fax (651) 784-7841

E-mail: info@owleng.com
5844 Hamline Ave. N., Shoreview, MN 55126 *Member AFCEE*

EVANS ASSOCIATES Consulting Communications Engineers

FCC Applications • Design • Field Engineering • Tower Detuning Upgrade & Relocation Studies • AM Directional Array Tuning & Proof

EXPERTS IN:
TV • DTV Transition • FM • Directional Antennas • RF Exposure

210 S. Main St., Thiensville, WI 53092. (262) 242-6000. FAX (262) 242-6045
http://www.evansassoc.com Member AFCEE

COMMUNICATIONS TECHNOLOGIES, INC.

- AM, FM, TV coverage & Upgrades
- Broadcast transmission facility design
- FCC applications preparation - construction permit and license engineering

Clarence M. Beverage • Laura M. Mizrahi
P.O. Box 1130 Tel: (856) 985-0077
Marlton, NJ 08053 Fax: (856) 985-8124
www.commtechrf.com

Mullancy Engineering, Inc. Serving Broadcasters Since 1948

9049 Shady Grove Court
Garthersburg, MD 20877
(301) 921-0115
Fax (301) 590-9757
mullaney@mullengr.com

MEDIA TECH INC. 704-799-2245
jpierce@mediatechusa.com

High-quality Internet Streaming For Broadcasters!

Give us a call to "hear" the difference!
Streaming Equipment available

The Coverage Map Store

REALcoverage.com

High Performance Engineering for Maximum Coverage

GRAHAM BROCK, INC. BROADCAST TECHNICAL CONSULTANTS

Full Service From Allocation to Operation AM/FM/TV/AUX Services:
Field Work/Antenna and Facilities Design

Over 45 years engineering and consulting experience

912-638-8028
202-393-5133
www.grahambrock.com

FASTER... MORE ACCURATE RADIO COVERAGE

- Real Time 3-D Displays
- Interference calculations
- Cost effective mapping
- Fully integrated databases
- Used by the FCC
- Latest standards built-in

RADIO SOFT

Visit us on the web at www.radiusoft.com
101 Debarre Sq. #111 Marietta GA 30067-7125

Doug Vernier Telecommunication Consultants
Broadcast Engineering Consulting
AM/FM/TV/LPTV/DTV
Custom mapping service
Frequency searches
Propagation prediction
FCC application preparation

VSoft Software for your PC

(800) 743-3684
www.v-soft.com

R. MORGAN BURROW, P.E. & ASSOCIATES, P.C.

ALLOCATION STUDIES
AM, FM, TV, UHF, New facilities, site relocation, FM upgrade, duplex

FIELD WORK A SPECIALTY

- AM Directional antenna adjustment, measurement & proof
- RADHAZ measure ments, RADantun Hazard evaluation
- FM & TV field intensity & other measurements
- Facility inspections for purchase/insurance purposes
- CATV leakage Testing

ELECTROACOUSTICS
OSHA measurements

304-258-7921 Fax 304-258-7927

Scientific Broadcast Technical Consultants
Since 1970

FM Engineering - FCC Applications
Upgrades, Maps, Frequency Search

Allocation FM Studies \$149.00

812-738-3482 kreising@otherside.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

JENNINGS VACUUM RELAYS

SURCOM ASSOCIATES
2215 Faraday Ave., Suite A
Carlsbad, California 92008
(760) 438-4420 Fax: (760) 438-4759
e-mail: link@surcom.com web: www.surcom.com

MÉXICO
INGENIERIA EN RADIODIFUSION Y TELECOMUNICACIONES

+52-81-83-583027 FAX: +52-81-83-581172
E-mail: etamezescamilla@axtel.net, etamez@ATT.net.mx

Empresa dedicada a: Venta de equipo. Asesoría y Gestoría en A.M., F.M., T.V. y MMDS. Elaboramos Memorias, Peritajes, Pruebas de Comportamiento, Características Técnicas, Planos, Proyectos, Instalaciones, Homologaciones y trámite para el NOM.

Are You a Distributor?

ADVERTISE HERE!
Space is available
Call 703-998-7600

TRANSMITTERS/ EXCITERS/ TRANSLATORS WTS (Con't)

TRANSCOM CORPORATION
Serving the Broadcast Industry Since 1978
Transmitters and Broadcast Equipment for Radio & Television

<i>Used FM Transmitters</i>		<i>Exciters</i>	
1.5 KW 1983	BE FM 1.5A	Used Continental 802A Exciter	
2 KW 1999	Crown FM2000A	"New" 20 w & 30W Synthesized exciters	
2.5 KW 1984	Continental 814R-1	<i>New TV Transmitters- Analog and Digital</i>	
3.5 KW 1986	Harris HT 3.5	OMB & Technalogix	
7+IBOC 2005	Harris Z16 HD	VHF and UHF TV Antennas	
10 KW 2001	Henry 10,000D-95	(10 W to 10 KW) TV STL	
20 KW 1985	Harris FM20K	<i>Used TV Transmitters</i>	
20 KW 1989	QEI FMQ 20,000B	1 KW UHF Xcerra 832A, CH 28	
25 KW 1980	CSI-T-25-FA (Amp Only)	5 KW UHF Harris Diamond CD Solid State	
50 KW 1982	Harris Combiner w/auto exciter-transmitter switcher	55 KW UHF GE TT59B, CH 25	
<i>Used AM Transmitters</i>		55 KW UHF RCA TTU-55B, CH 25	
1 KW 1980	Continental 314R1	<i>Used Misc. Equipment</i>	
1 KW 1999	Harris Gates 1 Solid State	Bird RF ThruLine Wattmeter, 50S	
1 KW 1983	Harris MW1A Solid State	Patch Panel, 3 Port, 1-5/8"	
5 KW 1996	Continental 315D Solid State	Denon 720R cassette NEW	
5 KW 1974	Continental 315F1	Potomac Phase Monitor 1901 Digital 2 Trw	
5 KW 1982	Harris MW5A	Sola Voltage Reg. 60hz 1 KVA s-phase	
5 KW 1987	Harris MW5B		
10 KW 1985	Continental 316F1		
10 KW 1982	Harris MW10A		
50 KW 1985	Continental 317C2		

Please visit our website for current listings.

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!

Radio World
Broadcast Equipment Exchange

Radio World

5827 Columbia Pike, 3rd Floor Falls Church, VA 22041
PHONE: 703-998-7600 ■ FAX: 703-671-7409

Classified Advertising Rates Effective January 1, 2006

	1x	6x	13x	26x
1-9 col inch (per inch)	\$110	105	100	95
10-19 col inch (per inch)	\$95	85	75	65
Distributor Directory	\$135	130	125	120
Professional Card	\$105	100	95	90
Station/Studio Services	\$200	170	145	123
Classified Line Ad	\$2/word			
rwonline.com Line ad	\$2/word			
Blind Box Ad	\$16 additional			

Call Claudia Van Veen, at 703-998-7600 ext. 154, to reserve space in the next issue. Use your credit card to pay, we now accept VISA, MASTERCARD and American Express.

www.rwonline.com



**POWER TUBES
REBUILT


1/2 THE COST
OF NEW!**

ECONCO

TEL: 800-532-6626
INTL: +1-530-662-7553
FAX: +1-530-666-7760
www.econco.com
SE HABLA ESPAÑOL



TUBES & COMPONENTS



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) 592-1221
Fax (650) 592-9988

Visit our Web Site at
www.eimac.com





D And C Electronics

An International Distributor of RF Components
Tubes
NEW & REBUILT

TRANSMITTERS, STUDIO EQUIPMENT, STLS, ANTENNAS,
RADIO DATA SYSTEM (FOR CAR RADIO DISPLAY)
EXCITERS-TRANSMITTERS, TRANSLATORS, MIXERS-CONSOLES, RADIO LINK
RPU, MOSFETS, VACUUM CAPACITORS, SOCKETS






BEST PRICES To Order: 1-800-881-2374 **FROM OUR STOCK**

Outside U.S. (352) 688-2374
Se Habla Español

3089 Deltona Blvd. 352-688-2374
Spring Hill, FL 34609 Fax 352-683-9595

Website: www.dandcelectronics.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 BUY
AM Phasors, Phasor Parts, Phase Monitors, Rf Switches, Am Transmitters. Continental Communications 314-664-4497, Contcomm@Sbcglobal.Net



RF PARTS™ CO.

Se Habla Español We Export

EIMAC • TAYLOR • SVETLANA
New & Rebuilt Tubes - Same Day Shipping

Motorola • Toshiba • SGS • Thomson & Mitsubishi Semiconductors

800-737-2787 760-744-0700
rfp@rfparts.com www.rfparts.com



Look no further, you're in the right place!

Radio World
Broadcast Equipment Exchange

Call today for current rates and deadlines!
703-998-7600, ext. 154

EMPLOYMENT

HELP WANTED




Saga Communications seeks a Chief Engineer for Yankton, South Dakota. We require that you have a minimum of 7 years experience in Broadcast Engineering, AF, RF, AM directional and IT in order to manage and care for our 2-station facility. FCC, SBE and Scott Studio A/V certifications - a plus. **Resume, salary requirements and references for consideration to: Les Tuttle, General Manager WNAX FM/AM. 1609 East Highway 50, Yankton, SD 57078.** Saga Communications is an Equal Opportunity Employer.



Saga Communications seeks a Chief Engineer in beautiful Asheville, North Carolina. We require that you have a minimum of 7 years experience in Broadcast Engineering AF, RF and IT in order to manage and care for our move into a state of the art plant. FCC and SBE certifications a plus. **Resume salary requirements and references for consideration to: Randy Cable, General Manager. 90 Lookout Road, Asheville, NC 28804.** Saga Communications is an Equal Opportunity Employer.

Reach Broadcast Professionals! To advertise e-mail cvanveen@imaspub.com



CLEAR CHANNEL RADIO has openings for **Engineers and Engineering Managers** in several markets. Successful candidates must be highly skilled not only in technical matters, but also exhibit strong management or people skills. These positions will have substantial hands on requirements, so if you are looking for a desk job, this probably isn't for you. Clear Channel Radio leads the industry in technological innovation and support for quality engineering. We offer Excellent Pay, Technical Training Programs, 401k, Employee Stock Purchase Plans, Great Benefits and many Opportunities for growth and advancement. If you have great technical skills and are ready to learn and work with our highly qualified team.... **Contact: Steve Davis - SVP Engineering, Clear Channel Radio, 2625 S. Memorial Drive, Ste. A, Tulsa, OK 74129, Phone: 918.664.4581, Fax: 918.664.3066 stevedavis@clearchannel.com.** Clear Channel is an Equal Opportunity Employer.

PROJECT TECHNICAL DIRECTOR, WISCONSIN PUBLIC RADIO is seeking an experienced audio engineer to mic, mix and edit our nationally distributed program, *Michael Feldman's Whad'Ya Know?* Requires: bachelor's degree, extensive experience recording/airing live performances; proven ability to properly install and use broadcast/ recording equipment and troubleshoot; successful live production mixing...and more. Please visit www.wpr.org/about to learn more. nelson@wpr.org 608-262-5221. EOE.



Saga Communications seeks a Chief Engineer where rivers roll, spires rise and eagles soar: Clarksville, Tennessee. We require that you have a minimum of 7 years experience in Broadcast Engineering AF, RF and IT in order to manage and care for our modern AudioVault/ Logitek based 6-station facility. FCC, SBE and BE A/Vcertifications a plus. **Resume, salary requirements and references for consideration to: Susan Quesenberry, General Manager - 5 Star Radio Group. 1640 Old Russellville Pike, Clarksville, TN 37043.** Saga Communications is an Equal Opportunity Employer.

POSITIONS WANTED

Friendly, Eager to work, ISRET Certified, Commercial FCC License with radar, NABER Certified two-way radio technician, amateur radio extra, seeks CE, asst. CE F/T, P/T Contract, AM/FM, Cable, TV. Contact: Mitchell Rakoff, mitchellrakoff@yahoo.com 718-969-5224

American Broadcasting School graduate is seeking a position as a producer or on-air DJ in Oklahoma, Texas, or Arizona. Jeff (405) 412-8757

Energetic, driven, and free-spirited individual willing to go the extra mile to get the job done efficiently. Loves interacting with others. Randy Miller 817-283-2970 millerhotrod@aol.com

Need a good sports talk show host? I'm looking for a spot in the surrounding eastern KY area - willing to relocate as well. Experience with call-in shows for all sports including NASCAR even high school sports! Tape available. Call Jim Ward at 703-371-5416 or nascar43324@yahoo.com

Good production, tight boards, efficient copywriting, team player, and very dependable. Looking for behind scenes, or on-air positions in programming or sports. Cleon - cleonmindstate@yahoo.com

Recent American Broadcasting School graduate looking to begin dream career in radio. Willing to travel and willing to do anything and everything. Cory (405) 401-6735

If you're in the market for an enthusiastic and creative on-air personality who has a natural gift of captivating an audience, contact Erica Misericadawn1@yahoo.com 214-499-3858

Seeking (non-selling) GM, or station manager position at CCM, or family-friendly station in the U.S. Thirty years experience in all areas of radio, more than 15 in management. Details about your opening to: radiomanager@charter.net

Talented graduate of ABS willing to travel to land a job in the radio industry. For more information, contact Heidi (405) 410-2992.

PROMOTE YOUR BUSINESS!

To advertise, call 703-998-7600 ext. 154
or e-mail: cvanveen@imaspub.com

ADVERTISER INDEX

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

PAGE	ADVERTISER	WEB SITE URL
55	25-Seven Systems, Inc.	www.25-seven.com
72	Acorn	www.acornrf.com
57	AEQ, SA	www.aeqbroadcast.com
65	Antenna Nord Telecomunicazioni Srl	www.antgroup.it
29	APT	www.aptx.com
32	Armstrong Transmitter Co.	www.armstrongtx.com
47	Audioarts Engineering	www.audioarts.net
72	Audio Labs	www.audionlabs.com
6	AudioScience Inc.	www.audioscience.com
9	Axia - A Telos Company	www.axiaaudio.com
17	Axia - A Telos Company	www.axiaaudio.com
69	Bext, Inc	www.bext.com
64	BIA Financial Network	www.bia.com
19	Broadcast Electronics	www.bdcast.com
47	Broadcast Supply West	www.bsswusa.com
79	Broadcast Tools, Inc	www.broadcasttools.com
54	Broadcast Warehouse	www.bwbroadcast.com
51	BSI	www.bsiusa.com
25	BSW	www.bswusa.com
47	BSW	www.bswusa.com
37	Burk Technology	www.burk.com
8	Burli Software	www.burli.com
69	Circuit Werkes	www.circuitwerkes.com
61	ClubNet/Veil Interactive	1-800-681-1053
7	Comrex Corporation	www.comrex.com
52	Continental Electronics Corp.	www.contelec.com
69	Cortana	www.cortanacorporation.com
27	Digigram Inc.	www.digigram.com
53	dMarc Networks	www.dmarc.net
49	Electronics Research, Inc.	www.eriinc.com
4	Electronics Research, Inc.	www.eriinc.com
34	ESE	www.es-e-web.com
33	Eventide	www.eventide.com
12	Falcon Picture Group	www.falconpicturegroup.com
3	Global Security Systems	www.gssnet.us
69	Gorman Redlich Mfg	www.gorman-redlich.com
66	Grace Broadcast Sales	www.gracebroadcast.com
1	Harris Corporation	www.broadcast.harris.com
59	Harris Corporation	www.broadcast.harris.com
74	Heil Sound, Ltd.	www.heilsound.com
42	Henry Engineering	www.henryeng.com
50	HHB Communications U.S.	www.hhbusa.com
24	Inovonics Inc	www.inovon.com
14	Kintronic Labs Inc	www.kintronic.com
48	LBA Technology, Inc.	www.lbagroup.com
10	Logitek	www.logitekaudio.com
43	Logitek	www.logitekaudio.com
66	Mediatron GmbH	www.radiocube.com
30	Moseley Associates	www.moseleysb.com
40	Mouser Electronics	www.mouser.com
22	MusicMaster / A-Ware Software, Inc	www.a-ware.com
23	Nautel Ltd.	www.nautel.com
35	NPR Satellite Services	www.nprss.org/rworld
60	OMB America	www.omb.com
18	OMT Technologies/Media Touch	www.omt.net
15	Onmia - A Telos Company	www.onmiaaudio.com
59	Orban	www.orban.com
44-45	Prophet Systems Innovations	www.prophetsys.com
72	Radio Design Labs	www.rdlnet.com
5	Radio Systems Inc	www.radiosystems.com
69	Raduga USA	www.raduga.net
31	RCS	www.rcsworks.com
71	RF Specialties	www.rfspecialties.com
47	RF Specialties	www.rfspecialties.com
28	Sabre Communications	www.sabrecom.com
39	SCMS	www.scmsinc.com
47	SCMS	www.scmsinc.com
20	Shively Labs	www.shively.com
11	Sierra Automated Systems	www.sasaudio.com
38	Sine Systems	www.sinesystems.com
67	Sine Systems	www.sinesystems.com
72	Sonifex Ltd.	www.sonifex.co.uk
21	Sony Broadcast & Professional Group	www.sony.com
72	Stormin Protection Products	www.opticsshield.com
26	Superior Electric	www.superiorelectric.com
13	Telos Systems - TLS Corp.	www.telos-systems.com
58	Telos Systems - TLS Corp.	www.telos-systems.com
11	Tieline Technology	www.tieline.com
16	ViaRadio Corp	www.viaradio.com
87	Vorsis	www.vorsis.com
2	Wheatstone Corporation	www.wheatstone.com
88	Wheatstone Corporation	www.wheatstone.com

◆ READER'S FORUM ◆

The Truth About AM Digital'

Barry McLarnon discusses the need for a full-time AM digital system like DRM for U.S. broadcasters ("AM IBOC Power Levels = Mystery," July 19). A later article ("HD Radio's Dollar Impact: \$1.6 Billion by 2011," RW Online) states that the ad income would be very good for the digital radio stations by 2011. These are great articles and show that digital-ready transmitters must be in place so ad dollars for radio will keep up with or exceed inflation in future years using present and future digital content delivery systems.

I hope Dave Richards (*Reader's Forum*, July 19) has read it, too. Congratulations for telling it like it is.
Robert E. Richer
Farmington, Conn.

Additional Software Required

I'm pretty sure you need the "Professional" version of XP to allow remote control ("Remote Desktop Can Save a Trip," July 19). While one would think most stations would be using that version, it might be worth a note or "Home" version users will be looking for it in vain.
Richard Factor
Little Ferry, N.J.



Likewise, public awareness must continue. FM is leading AM in the digital conversion process at the present time in the U.S., but AM may need even more improvement and awareness to be fully accepted in the U.S., as indicated in recent Radio World articles. Looks like the AM digital transmitters must be ready for DRM and/or an improved IBOC system to handle the worldwide marketplace requirements.

It must be noted that most of the newly sold AM transmitter systems installed worldwide can handle the digital signals with little modification. The few percent that have converted will greatly increase as these digital systems continue to improve and are fully recognized by the listener for all the stated advantages.

All of this supports my recent submitted article theme, which indicates the future looks bright for AM transmitter and associated equipment production.

Tom Yingst
Hershey, Pa.

Wow, it's finally on-the-table: The truth about AM digital in plain words from a guy who seems to know his stuff. Congratulations to Radio World for having the guts to print it.

Maybe all AM broadcasters will finally get their wish, and this nightmare (and "daymare") will die a horrible death.

Harold Bausermer
Boston

Barry McLarnon's essay on AM IBOC is the best and most honest piece I've yet seen on a deeply flawed system that is guaranteed to damage the majority of AM stations in the U.S.

Author Chris Prewitt replies:

Yes, without installing any additional software you are not able to remote into a computer running Window XP Home edition. If you need to remote into an XP home system, you would need to install some additional software. This does not affect the ability to remote from an XP Home system, only into one.

There are several software solutions to remotely manage an XP home machine, and I would suggest looking for one that best fits the situation you desire. If you want to support someone having trouble on the XP Home computer, you could use *Microsoft NetMeeting* to connect to them. With *Windows 2000, XP Home or XP Pro, NetMeeting* [can be accessed] by persons at each of the systems by opening up the Run box and typing in "conf.exe." This would require no additional software download but you must have a live person on each end.

If no one will be at the XP home machine, you may want to look into third-party software. You could purchase a powerful reliable program like *Symantec's PCAnywhere*. PC Anywhere has been around a while and the newest version, 12.0, sells for just under \$200 on www.symantec.com.

There also are many free products or free trials for programs like *LogMeIn*, *Rccit Technology's Remote Desktop 2.0* or *GoToMyPC*. At www.download.com you can search for these and many other programs that may solve this problem.

GUEST COMMENTARY

Dario Calabrese: Tribute to a Fast Friend

by Alan Carter

Dario Calabrese. He is the man for the job.

That resounding recommendation began a 15-year relationship between Dario Calabrese, Radio World International, the international editions of TV Technology and Broadcast & Production – Italy, and the IMAS Publishing Group. It also was at that time — the summer and autumn of 1991 — when Dario, as the sales agent for Radio World International in Italy, and I, as its new editor, became colleagues and, as we say in American English, fast friends; friends on the spot and with a relationship that lasts a lifetime.

Dario died July 28 at San Giuseppe Hospital in Milan after a nine-year battle with cancer, which recurred several years ago following a period of remission. He was 67.

A memorial service was held July 31 at his home parish church, SS. Carlo e Anna, in Milano San Felice.

Celebrating life

So now, we celebrate Dario's life and offer our condolences to his wife, Vittoria; his daughter, Raffaella, and her husband, Steve Trow; and his two grandsons, Luca and Marco.

Dario and I shared a series of e-mails earlier this year in which we reminisced about our trials, tribulations and escapades at trade shows and on business trips around Italy and in other countries helping Steve Dana, president and owner of IMAS



Dario Calabrese, 1938–2006

Publishing, develop Radio World International in Europe.

"Dario, remember when you got so disturbed that I got that meeting and lunch in the executive dining room with Thomcast in Paris?" I wrote.

"Yes, Alan," he responded. "You told me, 'Dario, I don't cost them anything as the editor. You do as the salesperson!'"

We laughed about one of the business trips we took around Italy. We went everywhere there was a transmitter manufacturer, and that took us pretty much all over the country.

Except Venice. I had never been to Venice, and Dario knew that. So we took the long, long, long, long way to the next meeting and spent the evening in Venice. I got the Dario mini-tour of Venice at night,

which ended with him introducing me to the delight of grappa sitting on one of the plazas. And we still remembered.

Essential to IMAS growth

While Dario was instrumental in the growth of Radio World International, he also was fundamental to the development of IMAS Publishing (Europe) Srl, which is based in Milan, and to the launch of TV Technology International (which has since grown into separate Europe, Asia/Pacific and Latin America editions), and finally Broadcast & Production – Italy.

In 1995, at the beginning of the European business expansion, Steve Dana named Dario managing director of IMAS Publishing (Europe). Since 1993 he was a sales agent representing IMAS publications in Europe, expanding his work that began in 1991 covering just Italy.

Steve commented, "Without Dario's experience and hard work, IMAS Europe and all our publications would never have grown as they have. Dario was a friend of mine as well as a very important part of IMAS. We had good times together and I valued his business sense very much."

Dario gradually cut back his workload after a recurrence of his illness in 2002, but he continued to work at IMAS to the end.

Dario's background

A little bit on Dario personally. He was born in Salerno, Italy, on August 13, 1938. He graduated with a degree in electrical engineering from Università degli Studi di Napoli Federico II in Naples in 1966.

He also served in the ground services division of Aeronautica Militare Italiana, the Italian air force, reaching the rank of reserve lieutenant.

Dario and Vittoria were married on Dec. 4, 1967. Vittoria said they first met exactly 50 years ago on a beach near Naples in the summer of 1956 during a holiday; she was 15, he 18. "He was my best friend," she said.

Dario loved reading from a very early age and had developed a deep cultural knowledge, particularly of the history, politics and geography of the world. He spoke many foreign languages, three of them fluently. He also played guitar, drew and painted when he was young.

Professionally, Dario worked in numerous positions with Bell + Howell following his university studies — including a period in the United States. He also worked for various companies in Italy before becoming an engineering consultant in broadcasting and audio-visual equipment. This led him to be a company representative and eventually to technical writing.

Dario was a member of the Albo degli Ingegneri engineering association in Italy, of SMPTE and of the local country club where he played pool and cards. He was also a green-badge member of the TOPE Club.

Yes, Dario was the man for the job.

Dario, your legacy will live on with IMAS, with your friends and through your family.

Alan Carter is the former editor in chief of Radio World International.

◆ READER'S FORUM ◆

BlackBerry Interference

I read with interest Leslie Stimson's article regarding RF interference from iPods, MP3 players, etc. ("Part 15 FM Devices Draw NAB Scrutiny," Aug. 2), but didn't see any mention of what appears to be a new problem that is increasingly annoying to us radio (audio) engineers. To my knowledge, this "new" problem hasn't been addressed in any of the trade publications I've seen.

I'm referring to the interference that is increasingly occurring, emanating from BlackBerry units into audio systems.

Field engineers, radio and TV news people, etc., here in the DC area are finding that the use of BlackBerries during events such as press conferences, hotel convention speeches and similar times where a PA and/or a "mult" system is in use, program sound can be significantly intruded. This is happening when such devices are in actual use (uploading/downloading). Reinforcement systems (PAs) are often subject to this clear and easily identifiable burst of interference.

Of course this should not be confused with any ambient noise associated with the rude ringing of cell phones or pagers. This is interference injected into the system and heard as unwanted audio — often at quite high levels.

While it may well be argued that shielding and grounding procedures may help to eliminate this problem, my question would be: Have these units actually been checked for, and do they meet, the applicable FCC standards?

Is there anyone out there that has any input on this?

Dave Bull
Washington

Pick Your Battles

This letter is in response to the article, "Part 15 FM Devices Draw NAB Scrutiny (Aug. 2)."

I find it ironic the NAB is loudly protesting to the FCC about interference from FM modulators. Besides complaints about high RF output levels, [it] also points out that some of the modulators have emissions on adjacent channels.

Meanwhile, the FCC, NAB and NRSC have all turned a blind eye to the fact that IBOC digital signals bleed over into adjacent channels, rendering otherwise listenable signals unintelligible over wide geographic areas. In contrast the signals from the offending modulators have relatively tiny RF footprints.

This invocation of harmful interference by the NAB is at best disingenuous given [its] willingness to accept the IBOC interference without even a whimper.

Paul Dobosz
Noblesville, Ind.

Out of the Box

What a pleasant surprise to see the Buc Fitch story ("Bauer's 707: Radio From a Kit," July 19).

The rear view is what helped to sell that transmitter, and I am always amazed by that wiring harness — it was one of a kind. Fritz Bauer did that one, and that is the transmitter we took to Chicago for our first NAB in 1960.

Any harness he made was always perfect. [Those were the days] of lacing cord, long before tie wraps. Fritz did not do the normal type of lacing; all of his ties were individual. Two turns of lacing cord and then he would tie, but in the back where it was not seen. Notice how straight everything is in contrast to the picture [at the bottom of that article]. Once the harness was designed we had them built outside by a firm in San Jose. Functional yes, but not as pretty as the one Fritz made.

The Sola and the Jennings vacuum capacitor were the other two items "where the money went." Considering what other people did (Gates slug tune inductors; Collins air variable capacitors) ours was a real quality approach — and it saved a lot of room. Hopefully some "kit builders," and there are still a few around, will write to you. It will be fun to read their stories.

Again, thanks for a great article about my favorite product.

Paul Gregg
Bauer Transmitters Inc.
El Paso, Texas



A young Fritz Bauer (standing) is seen working as chief engineer at KWTO/KGBX circa 1940.

I have enjoyed the Bauer articles in Radio World, and have a large collection of tube-type broadcast equipment. I am attaching a .PDF photo that shows a young Fritz Bauer working as a chief engineer at KWTO/KGBX, Springfield, Mo. The booklet this photo came from has a copyright of 1940.

Scott Horner
Salem Communications
Camarillo, Calif.

More Bauer Letters
on page 86

◆ READER'S FORUM ◆

More Out Of the Box

The article on Bauer transmitters ignites many memories I'd like to share. The Bauer 707 was one of the most "bullet-proof" transmitters available and proved that simplicity equals reliability. As the article noted, top-quality components allowed the 707 to excel in performance, including audio harmonic distortion of less than 0.5 percent.

My first encounter with the name Bauer was watching my friend Bob McVay assemble a Bauer 707 in kit-form for his KRKC(FM) in King City, Calif., in 1962. I'd assembled a few Heathkits, but I'd never dreamed of a broadcast transmitter.



Bill Kingman's photos of a 'mutilated 707.'

In January 1963, I was the first transmitter watch operator on a brand-new Bauer FB-5000J at KPER(AM), Gilroy, Calif. Ten months later, in November 1963, I began assembling a Bauer 707 kit at KOWL(AM), South Lake Tahoe — barely a year after watching my friend in King City.

I was a full-time DJ at KOWL and worked on the new transmitter in the evenings. It was licensed and put into daily 24/7 operation three months later, Bauer serial number 222. It still operates, now 42 years later.

The other local AM station, KTHO 590, also had a Bauer 707, serial number 150, kit-built by (the late) Capt. Don McBain in his Santa Monica garage. When KTHO added KTHO(FM) at Lake Tahoe, it was with Bauer's first 607 FM. And when Ed Crook built KRLT(FM) at Tahoe, it was with a Bauer 603.

By the 1970s, maybe half of all the stations in the Lake Tahoe-Reno-Carson City areas had Bauer transmitters.

I've worked on the Bauer 707 transmitters at KOWL and KTHO, both in South Lake Tahoe; also at KTRT(FM) Truckee,

Calif.; at KBET(AM) Reno, Nev.; and there was a 707 at KCBN(AM) Reno. KPTL(AM) Carson City, Nev., had a Bauer FB-5000J. KSRN(FM) Reno started with a new 10 kW Bauer, and there was a Bauer 603 at KODS(FM) Reno.

There is no doubt in my mind that this area's Bauer popularity is a tribute to Bauer's amazing Paul Gregg, one of the most ingenious, generous and resourceful persons I know. Very late one Monday night, lightning creamed the PA of KTHO(FM). By telephone from his home, Paul guided me through jumpering tactics, which got the station back on the air until new parts arrived the next day from Paul.

In the summer of 1967, we had to resolve a coverage issue. Paul Gregg loaned us not only a Bauer 707 transmit-



ter, but also loaned his own station wagon into which a 707 could fit on its back. We set up a temporary test transmitter site in the blazing desert north of Reno, and for two weeks we used Paul's 707 as well as his Ford while we conducted conductivity measurements.

In the early 1980s, Paul provided KTHO(FM) with a custom transmitter, which operated solely on wind and solar power high atop Genoa Peak in Nevada.

But, back to the Bauer 707. [The pictures show] what I found at a vandalized site some years ago, where someone obviously recognized the valuable components.

The sight of a mutilated 707 really bugs me, but I know Paul Gregg can fix it.
*Bill Kingman
Lake Tahoe, Nev.*

I had one at KLIN(AM) in Lincoln, Neb., that was built from a kit. I believe it was built by Vern Killion, the CE just before me.

I tried to access the story on Paul Gregg (with whom I worked at Sparta Electronics back in the early 1970s) that

FM Translators for AM Are a Good Idea

The NAB has submitted a Notice of Proposed Rulemaking to allow AM stations the ability to augment and improve service within their primary coverage area via the use of FM translators. The FCC has considered similar proposals in the past; they have been rejected except in unique cases such as instances in Alaska or those involving Cuban interference.

But the vitality of the AM service has continued to deteriorate despite various FCC rules changes aimed at its improvement. The NRSC mask and filter reduced sideband splatter; the "ratchet" clause reduced nighttime interference from modified facilities, and the expanded-band initiative attempted to move stations off cluttered channels.

While well intended, such changes have produced only limited relief for AMs that continue to lose audience to the forces of increasing noise pollution, satellite radio, the Internet and other media delivery services. The plight of daytime-only AMs has worsened considerably in the face of such challenges. It will only get worse next year when the country adopts four additional weeks of extended daylight savings hours from March to November.

Most AM stations have forever suffered the additional penalty of restricted primary coverage at night because of skywave propagation. Many lose a considerable percentage of their daytime coverage at night, especially the 1 kW local channel Class C stations, some of which lose up to 90 percent. Clearly these stations need help and they need it now if they are to endure and survive.

The NAB proposal calls for daytime-only stations finally to get the equivalent of full-time service by allowing them to operate their new FM translators on a 24/7 basis. This would appear to be the only opportunity for many such stations to be granted effective full-time status so they can serve their communities.

The proposal also calls for the new FM translator 1 mV/m contour coverage to be limited to the lesser of the existing AM 2 mV/m contour or a 25-mile radius from its transmitter site. This will complicate translator antenna designs and site selection for stations using AM directional antennas and for those who seek to use significantly elevated translator locations.

It will also present potential problems and conflicts using the existing archaic method of predicting FM coverage by using the 2 to 10 mile HAAT profile for a proposed station. The commission should adopt fully the use of terrain shielding and computer-generated Longley-Rice terrain profiles to determine real FM coverage in all FM allocations issues including this proceeding.

Some of the allocations and design issues may be challenging, but the effort will be worth it. Existing FM services including translators and LPFM stations would be protected. We think the NAB should have included the provision to allow any local AM station desiring an FM translator to trump any existing translator that imports a distant signal in situations where no open FM channels are available.

Much of the AM service is made up of news, talk, sports and religious formats that continue to provide valuable local service to their communities. NAB points out, and we agree, that when civil and natural emergencies strike an area, AM radio always rises to the occasion as the first choice for the majority of listeners.

While this proposal is a step in the right direction to provide AM long-overdue relief of consequence, more will have to be done to enhance and preserve the service as the HD Radio rollout moves forward. The commission and the industry should embrace this proposal.

— RW

was referenced to October 2004. I cannot find this story. Can you help?

*Dan G. Peluso
Jasoni Electronics
Las Vegas*

Radio World replies: That story can be found at www.rwonline.com; click on Special Reports and scroll to 10.06.04 for the article "Paul Gregg and 45 Years of Bauer."

Write to RW

Send e-mail to radioworld@imaspub.com with "Letter to the Editor" in the subject field; fax to (703) 820-3245; or mail to Reader's Forum, Radio World, P.O. Box 1214, Falls Church, VA 22041.

—EDITORIAL STAFF—

Paul J. McLane	ext. 117	Editor in Chief, U. S.
Leslie Stimson	ext. 129	News Editor/Wash. Bureau Chief
Kelly Brooks	ext. 136	Associate Editor, RW & Production Editor, RWEE
Thomas R. McGinley	—	Technical Adviser
Michael LeClair	—	Technical Editor, RWEE
John Bisset	—	Contributing Editor
Skip Pizzi	—	Contributing Editor
Marguerite Clark	—	Editor (International), Milan
Rogelio Ocampo	ext. 121	Latin America Editor in Chief
Karina Gerardi	ext. 137	Latin America Editor
Anne-Marie Smith	ext. 126	Assistant Editor (International)
Keith Tate	ext. 144	Editorial Assistant
Peter Finch	—	Editorial Assistant, Milan

—EDITORIAL CONTRIBUTORS—

W.C. Alexander, Bruce Bartlett, James Careless, Naina N. Chernoff, Harry Cole, Mark Durenberger, Charles Fitch, Ty Ford, Scott Fybush, Frank Grundstein, Harold Hallikainen, Craig Johnston, Paul Kaminski, Peter King, Mark Lapidus, Sharon Rae Pettigrew, Carl Lindemann, Ted Nahil, Tom Osenkowsky, Ken R., Rich Rarey, Tom Ray, Randy Stine, James G. Withers, Travis the W/O Guy, Barry Umansky, Tom Vernon.

Radio World

Vol. 30, No. 23 September 13, 2006

Telephone: (703) 998-7600 • Business Fax: (703) 998-2966 • Editorial Fax: (703) 820-3245
E-mail: radioworld@imaspub.com • Web site: www.rwonline.com

—ADVERTISING SALES REPRESENTATIVES—

US East & Latin America: John Casey	330-342-8361	Fax: 330-342-8362	e-mail: jcasey@imaspub.com
US West & Canada: Dale Tucker	916-721-3410	Fax: 916-729-0810	e-mail: dtucker@imaspub.com
Classified Ads: Claudia Van Veen	703-998-7600 x154	Fax: 703-671-7409	e-mail: cvanveen@imaspub.com
European Sales Mgr., Africa, Middle East: Raffaella Calabrese	+39-02-7030-0310	Fax: +39-02-7030-0211	e-mail: rcalabrese@imaspub.com
Japan: Eiji Yoshikawa	+81-3-3327-2688	Fax: +81-3-3327-3010	e-mail: callem@world.odn.ne.jp
Asia/Pacific: Wengong Wang	+86-755-5785161	Fax: +86-755-5785160	e-mail: wwg@imaschina.com

NEXT ISSUE OF RADIO WORLD SEPTEMBER 27, 2006
NEXT ISSUE OF ENGINEERING EXTRA OCTOBER 18, 2006

For address changes and subscription renewal, please visit www.rwonline.com and click on "Subscribe to RW." To submit letters or story proposals, to request writer's guidelines, or for other editorial matters, e-mail the editor at radioworld@imaspub.com.

—ADMINISTRATION & PRODUCTION—

Stevan B. Dana	.....	President
Carmel King	.....	Chief Executive Officer
John Casey	.....	Publisher
Marlene Lane	.....	Chief Operating Officer
Chuck Inderrieden	.....	Chief Financial Officer
Eric Trabb	.....	Vice President, Sales
T. Carter Ross	.....	Editorial Director
Davis White	.....	Production Director
Karen Lee	.....	Production Publication Coordinator
Lori Behr	.....	Ad Traffic Manager
Linda Sultan	.....	Classified/Product Showcase Layout
Robert Green	.....	Circulation Manager



Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by IMAS Publishing (USA), Inc., P.O. Box 1214, Falls Church, VA 22041. Phone: (703) 998-7600, Fax: (703) 998-2966. Periodicals postage rates are paid at Falls Church, VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 1214, Falls Church, VA 22041. REPRINTS: For reprints call or write Emmily Wilson, P.O. Box 1214, Falls Church, VA 22041; (703) 998-7600; Fax: (703) 998-2966. Copyright 2006 by IMAS Publishing (USA), Inc. All rights reserved.

—Printed in the USA—

This Little Unit



Can Do BIG Things!

Our new AP-3 is the perfect HD Processor!



SETTING UP FOR HD RADIO?

The VORSIS AP-3 digital processor is the ideal tool to shape your sound exactly the way you want it — cleanly and efficiently.

Built around a multi-band compressor with complementary AGC, the AP-3 replaces a whole rack of dedicated units. VORSIS pre-conditions your signal (HPF, LPF, notch filter, de-esser, expander), then let's you apply 3-band AGC/compression and 4-band parametric EQ (signal chain reversible) before going through a final stage zero-overshoot peak limiter.

With real-time spectrum density readouts and full metering, our included PC graphic interface software makes operation of the AP-3 direct and easy, offering complete control of all audio parameters, presets, monitor functions, system settings and security—all through a single RJ-45 ethernet connection that lets you control one or many AP-3 units.

TAILOR THAT SOUND

VORSIS™

It's a Whole New WORLD!



AUDIOARTS NET is the *EASY* way to interface your D-75N digital consoles! And because D-75Ns are also standalone designs each studio can operate *INDEPENDENTLY*, relying on the network only to share resources. And by *EASY* interface we *MEAN* it—you don't have to be a software guru or IT professional to get up and running—and *STAY* running! And because it's *AUDIOARTS*, you can rest assured it'll be reliable and preserve your budget. **TAKE ADVANTAGE** of *WHEATSTONE'S* extensive expertise in *DIGITAL TECHNOLOGY!*

 **AUDIOARTS ENGINEERING**

sales@wheatstone.com / tel 252-638-7000 / www.audioarts.net

Copyright © 2006 by Wheatstone Corporation