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Digital edition subscribers also enjoy RW Engineering Extra online.

Publishing Group

NEWS ANALYSIS

What Next For Google 'Audio Ads'?

Analysts Debate Outlook As dMarc Founders, the Steelbergs, Exit Google

by Randy J. Stine

MOUNTAIN VIEW, Calif. The departure of dMarc Broadcasting founders and brothers Chad and Ryan Steelberg from Google could signal problems with the Internet company's Audio Ads venture, some radio industry analysts believe. Google meanwhile says it remains committed to the closely watched project, now in beta testing.

dMarc founders Chad and Ryan Steelberg, who came to Google after selling their company to the Internet giant in January 2006, left Google this February. The brothers have chosen to not speak publicly about their departure. Ryan Steelberg had been director of Google's radio operations while Chad was general manager of audio.

Google's Audio Ads, a Web-based purchasing process for radio ads, was born of

See GOOGLE, page 8 ▶

Shown: Arbitron PPM encoders

Sat Radio Coexists With iPod, MP3s

Portability, Connectivity in the Car Are Said to Be Key for Satcasters

by Leslie Stimson

Here are some of the devices coming this year — as well as some already on the market — from the satellite radio companies, based on demos and product announcements from the winter Consumer Electronics Show.

XM, BUSHNELL UNVEIL HANDHELD GPS NAVIGATION DEVICE

Bushnell Outdoor Products, a company known for its binoculars and telescopes, plans to release a portable handheld

See SATELLITE, page 5 ▶

World Radio History

NEWSWATCH

XM, Sirius Merger Plan Engaged

XM Satellite Radio and Sirius Satellite Radio believe that combining saves them money, helps consumers and gives them the power to sign more subscribers more quickly.

They argue that the world of audio entertainment is larger than it was in 1997 when the FCC awarded their licenses, citing HD Radio, Internet radio, MP3s, iPods and cell phones as their competitors in audio entertainment.

The satcasters in February announced an agreement to combine in what they describe as a tax-free, all-stock "merger of equals." They valued the deal at about $13 billion, which includes net debt of about $1.6 billion.

The announcement solidified what had long been rumored. Analysts differ on whether regulators will approve the deal. The SEC, Justice Department and FCC will scrutinize relevant portions of the proposal to see if consumers would be well served by one satellite company. Company shareholders must approve the deal, which proponents hope will close by year-end.

XM and Sirius tout program diversity and lower prices for new, cool radios as benefits.

Mel Karmazin, CEO of Sirius and the person who would hold that title at the new company, said: "The American public wants us to be allowed to broadcast the Yankee games or the Giants game." Right now, consumers would need to subscribe to XM for baseball and to Sirius for football coverage.

FCC: Hurdle Is 'High'

The FCC would need to evaluate "any" transaction filed to determine if it is in the public interest, said Chairman Kevin Martin in reaction to the satellite announcement. Yet the hurdle, he said, would be high. The agency originally prohibited one company from holding the only two available satcaster licenses.

Martin stated the companies would need to demonstrate that consumers "would clearly be better off with both more choice and affordable prices."

NAB said it would be "shocked" if the deal went through, "given the government's history of opposing monopolies in all forms," according to the official reaction from spokesman Dennis Wharton.

"Now, with their stock prices at rock-bottom and their business model in disarray because of profligate spending practices, they seek a government bail-out to avoid competing in the marketplace."

"In coming weeks," Wharton continued, "policymakers will have to weigh whether an industry that makes Howard Stern its poster child should be rewarded with a monopoly platform for offensive programming. We're hopeful that this anti-consumer proposal will be rejected."

Stock Exchange

Under the terms of the merger agreement, XM shareholders would receive a fixed exchange ratio of 4.6 shares of Sirius common stock for each share of XM they own. XM and Sirius shareholders would each own approximately 50 percent of the combined company.

Along with Karmazin as heading a combined company, Gary Parsons, currently chairman of XM, would hold that title with the new entity.

The new board would consist of 12 directors, including Karmazin and Parsons, four independent members desig-

See NEWSWATCH, page 8 ▶

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World Radio History

GUEST COMMENTARY

Encoding for Ratings in the PPM World

by David Forr

The author is director of U.S. Encoding Operations for Arbitron Inc.

Broadcast engineers in the top 50 radio markets will have new responsibilities when Arbitron switches each market from ratings based on paper-and-pencil diaries to ratings collected electronically by the Portable People Meter system.

Because we know all too well that the last thing most station engineers want or need is something else to worry about, we've developed technology and put systems in place to make this new task as seamless and transparent as possible.

With diaries, Arbitron bears the sole responsibility for gaining the cooperation of audiences to record their radio listening. The PPM represents a fundamental change in how ratings are generated and requires a more collaborative approach.

Stations are being asked to encode their broadcasts with inaudible codes, using encoders and monitors provided by Arbitron. These encoders use a proven psychoacoustic masking technology to inaudibly embed a unique "serial number" into the station's audio.

We begin our collaborative efforts with stations by establishing a comfort level with the GM, who tells the station engineer, "We want to encode." Arbitron's Encoding Operations group then works with station engineers to obtain the specifics for each encoder we will be programming for the station.

Allan Fleishell, Arbitron encoding operations broadcast technician, conducts a final listening test for audio quality and encoding performance.

Encoding Operations group

On the front lines of Arbitron's Encoding Operations is a group of broadcast industry engineers. These Arbitron employees are SBE members and are focused on working with station engineers to ensure a smooth installation of Arbitron's encoding equipment.

A single engineer is the primary point of contact for all stations in a given market for both the initial installation as well as any followup work or assistance. This way, a station engineer can count on contacting an engineer at Arbitron who is familiar with that station and its specific needs.

Station engineers are our source for the details and diagrams on the signal routing throughout their facility. We use this information to decide mutually where the encoder should be installed to ensure it would function properly.

Each encoder goes through a configuration process to make sure all the parameters are consistent with the particular station's needs. This is followed by a checkout process, where we ensure the encoder is working properly, and a burn-in process, where we install the code.

We then run the encoder for at least 48 hours. Finally, we check it for encoding and conduct a listening test to ensure top audio quality and encoding performance.

Each encoder shipped to a station is marked clearly and identified for its respective audio stream. Detailed installation instructions are provided, and we have an Arbitron engineer ready to answer questions or go on-site for installation.

A separate encoder is provided for each feed: terrestrial analog, HD main and subchannels and Internet. Supported formats include analog mono, analog stereo, and AES/EBU digital at sample rates of 32, 44.1 and 48 kHz.

There is no cost to stations to encode and stations are not required to subscribe to the PPM ratings. Even non-subscribing stations can receive two encoders and a monitor free of charge.

Encoding backup systems

PPM also requires encoding the station's own backup systems. If the station has two parallel, independent signal paths through the facility going out to the same transmitter or to two different transmitters, we want encoders in place with the backup system as well.

Even with smaller stations that have one signal path through the facility, we still stipulate primary and backup encoders and recommend that they be set up in series, with one in "bypass" mode. That way, in the unusual event that encoding problems surface on one, the station engineer quickly can move the suspect encoder out of the program audio path by switching it to the bypass mode, and get the backup encoder into service by switching it to "encode" mode.

Once the equipment is installed, the station's engineer and Arbitron Encoding Operations test each encoder (main and backup) to make sure the equipment is functioning properly. This requires a return-air audio sample from each encoder.

The audio sample can be checked on-site by an Arbitron engineer, recorded and e-mailed, or even checked over the phone, because the code is embedded within the audio. In the latter case, it's a simple matter of having the engineer call us and hold the phone to a monitor speaker.

Once all components have been tested and we have confirmed that the station's broadcasts are encoded properly, we will begin reporting audience estimates for that station.

Encoding is at the core of our Portable People Meter service. The PPM tracks panelists' exposure to broadcasts by detecting the codes embedded in the audio delivered by broadcasters. This means that it is vitally important to be sure that every minute of airtime for every distribution channel leaving the station includes these codes. Otherwise, the PPM will be unable to credit exposure to the station.

See ENCODE, page 6 ▶

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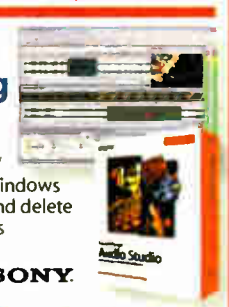

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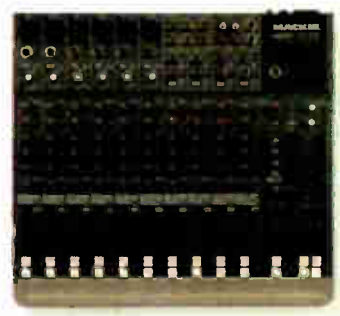

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World Radio History

Where Business Goes, We Must Follow

From the Editor

Paul J. McLane

I was the only radio industry journalist in the room when Harris Broadcast Communications Division President Tim Thorsteinson let slip to reporters in New York that the company will soon rename its broadcast division, which generates some $625 million a year in sales.

Harris Broadcast, he said, will be called something else as it seeks to position itself beyond its traditional niche.

Developments at Harris are a microcosm of our industry right now. I wonder if radio managers will sense the lessons.

Following growth

Thorsteinson is viewed as a turnaround specialist, and rarely does a company bring in one of those without soon cutting jobs, what Thorsteinson described as taking headcount out. That happened in February when the division eliminated 150 positions from transmitter operations in Quincy, Ill., and Mason, Ohio, including 89 layoffs (story, pg. 8). Thorsteinson blamed a precipitous drop in TV transmitter sales for leaving the company with too much manufacturing capacity.

He told me late last year that the company remains committed to traditional radio and TV, and reiterated this when announcing the cuts. Transmission is an important component of the profitability of his division, he said; further Harris has done "very well" in HD Radio. It believes it has over half of that market and thinks HD Radio is going to boom abroad.

However, the division president does plan a strategy of shifting investment from "mature" — flat or declining — markets to high-growth areas. In a letter to staff, he said its radio and TV transmission businesses are being combined into a more focused, agile organization. Harris also will continue shopping for firms to acquire (its purchases since 2000 include Louth, Encoda, Invenio, Arkemedia, Leitch, Videotek, Inscriber, Aastra and OSI). It will focus more on traffic and billing; infrastructure; compression and networking solutions; and digital workflows.

Harris wants more government work, both U.S. and abroad, and has added a Government Solutions Unit, based in Mason, to operate within the Broadcast Communications Division. So expect it to pursue more efforts like a recent multimillion-dollar contract to upgrade and expand the infrastructure of Romania's state-owned broadcast organization. Last, it will aim to help its customers evolve to new media markets.

Weakness in Harris TV sales, Thorsteinson said, has mostly been made up in other areas. "On balance, things are fine." He said the company is "trying to grow larger without losing the focus of some of our competitors who are really focused on the markets they're in."

He could have been talking about radio.

Job cuts are painful, affecting real people with real families. Some of the people who were let go had roots in the Allied days, I hear. And while it's encouraging that radio at Harris is healthy relative to TV, one can't note this news without worrying about the direction of broadcast, not just for Harris but within any organization where you might be reading this article.

Defining ourselves

Harris, as well as suppliers that don't have to report such details to the public, appear to be evolving their businesses, asking, "What is it exactly that we do? If 'what we do' is serving a mature market, how should we redefine it in order to grow?" A lesson resides here for radio and those of us who make our living from it.

As we watch media evolve, station owners, engineers and journalists should be asking ourselves: Are *we* adapting? Are we taking a cue from our consumers' trends and business, shifting our personal and professional goals, challenging ourselves to rethink the definitions of the businesses we are in?

Or, like many in radio, do we fight defiantly to protect our traditional self-definitions? Do we limit ourselves rigidly to certain hardware, spectrum, modes of programming, engineering and thinking?

I wrote here near the beginning of the first Web boom that radio could convert its strong brands into powerful online channels or let those channels steal from us.

Today we see headlines in the New York Times about how online video might be the savior of the radio industry (a simplistic overstatement but indicative of valid trends). We hear Peter Smyth, one of the most influential people in radio through his leadership at Greater Media and RAB, noting that Internet radio is growing strongly, driven by local station streams that are attracting listeners at quadruple the rate of Internet-only stations.

We can bemoan the maturation and decline of "radio as we know it." Or we can appreciate the incredible market position it enjoys, the loyalty and big revenue base — which are significant advantages over startup media — and use our momentum to build new business models. But we must ask the questions. Smart managers like Smyth are talking about how radio needs to take product risks, address missing demographics and address our problems. They're asking themselves, "What are we, and what must we be?"

At the Harris event, Brian Cabeceiras, vice president of strategic marketing & technology, said the "core broadcast market is still a very strong business. New media companies aren't going to drive old ones away." Legacy media, he said, "will be the leaders in the new world order." I agree with Cabeceiras that we *can* be leaders, but it won't happen without planning up and down the radio decision ladder.

Thorsteinson wants to grow his broadcast business — or whatever the division will be called — 8 to 10 percent per year. I hope our $20 billion commercial radio industry can be citing those kinds of growth numbers soon. If leaders like Smyth continue to push for better thinking, maybe we will.

There's a big, lucrative future ahead for effective communicators of great content. Radio and its suppliers can benefit if we think of ourselves that way.

Digital at WKSU

Radio World Publisher John Casey dropped in recently to Kent State University station WKSU(FM), where he was hosted by Director of Engineering Ron Bartlebaugh and Development Associate John Grayson. WKSU is broadcasting its classical and NPR programming in HD Radio.

"Most notable is their 'Folk Alley.com' Web stream, which has been picked up by NPR as one of six audio channels that NPR is providing to affiliate stations for broadcast on their HD2 channel," John e-mailed me. "A major studio expansion is in the works that includes a live concert performance venue. This will be used for a lot of Folk Alley recordings. Check out *www.folkalley.com*."

Bartlebaugh is shown here in his super-clean rackroom, where old meets new: Fiber-optic links take 30+ channels of digital audio across campus to an STL microwave dish, which feeds the transmitter site 13 miles away. One of the station's four repeater stations also broadcasts in HD Radio.

Inset: Bartlebaugh donned his treasured keepsake souvenir button from NAB 1991, when he "rode the bus" for the first DAB demo.

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World Radio History

Satellite

▶ Continued from page 1

device this summer that combines a global positioning system, real-time XM weather data and XM Radio. The Onix 400 will deliver current and forecasted weather data, including detailed weather warnings.

The handheld features a split screen allowing users to monitor what XM content is playing while listening or viewing weather data. The device is waterproof.

Other features include a sports scoreboard with user interface, sports statistics and scores; a large color LCD screen; imbedded 64MB Micro SD card for data and map services; and rechargeable Li-Ion battery.

Pricing wasn't announced.

XM SHOWS PERSONAL WEATHER TRACKING SYSTEM

XM displayed a concept vehicle that included what the satcaster calls the first personal weather tracking system for GPS navigation.

The system tracks specific, real-time weather conditions between a user's location and destination and provides the near-term forecast for the route.

Rather than give general conditions for a region, it focuses on the weather on an individual route. The information is continuously updated and delivered to the navigation system via satellite, XM said. It is expected to hit retail this summer.

XM developed the weather system with weather company Baron Services. XM and Baron, through its division WxWorx (as in "Weather Works"), offer weather services for airplanes, boats and emergency responders.

The weather service builds on XM NavTraffic, the traffic service introduced in 2004 that informs drivers of traffic conditions on a GPS navigation screen. XM NavTraffic is available in vehicles from Honda, GM, Toyota and Nissan, as well as in retail aftermarket GPS navigation products.

IN-CAR VIDEO, VOICE COMMANDS DEMO'ED BY XM

Beyond new weather technology, the XM "infotainment" vehicle on display featured information and entertainment that XM can deliver to the automobile, including concepts such as in-car video.

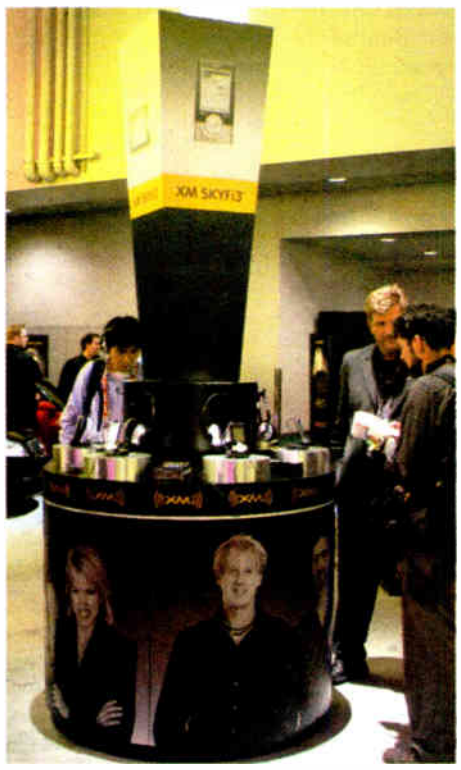
The XM vehicle had in-car video systems developed by XM and On2 Technologies that can receive video and audio from XM. The satcaster demonstrated how video content could be sent to the vehicle by the satellites and ground repeaters it uses now.

Other features inside the concept vehicle were voice recognition and parking locator technology. XM showcased software for voice-enabled XM radios developed by VoiceBox Technologies, which offers voice controls for the radio, as well as commands for weather, traffic, stock quotes and sports scores.

ParkingLink, a project of XM, Quixote Transportation Technologies and Standard Parking Corp., locates parking facilities on the vehicle's navigation screen and tells the driver how many parking spaces are available.

DELPHI SKYFI3 FEATURED FOR XM

XM unveiled the Delphi SkyFi3 satellite radio with the new Delphi Premium Sound System, a portable speaker system. It offers a modular docking connector designed to work with various XM radios including the SkyFi3, MyFi, RoadyXT and Audiovox Xpress.



The XM Delphi SKYFi3 is touted as the first satellite radio with removable memory for MP3 music.

The SKYFi3 is called the first satellite radio with removable memory for MP3 music.

The unit can play MP3, WMA and WAV files. Up to 10 hours of time-shifted XM programming may be stored. Users can pause a program and continue playback up to 30 minutes later. Available now, Delphi SkyFi3 retails from $180 to $299, depending on options.

XM COMMANDER DUE IN SPRING

Coming in late spring is the XM CommanderMT from Audiovox. The aftermarket in-dash receiver will work with any AM/FM car stereo "regardless of make, brand or year," XM said.

The receiver works with the portable XM Mini-Tuner, a small removable cartridge containing the XM chipset that can be removed to access XM Radio through other compatible car and home products.

The Mini-Tuner had been called the XM Passport.

TIVOLI FEATURES SIRIUS

In the Tivoli Audio collection for 2007 is "Model Satellite," an AM/FM/Sirius Satellite Table Radio. The Model Satellite is compatible with iPod and other players; it includes remote control external FM antenna, indoor/outdoor Sirius antenna and external AC power cord. The front of the unit is metallic taupe with a cherry wood case. It retails for just under $300.

The SatelliteCombo Hi-Fi System adds a second speaker and CD player and retails for $559.97.

Photos by Leslie Stimson

Sirius demonstrated its backseat video technology. Dodge said the 2008 Magnum would feature a Sirius radio with streaming video option. The vehicle arrives at dealerships later this year.

STILETTO DISPLAYED FOR SIRIUS

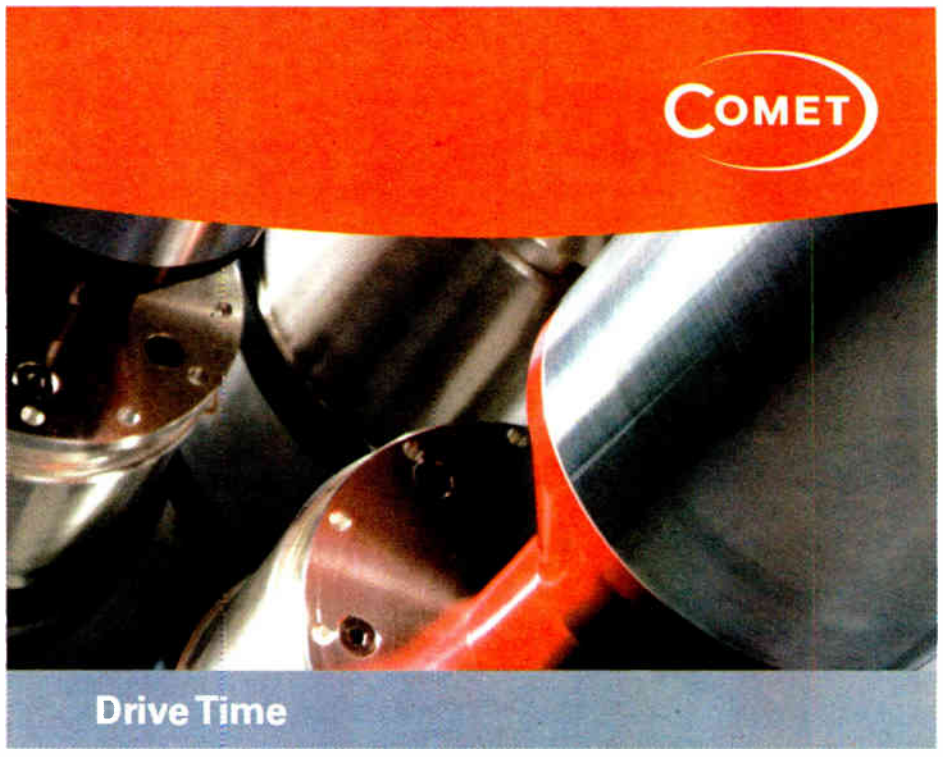
Sirius showcased its Stiletto 100, the company's first live portable radio, on the market since late last year.

Stiletto includes WiFi, Yahoo music purchasing software and the ability to save music for playback. Users can store up to 100 hours of content, schedule recordings six hours in advance and connect via WiFi to Sirius' Internet radio services.

Users' MP3/WMA files can be stored on the Stiletto 100 and managed with the included software for Windows PCs. The unit is compatible with Windows-based Internet music providers' download and subscription services, according to the satcaster.

Stiletto 100 lists at around $350. A vehicle kit will list for $69.99, a home kit for $69.99 and an executive system for $149.99.

See SATELLITE, page 6 ▶



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World Radio History

Encode

▶ Continued from page 3

In order for stations to be able to monitor the status of their encoding, Arbitron provides an encoding monitor. Since it is impossible to hear the encoding, these monitors are an important tool to allow the station to ensure 100 percent encoding coverage.

The PPM monitor detects codes in the broadcast signal and will sound an alarm or send out an alert if the station's code is missing. Most stations interface the monitor with their air-fault alarm system, but the monitor can be used in a variety of ways to suit the station's needs.

Interface options include dry contact relay outputs as well as a serial port for computer interface. A detailed user's manual is provided that outlines connection and use for all available options.

The key is to use this tool in such a way as to alert station personnel immediately should the encoding be interrupted. Historically, these interruptions typically have not been a function of encoding failure, but of innocent changes by the station as a function of maintenance or troubleshooting.

For example, if a station patches around a group of equipment that includes the encoder in order to replace a piece of equipment, there may be no audible change in the station's air. If this patch is not pulled once maintenance is complete, there will be no encoding.

However, the encoding monitor will alarm. If the alarm is installed so that it alerts station personnel, the situation can be remedied immediately and encoding can continue uninterrupted.

Continuing communication also is key to uninterrupted encoding. Stations need to let us know if they make changes to their broadcast facility so we can be sure that any necessary changes in encoding equipment are also included.

To date, stations have been very receptive to this process, contacting us when they've built out new facilities or added HD subchannels. We've even had stations and integrators contact us during the initial planning stages of a new broadcast facility to be sure that encoding is included.

Behind this move to electronic measurement are more than 15 years of research and development, and extensive real-world, on-air experience in seven countries.

Arbitron has had encoders operating in the field since our first PPM field trial in Manchester, England in 1998. Additional field tests followed in Philadelphia in 2002 and in Houston beginning in 2004.

We have logged literally millions of encoding hours since then and proven over and over that we know what it takes to deliver electronic ratings. As a result, we have received Media Rating Council accreditation for the radio ratings data in Houston, and we are launching the PPM service in Philadelphia this spring.

A separate encoder is provided for each feed: terrestrial analog, HD main and subchannels and Internet.

Installation of the encoding equipment is straightforward. Station engineers need only route program audio through the encoder, plug into power and switch the unit to "Encode." That's the extent of the installation and, as Thomas Ray III, vice president/corporate director of engineering for Buckley Broadcasting, attested in a recent Radio World article, "installation was literally a five-minute job."

For a station in a market measured by the PPM, it is vitally important that encoding equipment be installed and maintained to ensure 100 percent coverage for 100 percent of the station's broadcast day. In this environment, from a ratings perspective, maintaining encoding is synonymous with staying on the air.

RW welcomes other points of view.

"Tomorrow arrived today!"

"I've built many, many studios all across the Midwest over the years, but our Knoxville Logitek installation was the cleanest, neatest and most advanced layout you can imagine! Almost everything is located in a centralized controlled-environment rack area. The control surface, mics, phone stuff and CD player backups are about the only things left in the studio outside of all the computer controls. The majority of the audio chain takes place within about five feet inside of one equipment rack for each station.

"My biggest problem today isn't how to set up for daily on-air operations, it's how to sell off all the old equipment like distribution amps that I don't need anymore. The Logitek system makes audio 'patching' just as easy as plugging in patch cables for everything. You don't even have to change the type of cable if you change from analog to digital—just re-plug a jumper into an appropriate engine input!

"I'd always dreamed of a studio that worked better for the jock, looked more like what the public thinks a radio star 'cockpit' should look like and yet was easy to take care of. The Logitek system made it possible to build it."

Mark Lucas, *Chief Engineer*
Journal Broadcast Group, Knoxville TN

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Satellite

▶ Continued from page 5

ROUNDUP

WORLDSPACE has debuted two channels: "Punchline," a comedy program, and "Retro Radio," which features music of the '70s and '80s. Punchline will be available on the AfriStar and AsiaStar satellites, Retro Radio on AsiaStar. Company executives said they are focused on their recent launch in India, and targeting consumers in and from that country.

ALPINE is offering in-dash head units that allow users to remain connected to their iPods, USB WMA/MP3 players, Sirius plug-and-play tuners and XM's Mini-Tuner. Four of Alpine's 2007 head units are built on the Alpine Ai-Net Bus platform.

CAR STEREOS: A wall of XM-ready car stereos was displayed at winter CES, including upcoming models from Panasonic, Sony, Alpine, Pioneer and Jensen that work with the XM Mini-Tuner, a tiny, removable cartridge that contains the XM chipset. The newest XM-ready home audio systems were on display from Audiovox, JVC, LG, Panasonic and Sherwood.

AUDIOVOX said its first headphone MP3 player/live-XM portable, the X2G100B, plays MP3 and WMA files. It receives XM programming and stores up to 50 hours of XM for later playback. List is $249.

World Radio History

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 Boden, 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
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COMREX

World Radio History

Google

▶ Continued from page 1

dMarc's model of automatic ad insertion software used to fill broadcasters' unsold inventory.

Google says it has approximately 700 radio stations and 20 online advertisers participating in the Audio Ads test, including some Emmis Radio stations. An Emmis spokesman said it has stations in Los Angeles, St. Louis and Austin, Texas, participating.

Rick Cummings, president of Emmis Radio, has said Google only has access to the group's remnant inventory, but the Internet company was interested in discussing prime inventory.

Many broadcasters fear the auction-based system will drive down ad rates instead of helping their bottom lines. Google says its entry into radio placement sales will benefit the industry by creating incremental new business and therefore revenue.

dMarc Broadcasting, which had purchased Scott Studios in 2004, combined operations with an existing Google office in Newport Beach, Calif., following its purchase by Google. dMarc had nearly 100 employees when the sale was finalized, with most of them being retained by Google.

Google, headquartered in Mountain View, Calif., has more than 7,500 employees worldwide.

Guaranteed inventory elusive

Analysts say the fact that Google has struggled to reach agreements with broadcasters to secure guaranteed inventory, and not just leftover avails, could have been a factor in the Steelbergs' resignation along with other considerations.

"I think things have progressed rather slowly for Google. I had expected a major radio deal to be done already. Limited inventory makes testing more difficult," said David Bank, analyst for RBC Capital Markets. "But more importantly, I believe Google might be trying to tie the Audio Ads platform in with video content licensing, possibly YouTube content."

Google spent $1.65 billion for YouTube in 2006. Disputes about the use of copyrighted materials on YouTube have created buzz throughout the entertainment industry.

Bank said the Steelbergs possibly felt frustrated that the performance of their "earn out" was being tied to the progress of something that was completely outside their business. An earn out is a contractual arrangement in which the purchase price is stated in terms of a minimum, but the seller will be entitled to more money if the business reaches certain financial goals in the future, according to online reference sources. The financial goals usually are stated as a percentage of gross sales or earnings.

The Steelbergs, who enjoyed a big payday when they sold dMarc, stand to make a lot more if Audio Ads is successful. In addition to paying $102 million in cash for dMarc's assets, Google is obligated to make additional contingent cash payments if certain targets are met through 2009. The company has never publicly disclosed those targets. Potential contingent payments could total $1.136 billion over that period, according to Google.

If hitting performance incentives and lack of progress were key to the Steelbergs' unrest, leaving Google now seems ill-timed, some analysts said.

Departure inevitable?

The brothers "stood to gain a significantly greater sum of money had they stayed," said Marci Ryvicker, analyst with Wachovia Capital Markets. "I believe this signals that there are some unexpected difficulties" with Audio Ads.

Ryvicker said various broadcast groups told her they do not intend to provide Google/dMarc with guaranteed inventory, fearing loss of control over ad rates.

"For something this big to be successful there needs to be trust and communication among all parties, and I don't believe there is yet between Google and the radio industry," Ryvicker said.

Google reportedly has been talking to CBS Radio, Clear Channel and others about purchasing a substantial amount of unsold inventory.

Other analysts, though, believe the departure of the brothers from Google was inevitable.

"It's certainly not unusual for 'Captains of Assets Acquired' to leave the mother ship once the deal is done. In fact, it's more the norm than not," said Bishop Cheen, analyst with Wachovia Capital Markets.

John Sanders, analyst with Bond & Pecaro, said, "The departure of the Steelberg brothers should not be surprising because it follows the common pattern of culture clashes that follow these types of acquisitions and also highlights why many large acquisitions run into trouble."

But Sanders said Audio Ads' results so far appear to be falling short.

"The Google approach to radio advertising sales has been very automated and essentially has resulted in the devaluation of leftover inventory selling at very low rates with a large commission to Google and low return to stations."

Google issued a statement in response to queries about the change: "Google is committed to the audio business. We will continue to gather feedback during the Audio Ads beta test and are happy with the progress to date. We remain focused on delivering value to the radio industry as we continue to expand radio station inventory and enhance the product so that it's ready for all advertisers."

Harris Cuts Jobs; Shakes Up Division

MASON, Ohio Citing costs in its radio and TV transmission businesses, Harris is eliminating about 150 positions from facilities in Quincy, Ill., and Mason, Ohio. Harris also will close its operation in Rankweil, Austria, by mid-year.

Harris released 89 people from their jobs, a spokeswoman said, and 61 positions were cut in other forms including requisitions to hire, retirees and resignations.

President Tim Thorsteinson said the division has too much manufacturing capacity. He described Harris business overall as strong but said TV transmitter sales have been very soft, repeating the word "very" seven or eight times. "People have been delaying their purchases. I've seen a lot of things but I've never seen a business drop off like this."

Thorsteinson told colleagues in a president's letter that radio and TV transmission will be combined into a "new focused, more agile organization." Dale Mowry, vice president/general manager of TV transmission, is among those leaving. Deb Huttenberg, VP/GM of radio transmission, will be responsible for radio sales, the radio systems and console business and the radio resale broadcast center. She will also act as interface point for international transmission sales.

Phil Argyris, vice president of human resources, will direct a group charged with returning the business to 10 percent operating income growth and developing a leaner supply chain model.

Thorsteinson said transmission remains an important component of the profitability of Harris Broadcast. At the same time he hinted that the division may soon change its name to reflect expansion of its focus from traditional media.

The company also established a Government Solutions Unit within the broadcast division; this is in addition to its existing government communications business.

Newswatch

▶ Continued from page 2

nated by each company and one representative each from General Motors and American Honda.

XM CEO Hugh Panero would continue in his current role until the anticipated close of the merger.

Further details of this story were discussed in the Feb. 20 edition of "The Leslie Report." Click on the icon at www.radioworld.com.

MPEG Surround Standard Approval

BARCELONA, Spain Proponents said MPEG Surround is now an international standard, ready for deployment. Agere Systems, Coding Technologies, Fraunhofer and Philips said the Moving Pictures Expert Group finalized the process. The document is MPEG-D standard document IS 23003-1.

The move could speed exploration of surround on HD Radio signals by stations; MPEG Surround now can be tested by Ibiquity as suitable for HD Radio use.

The advocates describe it as is an open standard compression technique for multi-channel audio signals. Operating on top of core audio codecs such as AAC, HE-AAC and MPEG-1 Layer II, the system provides backward compatibility to stereo and is scalable in terms of bit rate used for describing the surround sound image.

The parties claim that in combination with HE-AAC, MPEG Surround can carry a five- or seven-channel surround program at a total bit rate of 64 kbps or less. Specifically for portable applications, MPEG Surround offers a binaural mode, providing spatial rendering and reproduction of multichannel audio on stereo headphones.

Birds & Red Lights

WASHINGTON The NAB, tower groups and wildlife advocates have been meeting to try to resolve the issue of whether lights confuse migratory birds, causing birds to fly into towers and die.

The groups now have asked the FAA to look into whether steady red obstruction sidelights can be eliminated after decades of use. Writing to the FAA were the American Bird Conservancy, The Wireless Association, Defenders of Wildlife, Environmental Defense, NAB, National Audubon Society, National Association of Tower Erectors and The Wireless Infrastructure Association.

News Roundup

DAVID REHR reiterated his call for the FCC to authorize a recall of satellite radio FM-modulated devices that violate Part 15 power limits.

BILL: Reps. Gene Green, D-Texas and Chip Pickering, R-Miss., introduced legislation that prohibits satellite licensees from providing locally differentiated programming to subscribers in one geographic market that differs from programming offered to subscribers in another. The measure is supported by NAB. XM called it "special interest legislation" that would prevent it from broadcasting local traffic, weather and emergency alerts.

ARAB BROADCASTING will have a session at the spring show. NAB and the Middle East Broadcast Association will collaborate. Organizers say the area's 22 countries and 320 million people are served by more than 260 broadcast operations.

CBS announced creation of CBS RIOT, a cross-platform unit that bridges radio, Internet, outdoor and television sales operations.

PRESIDENT BUSH submitted a budget that proposes $313 million for the FCC for 2008. Some would be used to promote broadband deployment and the radio and TV digital transition. He also asked for a $110 million cut for the Corporation for Public Broadcasting to $350 million.

SHORTWAVE: For the first time, the National Association of Shortwave Broadcasters will hold its annual meeting away from Washington. The USA Digital Radio Mondiale group and NASB will hold meetings concurrently in May in Elkhart, Ind., at the HCJB Global Technology Center.

MEASUREMENT: The Media Audit and Ipsos said five companies — Clear Channel, Cox, Cumulus, Entercom and Radio One — have agreed pay for a test in Houston of its Smart Cell Phone electronic audience measurement system, a competitor to the Arbitron PPM.

CBS/IBEW announced an "early deal" to extend their contract for three years. It covers the largest unionized workforce at CBS. The extension includes raises of 3 percent the first two years and 3.5 percent in the final year.

World Radio History

~~250~~ 400 studios already?

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Hard to believe, but we passed the ~~250~~ 400 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.)

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World Radio History

The Computer in the Wall Jack

by John Bisset

Alan Peterson is assistant chief engineer for the Radio America Network in Washington. Always on the lookout for new items, Al came across a unique find.

Take a look at the plate shown in Fig. 1. That's not just a jackplate for a network port; it's a complete thin client computer that drops into the same cutout in your wall where just the jack would have gone.

Chip PC Technologies of Israel is inventor and manufacturer of the Jack PC, which is intended to replace desktop machines in business applications. Just plug your keyboard, mouse, monitor and speakers right into the wall.

What about power? The Jack PC is self-powered, drawing its electric needs from the Ethernet cable.

In many businesses, big-time processing is left up to the servers, so desktop computers are basically overkill. What is needed in these cases is a "simple-minded" machine that talks to the Big Box down the hall.

As the Jack PC is a "thin client" rather than a full-bang computer, it is not up to those tasks we normally insist our machines perform. And don't start bundling up your DAW for the recycler just yet. From an audio standpoint, the Jack PC admittedly is only good for low-fi applications.

So why mention it? Because products like this will only get smaller, better and faster, and eventually the Jack PC — or something like it — might be tricked out with even more computer functionality. As is, a couple of Jack PCs might find a home right now in the sales cubicles, where space is snug to begin with. A year from now, you might fit an audio editor in there. Who knows?

At present, the Jack PC runs Windows CE (same as in handheld PDAs), but the Chip PC engineers are taking a look at Linux. Find out more at *www.chippc.com* under Jack PC Thin Clients. The site includes info on how to obtain an evaluation kit.

Al Peterson is at *apeterson@radioamerica.org*.

★ ★ ★

Marc Mann, now retired, started as a broadcasting major in college and worked as a stringer for New York's Newsday and the Associated Press. He spent a few years doing freelance video and production before moving into an unrelated service field, where he stayed for 28 years.

Fig. 1: A basic computer in a wall jack? Ideal for cramped sales cubes!

Some years ago, Marc was looking for desiccant bags of a more substantial size than those typically found in retail packages sent from overseas. The tiny 1-inch-square, cellophane-wrapped packages seemed inadequate to protect his toolboxes.

Acting on a hunch, Marc contacted a local freight-forwarding company that specialized in shipping overseas. He asked if they had any desiccant available; they wanted to know how many *pounds* he needed.

Marc picked up several two-pound packs, each 7 x 9 inches, in breathable bags, as seen in Fig. 2. They cost only a few of dollars each. Marc says you can also find a variety of desiccant sources by doing a Web search for "desiccant."

Reach Marc Mann at *mmann001@san.rr.com*.

★ ★ ★

With all the concern about transmitter site security, Atlanta contract engineer Allen Branch sends a reminder that Wal-Mart sells camouflaged motion sensing cameras. Some include a flash and other features.

Game Spy, Game Watcher and Scouting Cameras can be found on the Web at *www.walmart.com*; click on Sports, then do a search for "camera."

You may not need a camouflage pattern when mounting on the upper wall of the transmitter building, but it might come in handy behind your entry fence. Consider mounting the camera high on a tree to get a snapshot of someone at the entry of your site, before an intruder even enters. The flash alone may discourage entry.

You'll find several of these camera models in the hunting and sportsman section of the store or online, and

See CAMERAS, page 12 ▶

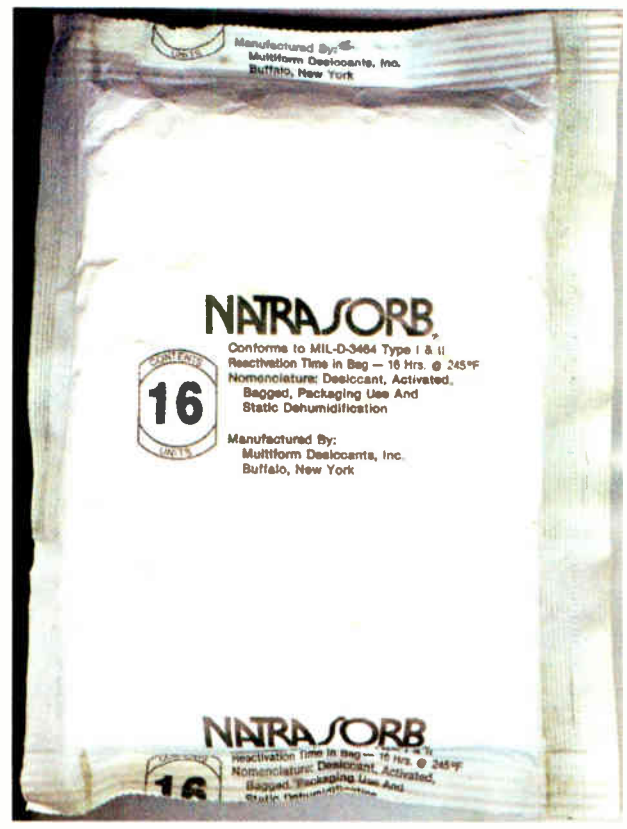

Fig. 2: You may find larger packages of desiccant through freight-forwarding companies that send or receive items overseas.

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The 264 also provides alarm tally outputs to signal a 'dead air' or out-of-limits condition for each of the four channels.

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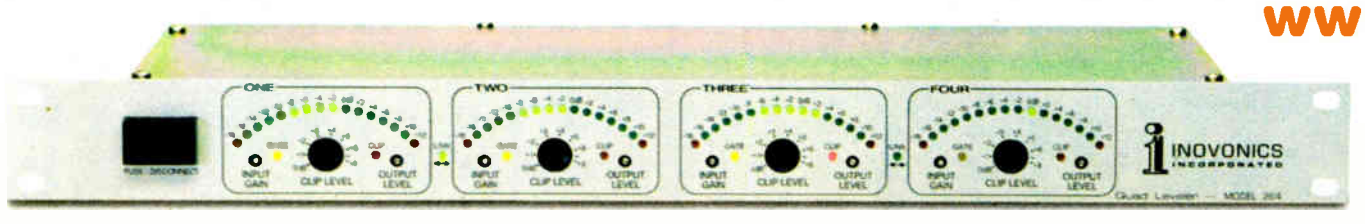

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Chief Engineer
Clear Channel St. Louis

"The codecs sounded great. My management was very, very impressed with the demos"

- Grady Jeffreys,
Technical Manager,
Mackay Communications

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- Mike Rabey
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World Radio History

BBG Budget Includes Program Cuts

Deciding where best to spend their funding, U.S. government international broadcasting officials are seeking more for broadcasts to North Korea, the Middle East, the Horn of Africa and Cuba.

Meanwhile they are pushing for cuts in content targeted to audiences elsewhere, including programs in Cantonese, Uzbek, Ukrainian, Tibetan, Portuguese, South Slavic, Kazakh, Croatian, Greek, Thai and others. RFE/RL plans to focus more on Iran, while eliminating broadcasts to Romania and Macedonia.

Cuts must be approved by Congress.

The proposed 2008 Broadcasting Board of Governors budget calls for an increase of 3.8 percent. Officials say this level would make its targeted programming stronger and increase audience reach through better technology and transmission capability.

The BBG asked for $668.2 million. Of that, $142.4 million is allocated for programming to the Near East, South, Central Asia and Eurasia, $116 million for Arabic-language programming, $67.2 million for East Asia, $45 million for Latin America and $13.6 million for Africa, officials said.

A view of the Cohen Building, VOA headquarters in Washington.

New streams

Proposed use of the money includes a new 10-hour stream of VOA and Radio Free Asia daily programming to North Korea; a daily three-hour live Alhurra TV program broadcast from the Middle East; funding the new Somali Service's 30-minute daily radio broadcast, which targets Somali speakers in Somalia, Djibouti and the greater Horn of Africa; and improving Radio and TV Martí's reach into Cuba "through additional transmission capability and enhancing the production of the programming."

The BBG wants to further fund initiatives to Muslim audiences including expansion of VOA television to Iran, VOA Pashto radio to the Afghanistan/Pakistan border region, video to Afghanistan and Pakistan, and Alhurra Europe, a service to Arabic speakers in Europe.

The organization proposes to do away with VOA and RFA broadcasts in Cantonese as well as VOA Uzbek. It would cut back on Ukrainian broadcasts by VOA and Radio Free Europe/Radio Liberty; Tibetan broadcasts by VOA and RFA; VOA Portuguese to Africa; and broadcasts in Romanian, South Slavic and Kazakh by RFE/RL.

The request also includes changes requested last year: more for Alhurra's live news capacity; expansion of VOA Spanish-language programming to Venezuela, additional transmission capabilities for RFE/RL Russian and RFA Korean broadcasts; and more for employee training and award programs.

It would eliminate VOA broadcasts in Croatian, Greek, Georgian and Thai as well as RFE/RL broadcasts in Macedonian. "The request includes eliminating VOA radio broadcasts but continuing television programming in the following languages: Serbian, Albanian, Bosnian, Macedonian, Hindi and Russian. The proposal also calls for discontinuing 14 hours a day of VOA NewsNow English broadcasts while maintaining VOA's English to Africa and Special English services and continuing to strengthen VOA English on the Internet," BBG said.

Focus on Iran

Subsequently, RFE/RL officials summarized more specifically what the proposed budget would mean for their organization. It broadcasts to 20 countries in 28 languages, 18 of which address primarily Muslim audiences.

They said the request renews added funding for broadcasts to Iran to expand news and information programming for Radio Farda.

"The budget request also calls for RFE/RL to cease broadcasts to Romania and Macedonia. Broadcasts to Ukraine, Kazakhstan and other parts of the former Yugoslavia will be reduced under the budget requested for the BBG ... A proposed fiscal year 2007 reduction in broadcasting to Russia also is included in the budget request for 2008."

The budget emphasizes targeted audiences including those in Iran and North Korea, while cutting back or eliminating some other services.

Acting President Jeffrey Trimble said the budget request "is sufficient to support our continuing mission to promote freedom and democracy to peoples in Eastern Europe, Russian, the Caucasus, and Central and Southwestern Asia. We are eager to continue to enrich our programming for Iran, and while RFE/RL programming to Romania and Macedonia remain popular in those countries, the elimination of these broadcasts and other proposed reductions are necessary to allow the BBG to achieve its stated priority of strengthening targeted programming to provide essential access to news and information to critical audiences."

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Camera

▶ Continued from page 10

they are reasonably priced. Thanks, Allen, for the suggestion.

Reach Allen Branch at *alleo21@yahoo.com.*

★ ★ ★

Tom Williams with Audio Precision drops us a line that AP Calibration Services are open for business at the Beaverton factory. Audio Precision now offers Accredited Calibrations on most current instruments (AP2700, System Two, APx, ATS-2) and will add more this year.

All supported new instruments sold by Audio Precision will come with a Calibration Report and Certificate demonstrating the unit meets or exceeds its published specification. What's the advantage? If the unit does not meet specifications, AP can repair or adjust it immediately — no extra shipping; which translates into faster service.

Why choose AP over third-party calibration services? The company says its factory test technicians are dedicated audio engineers who know audio and AP equipment. Couple this with automated test systems and the result is accurate but fast turnaround.

For pricing or more information, call AP service at (800) 231-7350 or write *service@ap.com.*

★ ★ ★

Workbench in the Feb. 14 print edition contained an incorrect Web address for Modulation Sciences. The address is *www.modsci.com.*

John Bisset has worked as a chief engineer and contract engineer for 38 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.*

World Radio History

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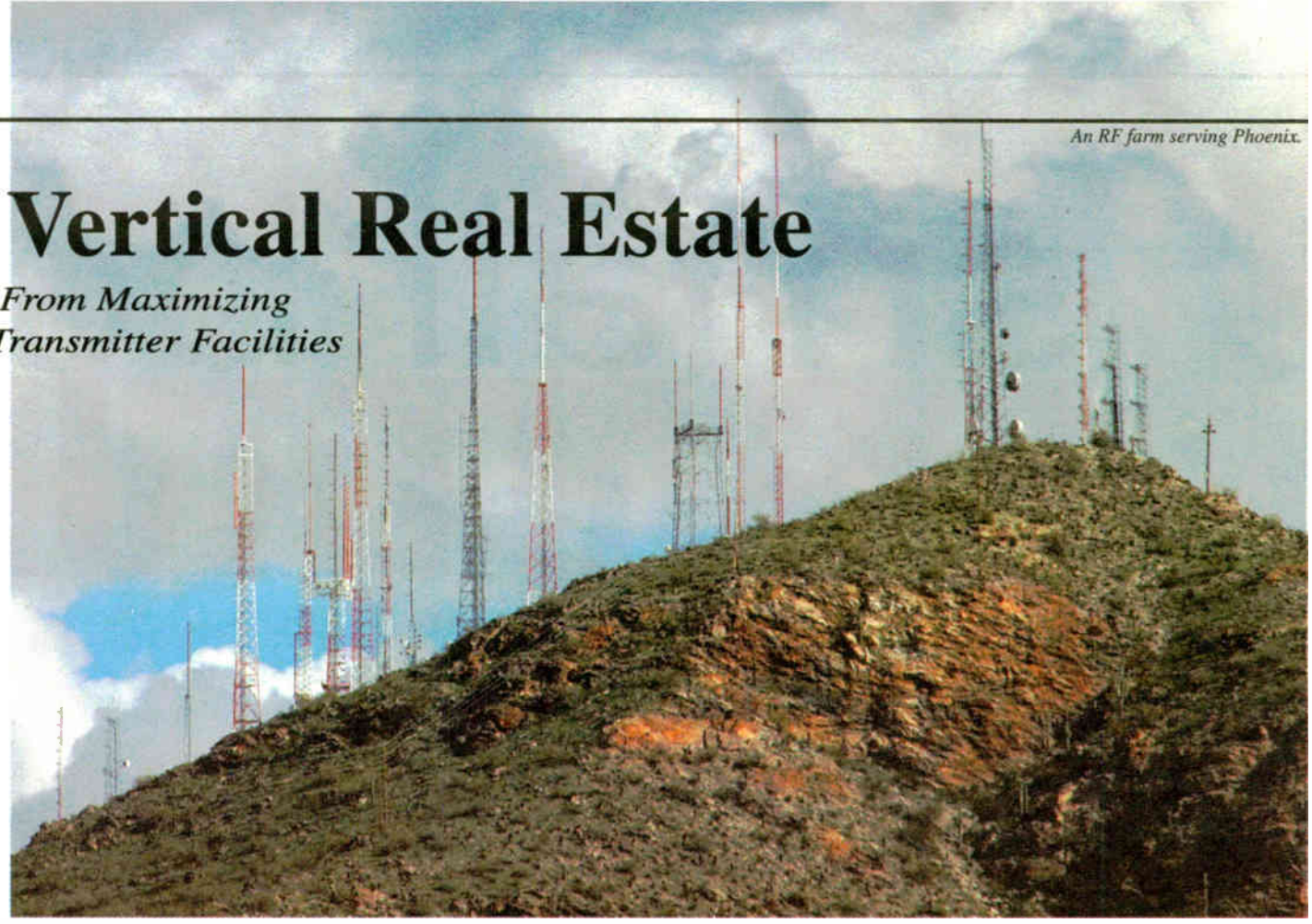
World Radio History

ENGINEERING BASICS

Managing Vertical Real Estate

Broadcasters Can Benefit From Maximizing The Revenue Potential of Transmitter Facilities

by Tom Osenkowsky



An RF farm serving Phoenix.

Towers can be a source of revenue for broadcasters. Potential tenants include two-way radio, paging, cellular/PCS, wireless broadband Internet providers, XM/Sirius satellite terrestrial repeaters and other broadcasters. There are several methods of generating income from existing broadcast facilities.

The first is to accommodate a tenant's antenna(s) on your tower(s). In this case, the primary concern is to preserve the structural integrity of the tower. A structural analysis is required.

Structural concerns

A structural analysis requires detailed information on the tower. The original blueprints for the tower, the base pier, guy cables and guy anchors would be ideal. If those are unavailable and the tower manufacturer is known, this information may be in their files. Information about the soil may also be required.

For older towers where the manufacturer is out of business or unknown, a site visit by an experienced, licensed structural engineer may be required. It is in the best interest of the tower owner to ensure the structural integrity of the tower.

A tower must be analyzed considering wind and icing conditions. The analysis must include all antennas, transmission lines, conduits, lighting fixtures, ice shields and appurtenances. Many tower manufacturers as well as independent consultants provide these services.

AM hot towers

In the case of a base insulated AM tower, the tenant transmission line must be isolated across the base of the tower. There are three popular methods of doing this.

An isocoupler is a device that isolates the AM frequency while coupling the tenant frequency to its antenna. The isocoupler is mounted at the base of the tower. At the point where the tenant transmission line makes contact with the tower, a secure electrical bond to the tower is required. The output or "hot" side of the isocoupler should be bonded to the tower. At the input or "low" side of the isocoupler a secure electrical bond to ground is required. This should be using at least 3-inch copper strap silver soldered to the radial ground ring strap. Transmission lines should be bonded to the tower at one-tenth wavelength intervals and at the input to the antenna itself. Do not depend on the transmission line to provide the ground or hot side electrical connections.

For a tower in excess of quarter wavelength (90 degrees) the tenant transmission line may be insulated from the tower using porcelain standoff insulators provided by the line manufacturer. Prior to mounting the line, the base impedance is measured at the carrier frequency. After mounting, a tower rigger performs a trial-and-error process of shorting the line to the tower. The correct location of the bond to the tower is when the base impedance equals that value measured prior to mounting the line. The line is securely grounded at the tower base. The quarter-wave principle states that a short circuit at one end will produce an open circuit at the opposite end.

The drawback of this scheme is sensitivity to icing and moisture across the standoff insulators as well as their mechanical concerns. An advantage is that the tower is at DC ground potential.

A folded unipole may be employed to isolate transmission lines from the AM frequency. In such an arrangement the tower is outfitted with a series of wires supported by rings around the tower. These wires radiate the AM signal with the tower functioning as the physical support mechanism.

The advantages of a folded unipole include the ability to cross the tower base with multiple transmission lines without the need to employ an isocoupler or insulate each line from the tower. The tower itself is at DC ground potential. Disadvantages include outrigger wire physical interference with tenant antennas, sensitivity of the base outrigger insulators to icing and moisture, which can cause impedance mismatch and the increased physical diameter of the base ring.

Multiplexing with neighbors

It is possible for two or more broadcasters to share a common antenna. In the case of FM, the Empire State Building, 4 Times Square, Senior Road and Mount Wilson are examples of multiple broadcasters sharing common antennas.

A combiner system allows two or more FM stations to use a common antenna. This eliminates the need for individual towers and antennas. The initial investment will pay for itself in the near term by eliminating the need to maintain a tower and real estate costs. A common building and generator can serve all tenants.

For AM broadcasters it is possible for two or more stations to share a common antenna system. In fact, different directional patterns with multiple stations are possible on a common antenna array. An experienced consultant can advise if it is possible to design a new array or optimize an existing array for the frequencies involved.

Caution is an important ingredient in this venture. Do not compromise the integrity of your operation in the interest of earning a few extra dollars.

Intermodulation

When two frequencies are mixed together, four frequencies are produced: the two originals, their sum and the difference. As more frequencies are mixed, the resultants become more complex.

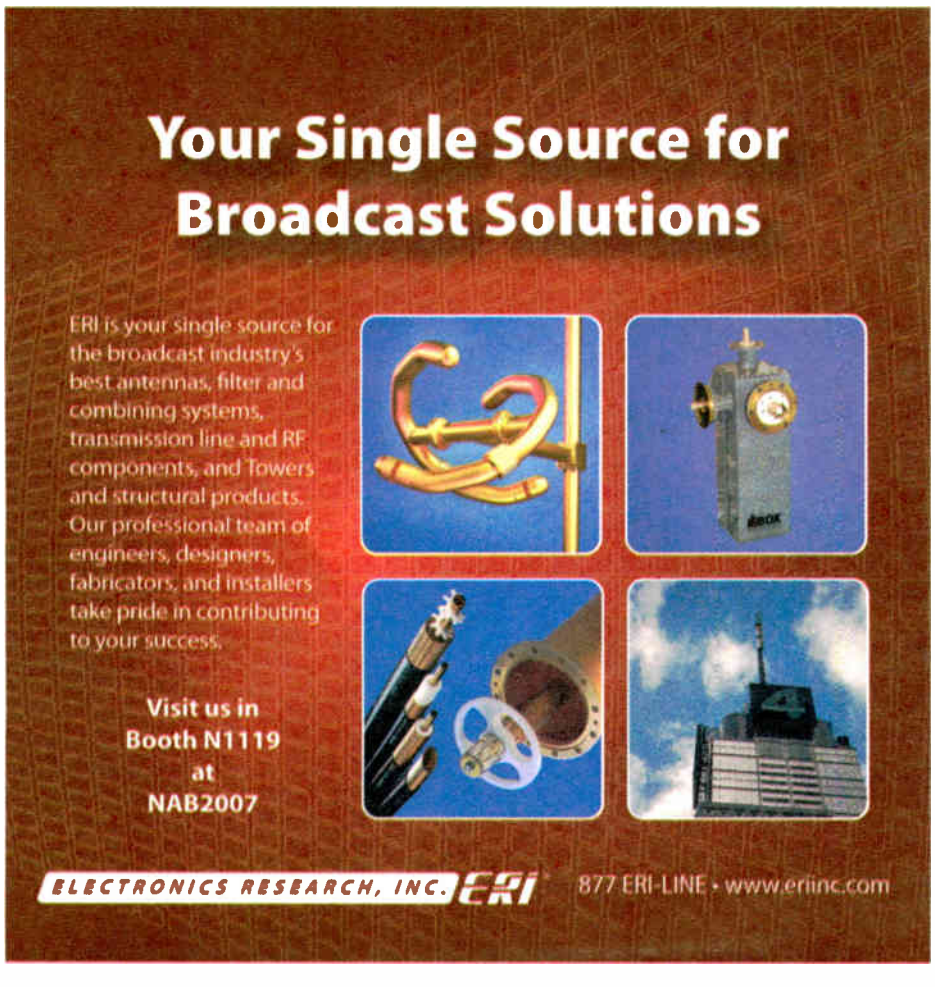
It is possible for the output of one transmitter to mix in the output amplifier of another transmitter(s) and produce unwanted spurious products. An intermodulation analysis should be performed prior to contracting with any tenant on a tower. Historically, third and fifth order products are the most significant. Look for products that fall close to receive frequencies for other tenants. This would be especially important for an STL receiver or a public safety receive frequency(s).

Last man on the tower

A general clause in a tenant's lease is that they are responsible for any interference caused to an existing tenant. Resolution may include installation of filters, relocation of antennas or change in frequency.

Just as in FM broadcasting, combiners are frequently installed in two-way radio simplex and repeater systems allowing common use of antennas by multiple users. Such systems generally are designed with

See VERTICAL, page 16 ▶



World Radio History

Feature packed.

(Kind of like our ads.)

Go (con)figure • The folks at MPR say they really love being able to configure and administer an entire building full of consoles and routing equipment from the comfort of their own offices. Put an Internet gateway in your Axia network and you can even log into Element (or any other part of an Axia system) remotely from home, where there's plenty of Cheetos and Pepsi. Great for handling those 6 P.M. Sunday "help me!" phone calls from the new weekend jock.

Who are these guys? • Why buy a console from Axia? Element was designed by Mike Dosch and his team of ex-PR&E renegades (who know a bit about consoles). And Axia is a division of Telos, the DSP experts.

Perfect timing • You can't have too much time. That's why Element's control display contains **four different chronometers**: a digital time-of-day readout that you can slave to an NTP (Network Time Protocol) server, an elapsed-time event timer, an adjustable count-down timer... and there's also that big, honkin' analog clock in the center of the screen (Big Ben chimes not included).

Screen play • Use any display screen you choose, to suit your space and décor. Get a space-saving 12" LCD, or go for a big 21" monster. (This is Dave Ramsey's favorite Element feature, by the way. Anyone want to bet he bought his monitors on sale?)

Lovely Rita • LED program meters? How 1990's. SVGA display has lots of room for timers, meters, annunciators and more — enough to show meters for all four main buses at once. Reboot to 5.1 surround mode and the light show is even cooler, with surround audio and associated stereo mixes all going at once.

Memory enhancer • We know how forgetful jocks can be. That's why Element remembers their favorite settings for them. Element's Show Profiles are like a "snapshot" that saves sources, voice processing settings, monitor assignments and more for **instant recall**. Profiles are easy to make, too: just have talent set up the board the way they like it, then capture their preferences with a single click for later use. (Hey, make *them* do some work for a change.)

Black velvet • Some things **just feel right**. Like our premium, silky-smooth conductive plastic faders and aircraft quality switches. We build Element consoles with the most durable, reliable components in the industry — then we add special touches, like custom molded plastic bezels that protect on/off switches from accidental activation and impact. Because we know how rough jocks can be on equipment. And nothing's more embarrassing than a sudden case of *broadcastus interruptus*.

Split decision • No, you're not seeing double: Element gives you the choice of single-frame or split-frame configurations of **up to 40 faders.** Perfect for complicated talk or morning shows where the producer wants his own mini-mixer, or to give talent space for copy, newspapers and such. Solomon would be proud.

Swap meet • Element modules hot-swap easily. In fact, the **entire console** hot-swaps — unplug it and audio keeps going; an external Studio Engine does all the mixing.

Stage hook • This button activates the emergency ejector seat. OK, not really. It's the Record Mode key; when you press it, Element is instantly ready to record off-air phone bits, interviews with guest callers, or remote talent drop-ins. One button press starts your record device, configures an off-air mix-minus and sends a split feed (host on one side, guest on the other) to the record bus. Like nearly everything about Element, Record Mode is **completely configurable** — its behavior can even be customized for individual jocks. Sweeeet.

How many? •
How many engineers does it take to change these light bulbs? None... they're LEDs.

Talk to me • Need some one-on-one time with your talent? Talk to studio guests, remote talent, phone callers — **talk back to anyone** just by pushing a button.

Missing features • Did we forget something? Program these **custom button panels** with any macro you want, from recorder start/stop to one-touch activation of complex routing and scene changes using PathfinderPC™ software. You could probably even program one to start the coffee machine (black, no sugar, thanks).

Great Phones • With Element, jocks never have to take their eyes or hands off the board to use the phones. Element works with any phone system, but really clicks with the Telos Series 2101, TWOx12, and new NX 12 that connects four hybrids plus control with a **single Ethernet cable.** StatusSymbols™ (cool little information icons) tell talent at a glance whether a line is in use, busy, pre-screened, locked on air, etc. Even dial out with the built-in keypad.

The Busy Box for jocks • Element comes standard with a lot of cool production room goodies you'd pay extra for with other consoles — like per-fader EQ, aux sends and returns and custom voice processing by Omnia™, enabling you to quickly build and capture compression, noise gating and de-essing combinations for **each and every jock** that load automatically when they recall their personal Show Profiles. Context-sensitive SoftKnobs let production gurus easily tweak these settings while simultaneously satisfying their tactile fixations. Don't worry, for on-air use you can turn off access to all that EQ stuff.)

Mix-plus • If constructing a complicated mix-minus on the fly brings a big gun to your face, you're excused. But if you're like us, you'll love the fact that Element does mix-minus **automagically**. Forget using all your buses for a four-person call-in, or scrambling to set up last-minute interviews. When you put remote codecs or phone calls on air, Element figures out who should hear what, and gives it to 'em — as many custom mix-minuses as you have faders.

AXIA
A TELOS COMPANY

AxiaAudio.com

Element

Shown: 16-position split-frame Element, nicely equipped, $12,558.00 US MSRP. Not shown but available: 4-, 8-, 12-, 16-, 24- and 28-position Element. Dual exhaust and whitewalls optional at extra cost.

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World Radio History

SUPPLY SIDE

Operative Is the Word at CBS

Supply Side is an occasional feature about service or manufacturing companies in the news.

Operative recently announced it has won a contract with CBS Radio, which will use it to implement digital inventory management systems involving online products. RW queried Operative President/CEO R. Michael Leo for more.

RW: What is Operative?

Leo: Operative makes it easier for radio station managers to make money via the management and sale of their digital media assets.

The ever-increasing pace of innovation makes the digital media space particularly complex. The significant lack of any useful standardization leads to the use of multiple systems that very often don't communicate with each other. This can lead to poor process and lost revenue. There's constant innovation around the way an ad is served. This constant change can be overwhelming for sales, operations and finance groups.

Operative provides people, processes and technology to let you focus on your core business and build a strong digital media revenue stream.

Supplier:
Operative

Address:
40 West 25th Street
10th Floor
New York, NY 10010

Phone:
(212) 994-8930

Web site:
www.operative.com

Mike Leo

RW: You're providing inventory management systems such as ad operations software and trafficking services. How were these functions at CBS being handled prior?

Leo: Much like a surprisingly high number of media companies, before Operative was brought in the teams at CBS would run reports in multiple systems and use Excel to try to estimate inventory availability.

Operative allows data and processes to be unified and helps to eliminate the guesswork. This lets the folks at CBS focus on revenue generation rather than managing the grunt work around optimizing their inventory, managing their ad servers and fully using their targeting systems.

RW: How did the CBS Radio deal come about?

Leo: The digital media space is constantly looking for innovation and strong business solutions.

Through the grapevine at industry events, we were led to understand that CBS Radio was ramping up their digital efforts. CBS was focusing on building out their sales team and investing in media management tools; Operative was an obvious choice for consideration. Once we began to talk, it became obvious we would be able to quickly step in to provide advice, best practices and products that would allow their teams to focus on their core businesses, which are sales and product development.

RW: What special considerations did CBS involve?

Leo: CBS Radio had many of the same problems that various media companies in the space are experiencing. They're being held back by antiquated process and systems that are not flexible enough to allow them to optimize their digital media assets.

To help them achieve some of their goals for the year — driving revenue, reducing operational chaos and going to market with powerful digital sales solutions — it became clear our job was simple: to provide the systems and support processes that enable CBS Radio employees to do their jobs with minimum friction.

RW: What kind of infrastructure must a user bring to the table?

Leo: All the user has to bring is inventory, people who are looking for structure and process, and the desire to build a strong revenue stream.

Operative is focused on providing a one-stop infrastructure shop. We provide enterprise software delivered via the Internet; so the technical infrastructure required on the user side is minimal. We have 80 years of combined online expertise. All our users really need to fit our client profile is available online real estate and the desire to create revenue.

Mike Leo joined Operative in 2003 as CEO and president. He was co-founder of Avenue A, subsequently Avenue A/Razorfish, a digital marketing organization, that now has $100 million in sales and more than 300 employees. He also is former president of the technology group at L90, where he developed relationships with clients including Microsoft, Visa, General Motors and Procter & Gamble. According to his company bio, Operative has experienced doubled-revenue growth for two years under Leo's leadership.

Vertical

▶ Continued from page 14

a high degree of isolation, thus minimizing the possibility of intermod.

The lease

An attorney should compose a lease agreement with each tenant.

Most leases grant tenants access to their equipment at any time for the purposes of maintenance and repair. Access to the tower should be restricted to those authorized by the landlord. RFR, safety and interference to the broadcasters facilities are paramount concerns.

The broadcaster alone is responsible for RFR matters associated with their operations. Workers must be protected from RFR levels exceeding FCC limits. As a landlord it is advisable to require each tenant to maintain insurance and hold the landlord harmless for any acts or conditions.

The broadcaster should not allow tenants access to their transmitter rooms. It is advisable to have a separate AC power distribution and air conditioning for tenants where multiple users are involved. Cellular companies generally require their own facility without granting access to the landlord. They may even require space for their own AC power generator.

Provisions for late payments or failure to pay rent should be addressed in the lease as well as the ability of the broadcaster to immediately terminate tenant operations should harmful interference be caused to the broadcaster's operations. All NEC, state, and local laws should be adhered to in the planning and construction of a multiple user site.

Erecting a new tower

If land is available and a demand for vertical real estate is present, a broadcaster may wish to erect a tower solely for rental purposes. This tower may also serve as an auxiliary for broadcast purposes.

A zoning board of appeals and/or zoning board approval may be necessary. If in the vicinity of an AM station, detuning and before/after field intensity readings may be required by the FCC. Lighting and marking requirements will be determined by the FAA, whose approval must be secured prior to construction.

The design of the tower should take into account the present and future needs of all tenants. With the pace of technology it is wise to over-design where practical. If it is necessary to go through the zoning process it is helpful to offer gratis space to the city or town radio systems as an incentive for support and show of good faith in the public interest.

Summary

Broadcasters can benefit from maximizing the revenue potential of their transmitter facilities. Caution is an important ingredient in this venture as one should not compromise the integrity of their operation in the interest of earning a few extra dollars.

Tom Osenkowsky is a consultant based in Brookfield, Conn., and a frequent contributor to Radio World. He is a Senior Member of the SBE, IEEE and NARTE.

World Radio History

"My Number One Codec Rental is Zephyr Xstream"

-Steve Kirsch, President Silver Lake Audio

Rack 'em and stack 'em! The Silver Lake Audio Crew pictured from left to right: Steve Kirsch, Ken Stiver, Kirby Miovac and Jay Shoemaker

"When ISDN equipment rentals began in the early 1990s, we started with an equal number of different companies' codecs. Today, Silver Lake has over 100 Zephyrs in stock, ten times more than any other brand." says Steve Kirsch, owner of Silver Lake Audio.

The reasons should be obvious. Reliability, ease of use, compatibility, great support.

Telos: The Best Way To Hear From There.

And there. And there. And there.

Telos
AUDIO | NETWORKS
www.telos-systems.com

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World Radio History

An HD Radio Deployment Scorecard

A Look at What's Needed Next for the Digital Radio Rollout

The Big Picture

Photo: Gary Hayes, BBC

by Skip Pizzi

As we approach the annual media pilgrimage to the American desert known as NAB2007, it's a good time to take the pulse on progress of the U.S. radio industry's transition to digital broadcasting.

There has been considerable activity in the space recently, and every indication of an upward trend. Nevertheless, it does not appear that HD Radio has yet reached the critical mass required to drive it toward mainstream adoption.

What follows is a list of the most important issues facing HD Radio at the moment, and thoughts on their impacts and possible resolutions.

In good form

To date, HD Radio devices have been almost exclusively packaged as car or tabletop receivers. Given that radio arguably is the most broadly available medium, and is used by Americans in nearly equal amounts at home, at work and in transit, *all* forms of radio receivers need to be offered with HD capability.

The lack of portable receivers has been addressed in this column and elsewhere, with acknowledgment of the particular challenges for that form factor. It is heartening to know that current developments may make practical the deployment of portable/handheld HD Radio receivers soon.

Another form factor that remains largely missing to date is the home hi-fi receiver or component tuner. This would seem to be one of the most appropriate forms in which to showcase HD Radio's audio quality, but few such devices have emerged.

Let's hope that by next NAB, this argument will be moot, and we will see HD Radio offered in car, tabletop, alarm-clock, boombox, small portable, handheld and hi-fi component receiver devices.

There are two paths to ultimate success: a short, direct route, or a long and winding road. It's still too soon to tell which HD Radio is on (if either), but the latter seems more likely today. There has not yet been any indication of the "killer-app" groundswell of support for HD Radio that would propel it to quick, must-have status. On the other hand, it seems plausible that radio stations will continue to deploy the service to near-universal proportions, and that most radios eventually will quietly include the technology.

HD Radio also needs to emerge from the shadows of interim rules.

In this respect, HD Radio would take on the status of FM stereo or color TV, each of which started relatively slowly, but experienced a slow yet steady growth in popularity until they ultimately became the norm.

If such a scenario proves true for HD Radio, it calls into question the future of many multicast services. A slow transition could eventually make "HD-1" the mainstream FM audio service, but it might not provide an adequately robust market for "HD-2" services and beyond to flourish. (Such services might still manage to survive as hybrid online/on-air-multicast streams, however.)

Another eventual benefit of near-universal HD Radio deployment by broadcasters — regardless of consumer HD Radio receiver uptake — is the datacasting marketplace. Recent activity has shown interest in non-program-associated data (NPAD) delivery, which could prosper in a wholly separate, private environment, and provide a bit of a silver lining for broadcasters' ROI in even the darkest skies of consumer uptake for HD Radio.

Rules of the road

HD Radio also needs to emerge from the shadows of interim rules. Let's hope the long-awaited final rules for the format will be on the books before *another* year passes. This is of particular importance for HD AM, where much uncertainty remains.

Meanwhile, there are other rules being considered that might apply to HD Radio products that would *not* be welcomed by most of the industry. These involve limits on recording and the subsequent storage, editing and playback characteristics of devices that capture content delivered via HD Radio. Currently such limits are being considered by the U.S. Senate for satellite radio (the so-called PERFORM Act, S.256), but the music industry representa-

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World Radio History

Yet to Do

▶ Continued from page 18

tives who are lobbying for such legislation have made it clear that they would ultimately like to see similar limits applied to digital terrestrial radio broadcasting.

Metadata matters

A retrospective look at RBDS reveals that it provides more "service metadata" than "content metadata," meaning that it tells more about the radio station and its service stream's attributes than it does about the current content being broadcast on the stream. While service data is valuable and important information, consumers have come to enjoy the title and artist or other PAD provided by satellite radio and other digital media forms, which RBDS does not provide in any standardized way, having no dedicated fields for these purposes.

Various attempts to retrofit content metadata into RBDS have been attempted, including the current RT+ proposal, but HD Radio includes such information in standardized form from the start, using the well-established ID3 tags from the MP3 format.

This provides HD Radio with a largely unheralded additional advantage over FM (although if RT+ succeeds, FM analog service may ultimately match these capabilities).

In any case, it makes sense for both broadcasters and radio manufacturers to promote this feature, with careful delivery of rich and complete content metadata by stations, and attractive and comprehensive display of content data on receivers.

HD should be better than analog

A troubling phenomenon has been reported by some listeners in these early days of HD Radio. Consider that because all HD Radios first tune to the analog service then switch to digital service with some concurrent visual indication, listeners have a very clear way of comparing the services. In most cases, a noticeable change in audio quality accompanies the switch.

One would assume that this quality change is in the positive direction, but in some cases on FM HD, the opposite occurs. This is due either to differences in audio processing, or in the case of multicasting, the bit rate assigned to HD-1 service is inadequate to make it sound as good as the analog FM signal. In other cases, this causes the HD-1 service to sound no better than the analog, which is almost as undesirable an outcome.

Similarly, there are stations today that are pumping out plenty of data via RBDS but are not yet doing so via HD Radio PAD. In these cases, a listener will see this metadata during the FM tune-in period, or during analog blending, but as soon as an HD signal is acquired, the metadata disappears! Naturally, neither of these cases sends the message to consumers that HD Radio is an improvement over analog FM.

Of course, these are interim, short-term problems that easily can be remedied by stations as the HD Radio transition matures. But as the saying goes, you never get a second chance to make a first impression, and such experiences may create long-term, negative conclusions about the value of HD Radio for some listeners.

Broadcasters should therefore ensure that HD-1 service sounds noticeably better than analog FM, and that the metadata experience is at least as good, if not better from HD-1 PAD than it is with RBDS.

Future features

While we're at it, it would be nice to finally see real deployment of the long-promised storage receivers with pause/rewind buffers and programmable recording capabilities for HD Radio. A related new capability for both broadcasters and is an electronic program guide (EPG) format for HD Radio.

Also on the wish list is standardized encryption to enable subscription radio services via HD Radio multicasting.

So on balance, while the transition is now well underway, there is still much to be done.

Skip Pizzi is contributing editor of Radio World.

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World Radio History

HD Radio News

Digital News

Page 22

Radio World — Covering Radio's Digital Transition — March 14, 2007

PRODUCT EVALUATION

Accurian Tabletop Gets High Marks

Entry-Level Digital Tuner From RadioShack Provides Multicast and RDS Signals

by Ed Hollis

LOS ANGELES I bought the RadioShack Accurian Tabletop HD Radio for $99 at its introduction sale in November 2006 using a $25 off coupon.

Let's not kid each other; the Accurian HD Radio is definitely RadioShack quality. It's okay for an inexpensive, consumer entry-market HD Radio. I appreciate the tabletop unit for its simplicity and low price for a radio capable of receiving multicast and RDS signals. For that niche, the Accurian (RadioShack 12-1686) is spot-on.

The trusty ol' Bose Wave Radio was laid aside as the new Accurian HD Radio took its place. The Accurian fit nicely into this spot and didn't look too bad, either. The Accurian has a metallic-looking, plastic case with brushed-aluminum front panels. The external power supply accepts 100–240 ~ 50/60 Hz and outputs 12 volts DC at 5 amps.

Okay, I admit I plugged in the Accurian Tabletop HD Radio and tuned around the AM and FM bands before reading the manual. The blue LCD display has a fixed illumination with white .5 and .25 inch letters. On the front panel an "HD) Radio" symbol emits an amber glow when the radio is operating.

'Smooth' tuning

Even when you're not tuned to an HD Radio station, the amber HD) Radio lamp is on. When powering up the radio the "HD) Radio" appears for three seconds on the LCD display in 1.5-inch letters.

On the display the larger font shows the clock, frequency or station call sign. The smaller font shows RDS text messages, frequency, equalizer setting, signal strength, 12-hour clock and date.

After I connected the FM dipole and AM loop antennas, FM reception was impressive at my location in my Los Angeles condominium apartment building. I set the clock, saved a few AM and FM presets, and selected the best one of five equalizer settings for my listening pleasure.

Tuning between the multicast channels of a station with the presets was smooth and quick. Controlling the radio was straightforward, and I was able to perform most of the radio's functions without reading the manual.

Later, I unplugged the radio and moved it to a new location. The clock reverted back to Midnight, but the station presets were as I had programmed them before. On power-up, the radio came back to its previous station and EQ settings prior to shutdown.

Then I opened the manual and was surprised to read good discussions on how HD Radio works, multicast channels, and system delay in addition to the regular operating instructions. The 28-page manual has identical sections in English and Spanish. Receiver specifications were not published.

The Accurian Tabletop HD Radio by RadioShack can receive multicast signals.

The volume control rotates to control the volume. Pushing the volume control will cause the radio to change to one of five operating modes. The volume range was sufficient for my apartment. At full volume I did not notice distortion.

The Accurian provides six preset positions for each band — FM1, FM2, AM1 and AM2 — giving a total of 24 station presents. Aux In completes the Mode selections. The Aux In connector is on the rear panel of the radio and is an unbalanced, 1/8-inch stereo mini plug.

A mini stereo headset jack is provided on the front of the radio. The speakers mute when headset operation is engaged. The antenna connections on the rear of the radio are convenient easy to attach an antenna to.

Five equalizer presets allow selection of: Normal, Jazz, Classic, Rock and Pop. I prefer the Normal EQ setting so that I can listen to the Accurian's definition of a flat frequency response. These DSP settings are not saved in memory with the station preset.

The palm-sized, IR-remote control makes controlling the radio easy from across the room. I prefer using the radio's full-function IR remote control. Otherwise, one must be in front of and above the radio's local controls in order to use them.

The Accurian Tabletop HD Radio's simplicity, ease of operation, informative operation manual and low cost makes this HD radio a winner in the entry-market of HD Radio receivers for consumers.

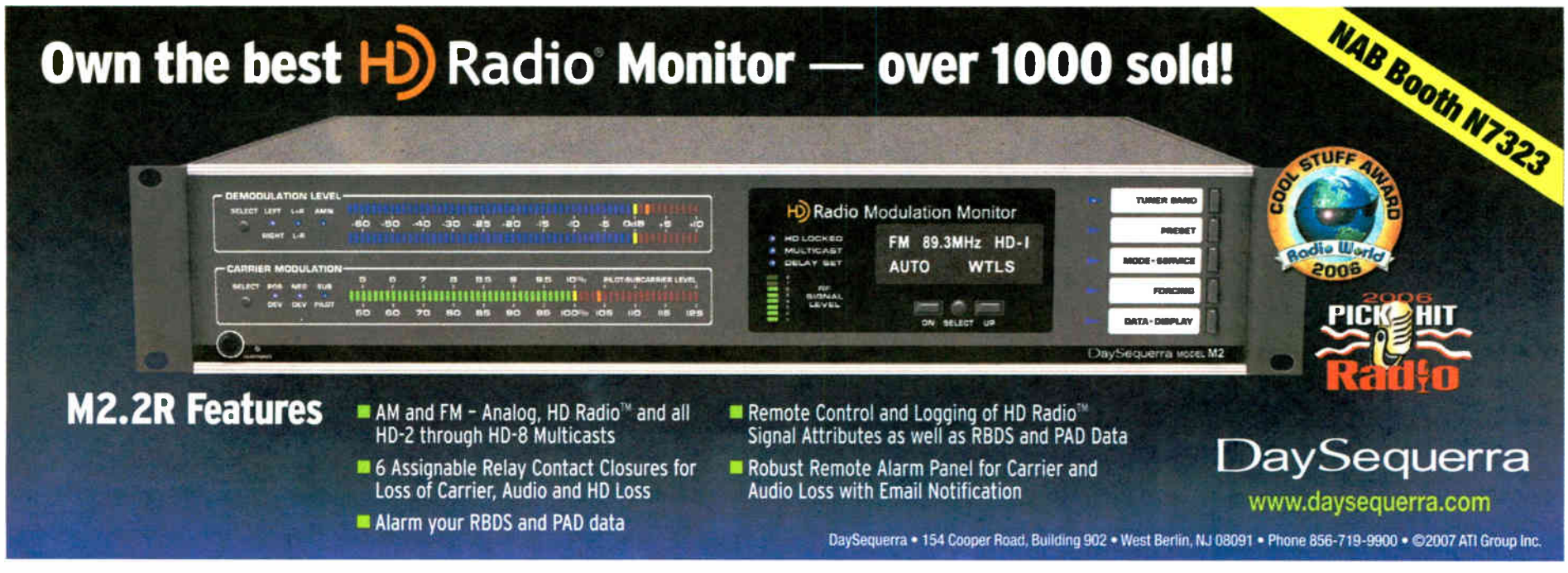
Product Capsule:
RadioShack Accurian Tabletop HD Radio

Thumbs Up
- ✓ Inexpensive
- ✓ Multicast-capable
- ✓ 24 station presets
- ✓ Good reception
- ✓ Well-written manual

Thumbs Down
- ✓ Front-panel operation requires standing in front of the radio
- ✓ Too much 'push' of the HD) Radio logo

PRICE: $200

CONTACT: *RadioShack stores or visit* radioshack.com.



World Radio History

Broadcast Electronics Inc
Tel: (217) 224-9600
Web: www.bdcast.com
E-Mail: bdcast@bdcast.com

Master HD Radio

Broadcast Electronics HD Radio Seminar

This is the free, annual technical event where engineers get up-to-date on the latest technologies, share their experiences and increase their odds of becoming heroes to everyone at their stations. Don't miss it!

Saturday, April 14 from 2pm until 4pm, Las Vegas Convention Center Room N211

Go to www.bdcast.com to register!

Sponsored by Broadcast Electronics

Radio World's HD Radio™ Scoreboard

The HD Radio Scoreboard is compiled by Radio World using information supplied by iBiquity Digital Corp. and other sources. The data shown reflect best information as of mid-February. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.

On the Air in Houston/Galveston

Ibiquity says there are 21 stations in the market broadcasting 31 HD Radio channels, with five more scheduled to begin broadcasting with HD Radio technology and offering multicast channels soon, as reported by the HD Digital Radio Alliance.

Frequency	Station	Format	Licensee
1590	KMIC-HD	Kids/Top40	ABC Radio
88.7	KUHF-HD1	NPR/Clscl	Univ. of Houston
88.7-2	KUHF-HD2	Classical Music/ Fine Arts	Univ. of Houston
91.3	KPVU-HD1	NPR/SJz/Gsp	Prairie View A&M Univ.
92.1	KROI-HD1	Gospel	Radio One
92.9	KKBQ-HD1	Country	Cox Radio
92.9-2	KKBQ-HD2	TBD	Cox Radio
93.7	KKRW-HD1	Clsc Rock	Clear Channel
93.7-2	KKRW-HD2	Adult Alternative AAA	Clear Channel
94.5	KTBZ-HD1	Modern Rock	Clear Channel
94.5-2	KTBZ-HD2	Free Buzz	Clear Channel
95.7	KHJZ-HD1	Smooth Jazz	CBS
95.7-2	*KHJZ-HD2	Traditional Jazz	CBS
96.5	KHMX-HD1	Hot AC	Clear Channel
96.5-2	KHMX-HD2	New CHR	Clear Channel
97.5	KFNC-HD1	Sports	Cumulus Media
97.5-2	*KFNC-HD2	Classic Hits	Cumulus Media
97.9	KBXX-HD1	R&BOd/HpHop	Radio One Inc.
99.1	KODA-HD1	Christmas	Clear Channel
99.1-2	KODA-HD2	AC Love Songs	Clear Channel
100.3	KILT-HD1	Country	CBS
100.3-2	*KILT-HD2	Future Country	CBS
101.1	KLOL-HD1	Span/Regat	Clear Channel
101.1-2	KLOL-HD2	In-Depth News	Clear Channel
102.1	KMJQ-HD1	Urban	Radio One Inc.
102.9	KLTN-HD1	Mexican	Univision Radio
103.7	KIOL-HD1	Rock	Cumulus Bdcasting
103.7-2	*KIOL-HD2	Indie & New Rock	Cumulus Bdcasting
104.1	KRBE-HD1	CHR	Cumulus Media
104.1-2	*KRBE-HD2	Classic A	Cumulus Media
104.9	KPTY-HD1	Hip Hop	Univision Radio
104.9-2	KPTY-HD2	Tejano - KRTX-AM	Univision Radio
106.9	KHPT-HD1	80s Hits	Cox Radio
106.9-2	KHPT-HD2	TBD	Cox Radio
107.5	KLDE-HD1	Clsc Hits	Cox Radio
107.5-2	KLDE-HD2	Oldies	Cox Radio

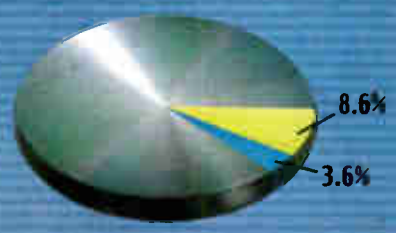
(*) stations are listed as coming soon.

The HD Radio Bottom Line

	Total Licensed	On the Air
	1,685	1,183
Last Month	1,673	1,145

Market Penetration United States

15,793 AM & FM Stations *(excludes LPFMs)*



Licensed by Ibiquity and on the air

Licensed by Ibiquity and not on the air

Number of FM Stations Multicasting: 519

Last Month: 532

World Radio History

DIGITAL NEWS

Alliance, BMW Create HD-R Ads

ORLANDO, Fla. The "ultimate driving machine" now has the "ultimate radio."

So says the HD Digital Radio Alliance in its first ad campaign for BMW, which is offering HD Radios as factory-installed options this month across its 2007 product line.

The alliance launched ads on member stations in 85 markets. Commercials tout more programming, better sound quality and no monthly subscription. The campaign, using some of the $250 million in ad inventory contributed by alliance stations this year, is similar to previous flights launched by the alliance for Circuit City and RadioShack.

Another ad states that a BMW driver can now experience "all kinds of new twists and turns with uncompromising performance — and that's just the radio."

Directed HD-R Car Converter Now Out

Crutchfield is the first retailer offering the HD Car Connect Radio from Directed Electronics to the public.

The price is just under $200. This is one of three radios Ibiquity has been selling to broadcasters for $99 since fall. Directed began shipping the unit to stations in December for promotional giveaways this spring.

The DMHD-1000 allows users to hear HD-R signals from virtually any brand of OEM receiver, according to Directed.

Crutchfield offers free shipping on most HD Radio products and provides "detailed instructions and telephone support to help customers easily add the Directed HD Radio Car Connect."

The online and catalog retailer has created programs, incentives and educational tools around HD Radio at *Crutchfield.com/hdradio.*

VoiceAge, Neural Optimize Low Bit-Rate Processing

Neural Audio and VoiceAge are promoting the Neural-optimized encoder for AMR-WB+, which is a processing product for Internet service providers and mobile operators.

VoiceAge is a supplier of speech and audio codecs and co-developer of AMR-WB+

Proponents say the product increases audio quality while reducing bit rate consumption for audio and music download and streaming applications to mobile devices.

Audio CEO Geir Skaaden said the combination of Neural and VoiceAge technology can satisfy demand for high-quality audio/video streaming applications to devices such as mobile phones, digital music players and computers.

The product provides stereo music streaming and download from low bit rates, such as 24 and 16 kbps, up to 48 kbps.

The cash-machine formerly known as RevenueSuite returns to the airwaves as Google AdSense for Audio.

RevenueSuite, a source of additional income for radio stations, promises to be even more so in this incarnation as AdSense™ for Audio, thanks to the power of Google technology. And when you combine that with the industry's most innovative station automation products – SS32™ and Maestro™ – you'll understand why hundreds of stations in markets of every size are starting to talk about the future of radio stations with renewed optimism.

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Chicago CBS Station Puts Racing on HD2

A CBS station in Chicago is adding live motorsports coverage on its HD2 channel. WUSN(FM) airs "future country" on that channel and is adding NASCAR Busch and Craftsman Truck Series races, as well as Indy Racing League events. First race was this week, the NASCAR Gatorade Duels at Daytona International Speedway. Dave Robbins is VP/GM of the station.

Roundup

STAGE AT NAB: A 30-by-30-foot stage will be set up in the NAB radio/audio hall, where companies will tell attendees about HD products and services. Booth N6330 will feature vendor presentations on the "Radio & Audio Stage — An HD Destination." Radio World is a promotional partner with NAB on the project.

Organizers expect the stage to feature live talks and demonstrations involving topics such as surround processing for HD Radio transmission and ultra-high bit rate digital audio for recording, playback and storage. Each day's presentation lineup will be published in the AM Edition of the NAB Daily News.

BROADCAST ELECTRONICS will present, on the stage mentioned above, "Where HD Radio Meets Creativity, Revenue and Technology" on Tuesday, April 17, 2:30–3:30 p.m., repeated Wednesday, April 18, at 1:30 p.m. Methods and business models for increasing listener numbers will be addressed, as will generating new sponsorships on the Web and on the radio, and creating a better listener experience based on multi-platform opportunities. BE will hold its annual HD Radio engineering seminar on Saturday, April 14.

FRONTIER SILICON has ready for receiver makers a module capable of receiving Internet radio, DAB, FM and music streamed from a PC. The Venice 6 integrates a WiFi, DAB and FM front end with a WiFi antenna. It expects products with its chips will be in stores by July.

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World Radio History

Studio Sessions

Product Guide

Inside

Radio World — Resource for Radio On-Air, Production and Recording — March 14, 2007

Quantegy Finally Goes Tapeless

It's the End of the Reel for Magnetic Tape At Company That Evolved From Ampex

by James E. O'Neal

"Unfortunately, as technology improves, there is a decrease in demand for magnetic tape media. It is for this reason that Quantegy is now discontinuing certain magnetic tape products."

With this statement, issued in January, the curtain comes down on a very long-running production in the small eastern Alabama town of Opelika.

Quantegy Recording Solutions and predecessors Orr and Ampex have made tape here since the 1940s, supplying countless reels, pancakes and cassettes of recording tape to radio and television stations, recording studios and production houses.

According to Josh Herron, marketing manager for Quantegy, the decision was not an easy one, but the editing marks had been visible on the wall for some time.

"Over time, the demand for our products has dwindled due to the changes in recording technology," said Herron. "This was a difficult decision, but we have to go with the times. From this point on we'll be concentrating on new recording technologies."

Last call

Herron said Quantegy planned to take tape orders until the end of February, and will keep production lines running as long as necessary to fill the orders that came in. The last few inches of recording tape are expected to be spooled off some time in April.

The last length of magnetic tape is expected to be produced in Opelika sometime in April.

One by one, these American magnetic tape lines have vanished from the production line.

Discontinued audio products include the company's 406, 407, 408, 456, 457, 467, 478, 480, 499, 600 and GP9 analog and digital open reel tapes, as well as all ADAT, DAT and DAU product lines. The company also will no longer be supplying audio cassettes, its AVX/IRC and 472 products.

Though production is being terminated, Herron said that there were no immediate plans to disassemble the production equipment. "If other coating opportunities present themselves, this would be an option for us."

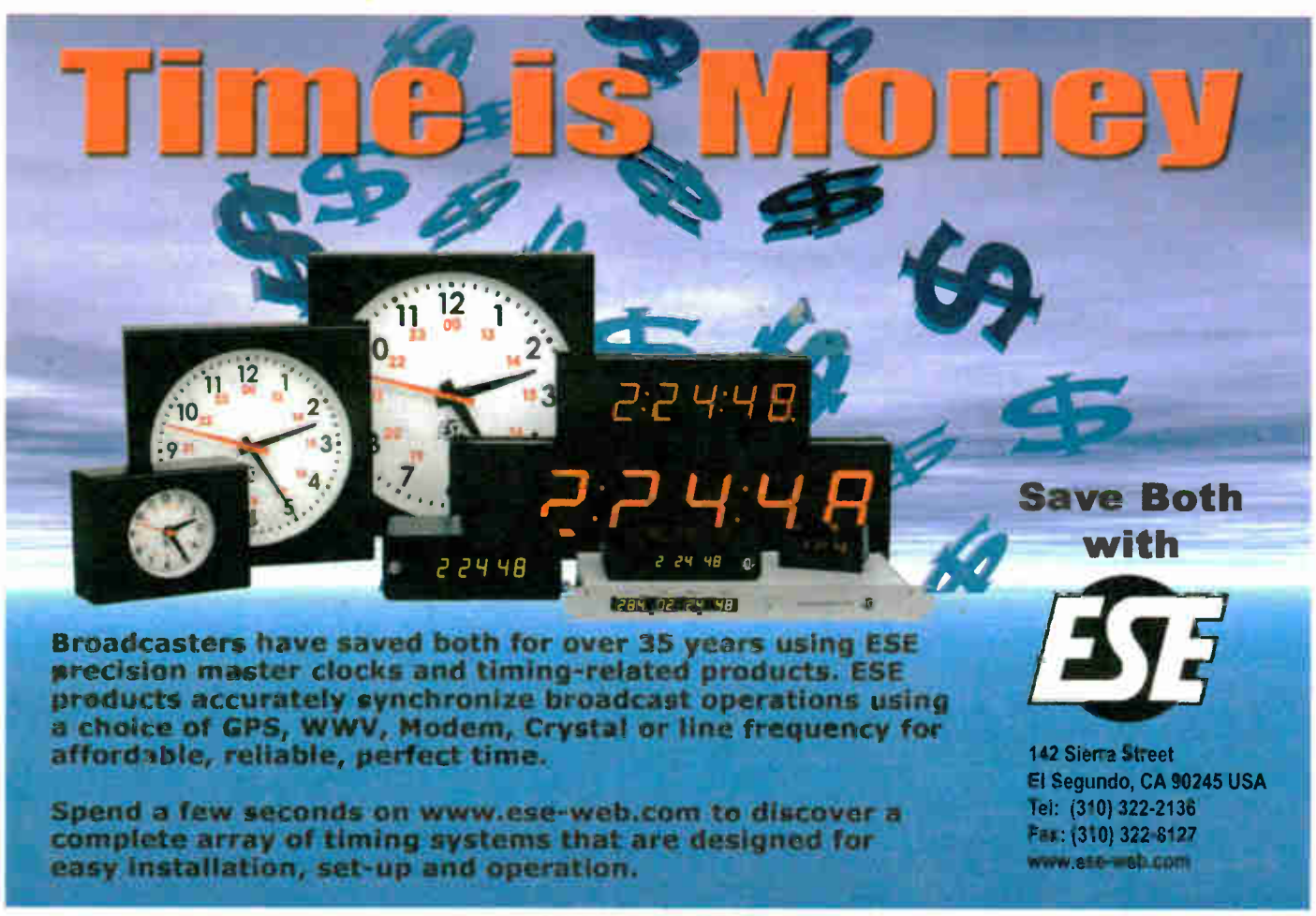
Quantegy has no plans to relocate or trim its work force. "We plan to stay here in Opelika," he said. "We're not thinking of taking operations anywhere else. The company has too long of a history here to consider moving."

The company employs approximately 70 persons, down from a peak of nearly 2,500 a decade ago.

"[We've received] an influx of orders now and we'll need all hands to fill them," said Herron. "We have no plans to cut our workforce. We're not nearly as big as we were before the company reorganization in 2005."

Quantegy is marketing its FHD and Black Diamond lines of hard-drive storage systems and expects to see continu-

See QUANTEGY, page 28 ▶



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World Radio History

Quantegy

▶ Continued from page 26

ing expansion and growth in this area.

"We introduced some new lines at the last AES," said Herron "And we have some other things in the works we can't really talk too much about now."

Postwar startup

The Quantegy operation is linked with the beginnings of magnetic tape recording technology in the United States in the years immediately following World War II.

At the end of the war in Europe, one U.S. officer, Major John "Jack" Mullin, transplanted German audio recording technology to the United States with the importation of AEG's Magnetofon recorder. This machine served as the starting point for Ampex's involvement in audio recording.

Another officer, Major John H. Orr, independently realized the postwar potential for audio tape recording, and upon returning to America, established his own recording tape manufacturing business, Orradio Industries, in Opelika.

Orr began operations in the basement of a local drugstore. The business ultimately grew to some 500,000 square feet of buildings on a 36-acre tract. Early on, Orr was assisted by a German scientist with knowledge of magnetic recording media, Karl Pflaumer, in his efforts to produce a quality product. Orr's first tapes hit the market in 1949. The company became known for its "Irish" line of recording tape, favored by recording studios and broadcasters.

Jim Chestnut performs continuity tests on two-inch analog tape, circa late 1970s. Chestnut worked for Ampex/Quantegy for a number of years, and is now a professional photographer.

With the rise in popularity of magnetic recording in the early 1950s and onward, Orr's company had many American competitors, including Audio Devices, Minnesota Mining and Manufacturing (3M), Eastman Kodak, RCA and Soundcraft.

Orr sold his company to Ampex in 1959, and it was reorganized as Ampex's Magnetic Tape Division. This eventually became known as the Ampex Recording Media Corp. As part of that company's redirection some 35 years later, the tape manufacturing division was renamed Quantegy Inc. This was later changed to Quantegy Recording Solutions LLC.

Times change

Over time, other recording technologies began to augment and replace magnetic tape; one by one, the other American recording tape contenders slipped by the wayside until only Quantegy remained.

With demand declining, the company declared bankruptcy and closed manufacturing operations in January of 2005. Not long afterwards, it was sold to a new owner, and in April of that year, magnetic tape manufacturing operations were restarted and have continued until the present.

Herron said while there were still offshore sources available for some of the products being eliminated with the shutdown of Quantegy's tape operations, other product lines were unique.

"We are the last supplier of tapes for telemetry and data logging in the world," he said.

He said closing audio tape production had been a difficult decision. "We've got extremely loyal customers who have stood by us and our brand. They've told us that ours is the only tape they'd use.

"We've been really proud of our service to the industry for so long and know that our name will always be part of the recording industry. Tape has been our life since the end of World War II, but it's time now to move on."

James O'Neal has written in RW about the 100th anniversary of the vacuum tube and about Reginald Fessenden's legendary Christmas Eve broadcast.

Comment on this or any other article at radioworld@imaspub.com.

Another Door Opens

Though tape production is ending in Opelika, reel-to-reel recorder owners won't have to send their machines to museums or landfills just yet. At least one other American company, not related to Quantegy, has decided to pick up the baton: ATR Magnetics LLC.

A division of ATR Services, it is headquartered in York, Pa. Mike Spitz, a partner in ATR, said his company made plans to enter the tape manufacturing market in 2004, and has been involved in product development since that time.

ATR recently concluded product beta testing and is in the process of ramping up to full-blown production. Spitz said that product should be shipping by April. ATR will initially be supplying 1/2-inch and 2-inch audio tape, and has plans to manufacture 1-inch and 1/4-inch stock.

Quantegy is currently marketing its FHD and Black Diamond lines of hard-drive storage systems.

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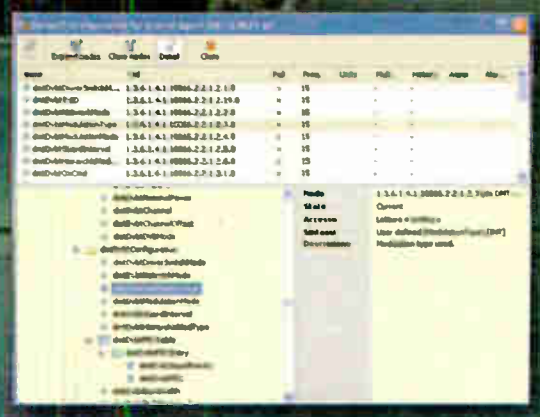

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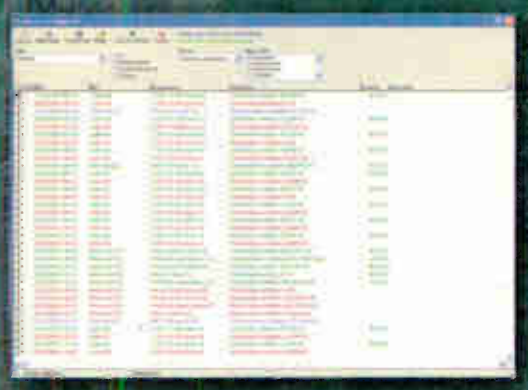

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World Radio History

PRODUCT EVALUATION

PAW-120: More Than Record/Playback

by Gary Eskow

Just a decade or so ago, field recordists were faced with a difficult decision: either shell out for an expensive tape- or digital-based unit, or settle for the chintzy sound and limited feature set that cassette recorders offered. There was not much middle ground.

Today, a number of companies offer portable recorders for little more (adjusting for inflation) than you paid for a top-of-the-line cassette recorder 10 or 15 years ago. The AEQ PAW-120, which can be found online for about $650, is more expensive than some of its competitors. But it offers much more than simple record/playback functionality, and its feature set may be just what you need.

Palm pilot

PAW stands for palm audio workstation, and it's an apt moniker. At 4.5 x 2 inches, the unit is about the size of a chocolate bar. The PAW-120 can be powered in three ways. In my studio I used the included USB cable to draw power from both my Mac- and Windows-based computers.

To test the recording quality of the internal microphone I loaded up a couple of AA batteries and recorded my son Brian's band in rehearsal. The PAW-120 burns through a pair of AAs in about two hours, so users also might consider the third option, rechargeable batteries.

The manual is straightforward and fairly well written, but it uses the smallest fonts I've ever come across. While on the subject of language, I went up to the AEQ Web site to make sure I had the most recent software version, only to discover that the link is written in Chinese. AEQ, a Spanish company, does have an office, which includes tech support, in Florida.

Navigating through the 120's feature set, which includes a hierarchical folder structure that functions like Explorer found on a PC, is simple. On a unit this size, the LED screen is small — less than two inches square — but it is well lit. I found myself easily scrolling through the menus, and even executing edits on the fly, after spending about an hour with the 120.

The 120 lets you decide how you want to work. You can, for example, choose one of four audio compression settings, tell the unit that you're recording in mono or stereo, select either the internal microphone or an external mic, and then name and save these settings in one of 10 Template locations. If your recordings have different audio requirements, say a conference one day and a concert the next, being able to call up Templates is handy.

The 120 comes with a mini-plug to XLR adapter that lets you record with either one or two external microphones. The unit supports dynamic, capacitor and electret microphones, but they must be supplied with phantom power.

Making the band

I started testing the 120 by recording a series of short audio clips in my studio. I chose the "STENO" setting for these quick verbal entries and selected the internal microphone. As you would expect, the STENO sampling frequency (8,000 Hz) is the lowest of the four settings from which to choose, as are the bit rate and file format algorithms. After recording a few short clips I decided to check out the editing function of the 120, and in the process ran into an interesting problem.

By default the 120 names file sequentially (USER004.WAV, USER005.WAV, etc.). After recording a :40 file in which I left room between sentences and dropped in markers while recording, I went into the Manager and renamed the file. Next I went into the Edit page and took a look at the waveform. The markers were clearly visible, and I proceeded to follow the directions for deleting the area between a pair of them. However, I couldn't perform the edit.

I called tech support and learned that renaming a file locks it in place; no further edits are allowed. I suppose this is okay, but the manual made no mention of this point and I'm sure others will be confused by this omission until AEQ revises the manual.

The company says this problem has since been corrected. Now you cannot rename the file, only the folder; but you can always edit the audio file. Additionally, AEQ describes this in the manual.

Unlike some other recorders, the 120 does not use removable flash cards. The 512 MB internal flash memory is sufficient for almost any application you'd reasonably expect. Whether it will hold up over a long period is an open question.

Recording my son's band in the field I switched over to the highest-quality setting. There are a few quirks to the 120, and one of them is that the "Music" setting — for some reason the second best, not the first, of audio quality settings — is misspelled. Choose "Lusic" if you want this one. I also used the internal, mono microphone for this field test.

I found myself executing edits on the fly, after spending about an hour with the 120.

Setting up levels is easy, thanks to the 120's Pre-Record mode. Feng Shui, as the boys call themselves, recorded a four-minute instrumental, which I brought back to my studio and transferred to my PC. When you connect the 120 to a computer via a USB cable, the device asks you if you want to draw power from the computer or transfer a file to it. If you choose to use your computer as a power source you have to remove the cable before the 120 can power down, which I thought was a bit odd.

I opened up the file in Steinberg's Wavelab 6, trimmed the ends and had a listen. The sound was serviceable. A pair of high-quality microphones would be helpful, of course, but the mono recording the internal mic yielded was a true image of this three-man supergroup's talent.

In essence, the PAW-120 is a good little recorder with some useful editing features that will come in handy for anyone who doesn't need a sync track. If your roving reporter is covering a breaking story and wants to make sure obtained quotes are accurate, the PAW-120 will serve his or her needs far better than a cassette deck.

Gary Eskow is a composer and journalist. Visit www.garyeskow.com.

Product Capsule:
AEQ PAW-120
Handheld Digital Recorder

Thumbs Up
- ✓ Internal microphones pretty good
- ✓ Multiple audio formats a plus
- ✓ Excellent editing capabilities
- ✓ Good file structure

Thumbs Down
- ✓ Small display
- ✓ Some of the parts (such as rubber cover on battery slot) may not last long

PRICE: $699

CONTACT: *AEQ in Florida at (800) 728-0536 or visit* www.aeqbroadcast.com.

World Radio History

PRODUCT GUIDE

UADC-1 Eases EAS Insertion

ATI Group says its Model UADC-1 utility analog-to-digital converter/switch provides 24-bit conversion along with AES audio path insertion and interruption functions.

It may be used as a standalone A-to-D converter or to insert stereo analog inputs into an AES stream via remote control, which ATI says makes it suitable for use with analog EAS encoders and decoders.

"The UADC-1 gives HD Radio stations an easy way to insert EAS

announcements into their AES air chain," said Art Constantine, director of sales for ATI Group.

"In a typical installation, the station's AES air chain will be looped through the UADC-1. Then analog audio from the EAS receiver is plugged into the UADC-1's left and right analog inputs. When an external contact closure or DC signal voltage is applied to the unit's remote control contacts, the AES air chain is interrupted and the analog audio, now converted to AES, is substituted."

Additional features include relay bypass if power is lost, front-panel LEDs that show Audio Present and Clipping for left and right analog inputs, the input selected and the status of the device.

The Model UADC-1 retails for $399.

For more information, contact ATI Group in New Jersey at (856) 719-9900 or visit www.atiaudio.com.

Presentation Rack Is Suitable for Smaller Facilities

APWMayville's Stantron Presentation Rack is suitable as a broadcast rack in smaller facilities and backup applications.

The Presentation Rack is available in two models, both of which are customizable to fit the requirements of integrators and end users, and ease equipment re-configuration and routine system care through front- and rear-door access.

Features include vertical lacing bars for efficient cable management; 24.75-inch rail-to-rail depth of shelf space for rack components; 360 degree swivel casters for mobility; perforated front/rear panels to ensure proper ventilation and prevent heat buildup; Plexiglas front door for clear line of sight to rack components; laminated solid graphite top featuring a 22.5-inch writing surface with cable port; numbered rack rails and multiple cable access holes on innovative rack base; power, lighting and cooling accessories.

The Stantron Presentation Rack is now shipping.

For more information, contact APWMayville in Wisconsin at (414) 406-5360 or visit www.apwmayville.com.

Denon Has Network CD/DVD/Data Disc Player

Denon Professional says its DN-C640 slot-in network CD player is housed in a 1 RU enclosure, and offers playback format options using untapped system resources found in standard audio, network and computing devices.

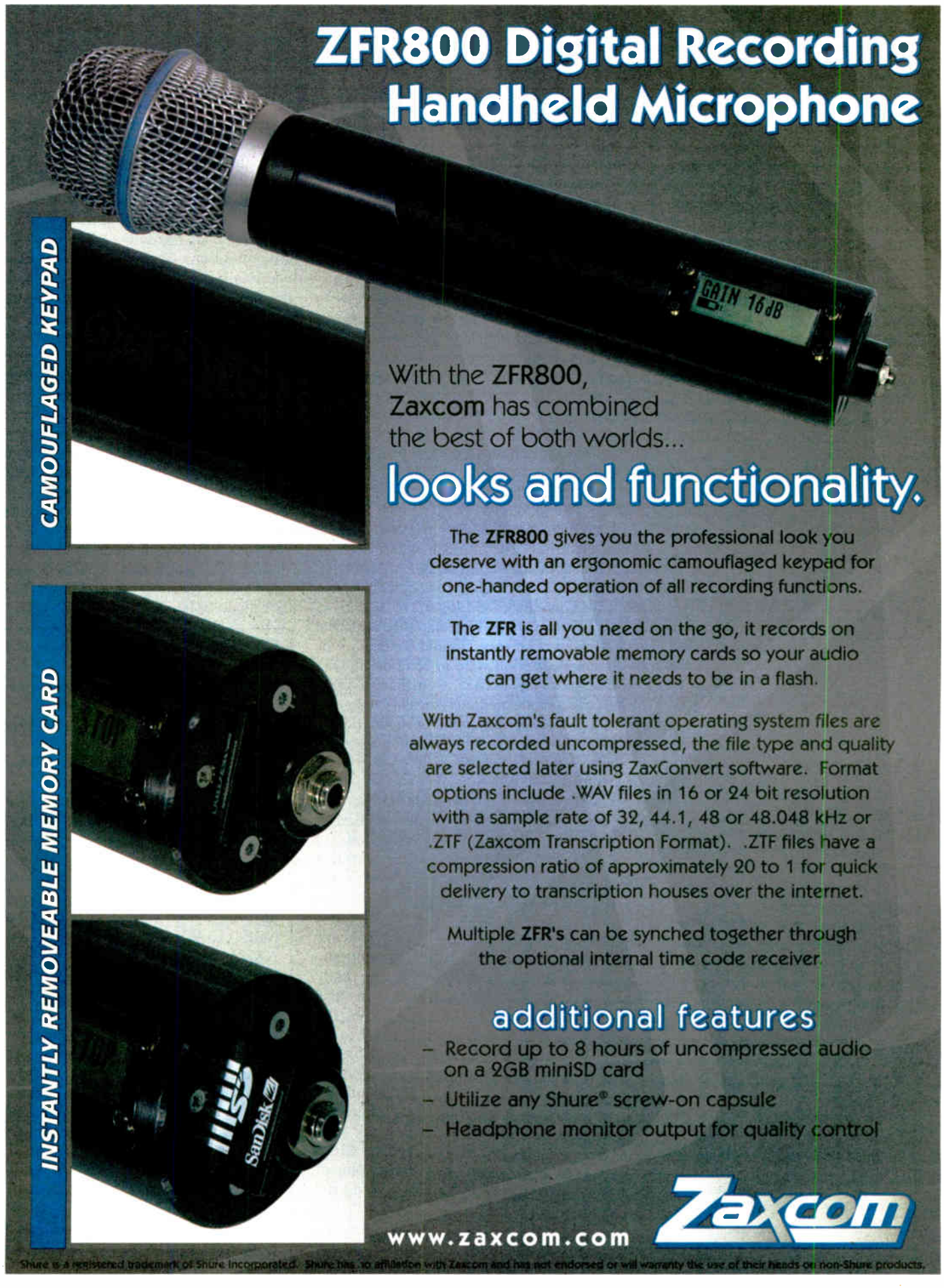
The unit enables audio data-file playback from CD and DVD discs and access to network playback capabilities. It is suitable for service as a networked audio playback control center.

The DN-C640 is compatible with most standard audio data file formats including CD-DA, WAV, MPEG-1/2 Layer II, MPEG-1 Layer II and Windows Media Audio, allowing for up to 20 hours of MP3 or similar audio playback from a CD, CD-R or CD-RW.

Additionally, the unit reads files from a data DVD, which the company says increases continuous single disc playback to nearly six days of uninterrupted audio. For users requiring the fidelity of uncompressed WAV audio files, this allows disc playback unrestrained by the normal 80-minute CD-R time limit. Various file types may be combined on the same disc to accommodate different source formats of program material.

The DN-C640 incorporates network integration for streaming audio playback from personal computers, servers or other network resources. Denon says this feature affords sufficient file storage and continuous playback while allowing access to files from the unit's front panel/remote or an internal Web browser-based GUI with transport controls and customizable program playlists, accessible from any Web-related computer on the network. Standard 25-pin Contact Closure (GPIO) and 9-pin RS-232C control connections are included.

For more information, contact Denon Professional in Illinois at (630) 741-0330 or visit www.d-mpro.com.



World Radio History

PRODUCT EVALUATION

Goldeneagle HD: Monitoring, Control Grow Up

Audemat-Aztec's Unit Monitors Parameters Necessary to HD Radio, E-mails Alerts to CE

by Tom Norman

The Audemat-Aztec Goldeneagle HD is a single-box solution to transmitter monitoring and control, an eclectic combination of HD and analog monitoring and remote control gadgetry. It is a well-constructed, tightly shielded box, capable of performance in virtually any RF environment. It is a comprehensive collection of transmitter monitoring functions, remote controls, telemetry and data monitoring functions.

The spectrum monitor option affords a visual check of a transmitter's passband. The background masks allow rapid visual checking to assure that all is well. For radio transmitter control, telemetry, alarms and monitoring, the Goldeneagle HD is impressive.

Three versions of the unit are available: Goldeneagle HD FM, Goldeneagle HD AM and the Goldeneagle HD AM/FM. I tested the Goldeneagle HD AM/FM.

It can be configured for installation at a transmitter site, where it would be set up to monitor and control the site; to monitor a transmitter at the studio location; and to log parameters over time, allowing the reports to become part of a log. It also can be configured to monitor parameters and report them via e-mail or phone if something falls out of range.

Goldeneagle HD's monitoring capabilities address the concerns of today's radio stations. For example, if something falls outside limits, the GoldenEagle HD e-mails the engineer. Overmodulating only a little? Transmitter power sagging slightly? Dynamic PS hasn't updated for two hours? Nobody can hear the problem, as they are not really listening all that closely. The chief may be eating lunch with his girlfriend when he receives the alert on his BlackBerry. He knows of the problem before anyone notices that it *is* a problem, and can deal with it before people tune out.

Out of the box

The Goldeneagle HD monitors key parameters in the modulation envelopes of HD and analog radio signals. It has alarm functions that can be customized, and has programmable remote control and monitoring capability. It can be set up to monitor and control several stations or one. And its core is a computer, which allows for IP or dial-up connectivity and configuration to do a large array of tasks.

Goldeneagle HD calls specified telephone numbers and leaves messages on a schedule, or in response to an alarm. The DTMF option can be used for control functionality if that is needed, as well. The unit is equipped to monitor AM and FM analog as well as HD, and is equipped with AM and FM spectrum analysis capability.

Importantly, it has a graphical interface on the front panel that, once configured by the administrator, makes monitoring easy enough for a non-technical jock or GM to read.

I had no trouble making the unit work straight out of the box, but I did have a bit of fun learning about the things it will do. I set it up at my office and browsed to it from home, where I listened to streaming audio from the unit. Running the associated software, I looked at the front panel remotely, and played with control functions remotely via the Web.

The front panel enables the setting of several management functions, type in the frequency of a station you want to monitor and select a pre-programmed station for monitoring. Bring up a modulation monitor, and listen to audio as transmitted. The front exhibits the spectrum display in units equipped with the spectrum monitor.

It was difficult to work through the menus and software to locate the machine's capabilities, and I had an especially difficult time figuring out how to utilize the optional remote control, telemetry and status reporting capabilities. They were not especially obvious. In a future version of the unit, I would like to be able to drill into this from the front panel, assigning control functions and calibrating metering from there.

The unit offers 16 control functions, 16 metering channels and 16 status channels. A simple radio transmitter site will not use all of these; but this could be a bit light for a complex site involving main and standby transmitters for more than one station, environmental control and monitoring, and status reporting for such things as doors, interlocks and so on.

I listened to and looked at the technical parameters of several radio stations in the Denver area. All were in compliance with the spectrum masks, even though some stations modulated more heavily than others. Curiously, the public stations did not push the envelope on modulation level, but the commercial stations did — every one of them.

One station never modulated under 100 percent except during silence, at least as far as the display was concerned. Based on the display, I thought this station's audio was probably overprocessed. When I listened, there was no question about it. There was a lot of audio ducking on heavy bass, and there was a lot of heavy bass due to the station format. It was like taking a beating to listen to it. What was really interesting about this was that I was able to visually identify this from the Goldeneagle HD display.

Management tools are available by browsing to the unit. Among the tools are log-in and password setup, IP parameters setup, phone alerts, SNMP parameters and so on. I discovered I could check such stuff as the CPU temperature (36.8 degrees Celsius) via the external computer. You can even turn the Goldeneagle HD off remotely.

The Goldeneagle HD also comes with monitoring management software, also called Goldeneagle HD. With this software, users get a remote peek at the same screens available on the front panel, and a bunch more. The menus are self-explanatory, allowing you to configure what you want to monitor, set alarm parameters and view alarms and do real-time monitoring of signal parameters.

Setup is best done with the manual open, because the alarm parameters need a bit of explanation. I had a great time playing with these, tweaking and fine-tuning things until it worked the way I wanted it to work.

The spectrum display shows real-time occupied bandwidth information for the transmitted signal, and includes masks to cross-check the signal to assure the bandwidth is legal. Goldeneagle HD monitors the important signal parameters of your analog signal and your digital signal, and displays graphs of these over the past hour or over the past day.

The RDS monitoring capabilities are strong. If your station uses static PS, Goldeneagle HD alerts you if the PS changes. If you are using dynamic PS, it can alert you if it fails to change in a given amount of time. This is just one of the critically important parameters that decide whether you keep or lose your audience, and is something that no station should be without. There are a lot of things to check in the HD Radio environment, and Audemat-Aztec has packed the necessary tools to do so into the unit.

Product Capsule: Audemat-Aztec Goldeneagle HD

Thumbs Up

- ✓ Full range of testing and measurement
- ✓ User-configurable for testing, monitoring
- ✓ Spectrum monitor option
- ✓ Strong RDS monitoring capabilities

Thumbs Down

- ✓ Tricky menus, software
- ✓ Figuring out remote control, telemetry and status reporting capabilities was difficult

PRICE: $7,435

CONTACT: *Audemat-Aztec in Miami at (305) 249-3110 or visit* www.audemat-aztec.com.

HD Radio presents new challenges to stations. A great number of these challenges are technical in nature, and are critical to acquiring and holding an audience. In addition to providing conventional transmitter site monitoring and control, the GoldenEagle HD monitors the important additional parameters necessary to this end. It also notifies the engineer of problems before they ever become evident to the listening audience. This heads-up notification ability can make the difference with audience numbers.

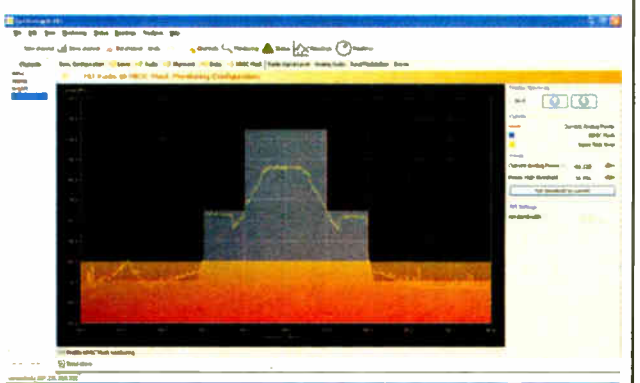
Even though the unit was expensive, I thought it was priced right for the capabilities it had. By comparison to purchasing separate instruments to replace its functions, it is very affordable. And I cannot imagine that something with similar capabilities, aimed at television transmitter sites, would not be enthusiastically received.

Tom Norman began his career in broadcasting at a Wyoming radio station in 1977. He lives in Denver, where he works in systems integration with Burst. Contact him at tomn@burstvideo.com.

PRODUCT GUIDE

Audemat-Aztec Releases V1.4 Goldeneagle HD Software

Audemat-Aztec released version 1.4 software for the Goldeneagle HD, which the company offers several new features. The Goldeneagle HD is now capable of displaying the complete NRSC (5A) mask for AM and FM HD stations. The unit also can monitor the station's compliance with this mask on a regular basis and alert technical personnel of out-of-tolerance conditions.



HD Radio NRSC Mask Monitoring Configuration

Additional features include automatic monitoring of the digital/analog audio time alignment, with alerts via e-mail, SMS, SNMP trap or voice call. Capabilities have been added to the modulation-monitoring feature introduced in v1.3, as well. Peak weighting and filtering have been added, allowing broadcasters to get a more accurate measurement consistent with traditional analog measurements.

The modulation monitor also is now capable of measuring modulation on 67 and 92 kHz subcarriers. The Goldeneagle HD can now be configured to monitor the entire FM spectrum and send alerts when changes in RF level are detected.

Audemat-Aztec says v1.4 software is available free of charge. E-mail Tony Peterle at *peterle@audemat-aztec.com.*

World Radio History

Products & Services SHOWCASE

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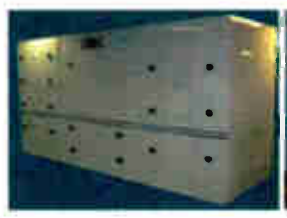

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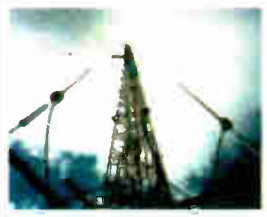

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World Radio History

USER REPORT

Toronto Radio Finds Burli 'Malleable'

System Enables On-Demand Traffic for 680 News Via Automatic Audio Capture, Podcast Features

by Anthony Guerra
Senior Broadcast Engineer
Rogers Media Broadcasting Ltd. – Toronto Radio
CHFI, CJAQ, CFTR, CJCL

TORONTO It's nothing new to discuss how a newsroom software environment handles the typical day-to-day audio and text requirements for radio and television stations around the world. Nearly all news applications have wire and audio capture, e-mail, fax, XML and even RSS ingestion capabilities.

A carpenter carries a hammer, a plumber carries a wrench — and a broadcast newsroom has got to have **Burli Software** in its corner.

I have been part of the engineering staff of 680 News, CFTR(AM), in Toronto for seven years, and have assisted in every aspect of the Burli impact on our all-news radio format. I have been there for the specification, designation, installation, implementation, demonstration and ongoing administration. Today it is not only the staple of our news operation; the remaining stations in our Toronto cluster use it to facilitate their operations as well.

The word that comes to mind is malleable. The software takes on its own identity as it becomes tailor-made for the installation at hand. It doesn't stop at the installation; I constantly make changes to suit the needs of the stations. Once I was familiar with certain files, I could make changes that the staff could appreciate.

The MAIN.ini file allows software administrators control of the important variables that present themselves in the working user environment. I mention the MAIN.ini as an example of the approach Burli has taken with its software.

The Audio Logger is not a simple two-channel audio recording tool. Rather, it is the handy-dandy, save-your-life, kind of tool that is the ultimate audio capturing and audio delivery mechanism.

Guerra, shown, likes that users can right-click on an existing piece of edited audio and click 'Send to Podcast.'

Audio capturing can be performed in linear wave (WAV), MP2 or MP3 formats, at various sampling and bit rates. It can be stopped and started by any combination of contact closure, timed event, elapsed time or threshold audio detection methods. After the audio is recorded, it can be posted to the In-Queue for typical network availability to the newsroom staff, or it can be FTP'd to a destination server.

Crosstown traffic

The 680 News traffic department provides traffic for all of our stations. Our traffic reporters earn their keep, especially dealing with Toronto's roads. In keeping up with the demand for up-to-date information, we have made our reports available to two more important public communication media: cellular phones and the Internet.

Every 10 minutes (on the 1s) 680 News traffic reports automatically are captured by a back-end Burli capturing computer, which resides in our engineering rack room. I start the record process by contact closure, which coincides with the initiation of a traffic stinger in 680 Master Control by the on-air operator. Due to the varying lengths of traffic reports throughout the day parts, I configured the Burli Audio Logger to record for an elapsed time of 100 seconds.

After the audio has finished recording, it is re-encoded to a specific sample and bit rate MP3 file (mostly for cellular compatibility) and FTP'd to different servers. One server houses the audio for Internet availability on the 680 News Web site. The other server, which belongs to a third-party media provider in Toronto, handles the availability of the 680 traffic report audio to cell users. They send a text message to 680680 with the word "traffic" in the body of the message, and within a few seconds, their phone rings back and begins playing the audio.

This is done without the need for staff to capture, edit and send the audio. I like to think of it as 680 Traffic-on-Demand.

Using the file transport capability, Burli's Podcaster was a logical next step into providing direct-from-the-newsroom content to both the 680 News and The FAN 590 (CJCL) Web sites. The Podcast Channel Editor is a Web-based tool that has been provided to configure the various fields normally associated with podcasting such as Author, Title, Date, Show Description, etc. But it also is the tool from which back-end configurations like FTP server paths and audio codec choices are made.

Having the Podcast Channel Editor hosted centrally on our existing Burli server, as well as its direct integration into the existing MySQL server, are advantages with respect to the ease of operational distribution, LAN availability and administration. As far as the Burli users are concerned, they right-click on an existing piece of edited audio in their local Burli work folder and click "Send to Podcast."

They can then choose from a drop-down menu of Podcast "channels" or "shows" that have been previously set up for them, and make the new content available after filling in some text fields that accompany the audio that gets transferred to the Web site. The accompanying text is automatically formatted into an XML file on the Burli server before getting FTP'd.

The XML files are generated by means of the PHP scripts located on the local Burli server. Anyone so inclined can make changes to the scripts to suit their Web site's XML requirements.

Burli's Podcaster gives us the means to get our content to our radio listeners venturing on their daily commutes via subway or train, where radio reception is not possible.

For more information, including pricing, contact Burli Software in Canada at (604) 684-3140 or visit www.burli.com.

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World Radio History

USER REPORT

Clear Channel Opts For VoxPro PC

After Trying System for Macs, San Fran Cluster Finds PC Version a Better Fit

by Josie Padilla
Senior Studio Engineer
Clear Channel San Francisco

SAN FRANCISCO In 1996 we built new studios for what is now Clear Channel San Francisco. Having five FM stations in one of the biggest markets in the country, it seemed time to stop using our Otari tape machines and a razor blade to do our phone call editing. So we made the decision to purchase the **Audion Labs** VoxPro 1.8.3 Mac system.

From day one the jocks noticed the speed and reliability of this system. This computer was used 24/7 and became a big part of all of our shows. However, after a while we started to run into problems with hard-drive storage space and the computer limitations the program was designed for.

Padilla (seated) demonstrates VoxPro to Master Board Operator Sizzle Collins (left) and IT Support Specialist Tom Lundquist.

After doing some research I found that there were other editing programs out there, but they lacked either the discrete channel separation or the speed of editing that the jocks had come to rely on.

When I looked at the Vox Pro PC Version, I noticed it had the features we were used to having — for instance, being able to record and edit phone callers and jocks audio on a discrete channel, and adding beeps to cover profanity.

Audion Labs also had included several new tools that were not a part of the Mac version, such as the ability to network VoxPro computers on the same LAN new editing tools, sound effects, a jog wheel on the controller and the ability to create MP3s from VoxPro edits. I knew these new tools would help improve productivity at our San Francisco studio location.

VoxPro Networking has allowed us to record and edit in other studios during, before or after a show. Your edits are ready in the on-air studio with no extra work or time transferring files. Making MP3s from an edit to send to clients or to our listeners has helped ease the workload of our production staff. It also gives us a way to archive edits for a later date. The editing sound effects allow our jocks to use their imaginations and disguise their voices for bites.

Even though you can run the program without the control panel, using it allows our jocks to turn around a call in seconds. It is amazing to watch how fast they can edit a call and how hard they can punch those buttons without them breaking. The AGC not only helps to make the callers sound better but it also prohibits the sound from the cue or studio speakers from become part of the recordings.

VoxPro Networking has allowed us to record and edit in other studios during, before or after a show.

Being the studio engineer, the thing I love most about this unit is that it is reliable. While these features and abilities are great, they would not mean a thing if the system was not dependable. I do not have all day to service the eight units we have running here.

If you are not in the San Francisco market I welcome you to try this unit for your station. If you are in the San Francisco market I recommend that you continue using what you already have.

For more information, including pricing, contact Audion Labs in Washington state at (206) 842-5202 or visit www.audionlabs.com.

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TECH UPDATES

Aurora 8, 16 Convert at Sample Rates to 192 kHz

Lynx Studio Technology offers the Aurora line of digital audio converters, which it says provides audio quality and control in a single rack space, and eight- and 16-channel models.

The Aurora 8 and Aurora 16 feature 192 kHz analog-to-digital and digital-to-analog conversion with front-panel control of routing and sample rate options. Extended functions are accessible via computer with the Lynx AES16, or by infrared using compatible laptops and handheld Pocket PCs. The rear has MIDI in and out connectors and an LSlot bay for the use of optional ADAT, ProTools HD or Firewire interface cards.

Primary functions are controlled from an ergonomic front panel, with extended and remote control available via computer and Pocket PC. Front-panel controls include sample rate selection. The most popular rates are selectable: 44.1; 48; 88.2; 96; 176.4; and 192 kHz.

Also included on the front is sync source selection. The user can choose its master clock from six sources: internal; LSlot; AES-A; AES-B; external; and external/2.

The analog output source is selectable from analog inputs, digital inputs or LSlot inputs. The digital output source is selectable from analog inputs, digital inputs or LSlot inputs.

Additional highlights include eight or 16 channels of input and output metering, selectable for the digital or analog signal path; level control selectable for +4 dBm or –10 dBV devices; and single-wire/dual-wire AES selection. The company says Aurora operates in single- or dual-wire modes for maximum connectivity with digital devices.

The front also includes indicators for infrared and MIDI activity and SynchroLock jitter reduction status.

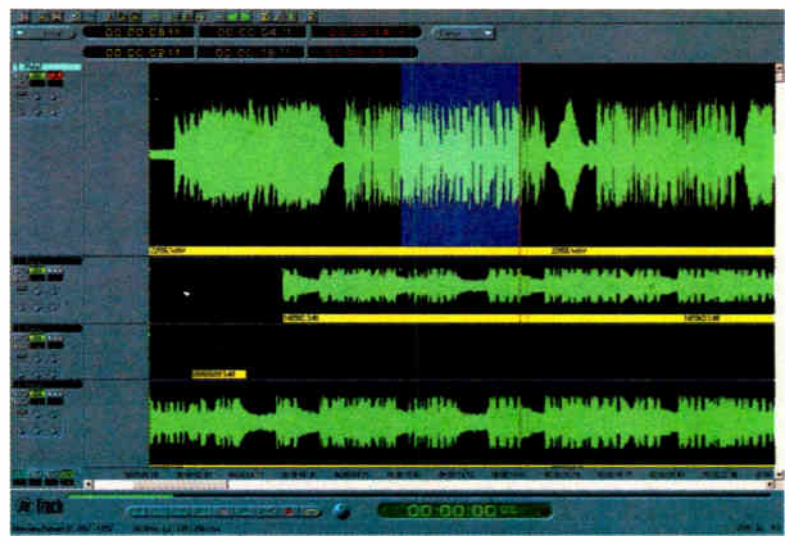
The 32-channel digital mixer provides routing and mixing options. Acting as a patch-bay-style digital router, Aurora routes signals between analog and digital inputs on a channel-by-channel basis. Mixing capability on each output also provides zero latency monitoring. The AES16 provides detailed metering of each channel and allows Aurora scenes to be saved and recalled.

The eight-channel Aurora 8 has a suggested retail price of $2,195. The suggested retail of the 16-channel Aurora 16 is $3,295.

For more information, contact Lynx Studio Technology in California at (949) 515-8265 or visit www.lynxstudio.com.

AEQ Debuts MAR 4 Suite Pro

AEQ offers the MAR 4 Suite Pro, featuring tools for broadcast audio production. The company says it integrates an audio editor of up to 32 mono or stereo tracks of linear audio or MPEG, even in WAV format. It incorporates the functions of merge, stretch, pitch shifting, reverse, noise gate, normalize and Direct-X.



Merging with fade-in at the multitrack editing screen of AEQ MAR 4 Suite Pro.

MAR 4 Suite Pro also includes a Mix-Editor that allows mixing of audio files in the same playlist, and placing of the introductions of each audio file in the intro time and leaving the program prepared to be emitted live or recorded.

The software can run on generic PC equipment with Microsoft operating systems and Digigram audio cards.

For more information, including pricing, contact AEQ in Florida at (800) 728-0536 or visit www.aeqbroadcast.com.

World Radio History

TECH UPDATES

Multi-track XT Mixes Linear, Compressed on One Track

Netia's Radio-Assist 7.5 range of software includes the Multi-track XT editing tool, which the company says is designed for multi-track digital audio recording and editing, and is suitable for audio editing and production work in the radio studio.

Multi-track XT mixes linear or compressed data on a single track. Along with traditional recording, editing, and playback features, it offers time stretching, pitch shifting, noise reduction, noise gating, synchronization and stereo and multi-track broadcasting.

Netia says Multi-track XT offers drag-and-drop functions, and includes two to 32 inputs/outputs (according to the number of cards installed); an unlimited number of tracks (limited only by the performance of the host computer); and up to 16 tracks per output channel. Editing tools can be used independently on each track.

Additional highlights include unlimited undo/redo; copy-paste, insert, drag-and-drop; simultaneous recording and playback; and open architecture for customization and external control.

For more information, contact Netia in New Jersey at (888) 207-2480 or visit www.netia.com.

Coming up in Buyer's Guide

Microphones & Audio Monitors
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May 9

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June 6

Consoles, Mixers & Routers
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Digigram Adds VX222HR-Mic to Sound Card Line

Digigram's VX222HR-Mic stereo sound card extends the feature set of the VX222HR to include integrated voice tracking, voice over and other editing applications.

The company says a phantom-powered microphone pre-amplifier, combined with an analog compressor-limiter-expander, enables mix of voice and another audio source without the need for external devices.

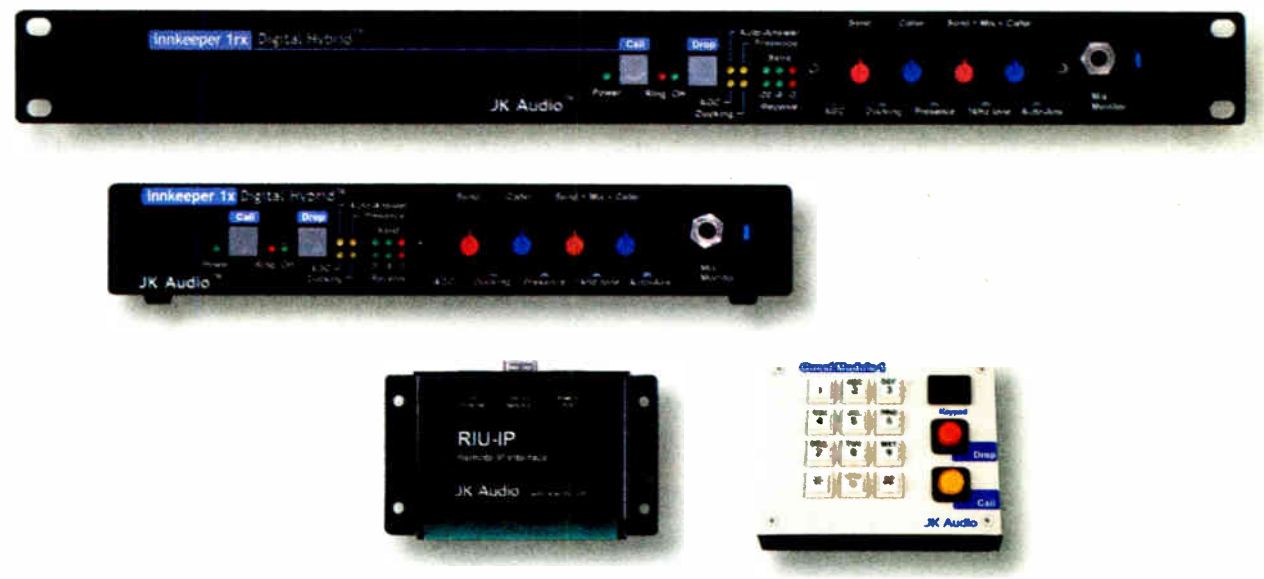
VX222HR-Mic

Features include 2/2 balanced analog and digital AES/EBU I/Os; DigiQMax parametric three-band EQ and maximizer; and hardware sample rate converter on the digital input, which enables recording of a digital signal that is not synchronous with the board's internal clock. Analog line and mic inputs can be mixed together.

Digital inputs are compatible with the new AES42 standard used by digital microphones. Digigram offers an AES42 interface on a sound card, which enables control of the microphone settings through the card. Drivers include low-latency WDM DirectSound, ASIO and WAV drivers, as well as a driver for the Digigram SDK.

Digigram says its HR sound cards have been submitted to Microsoft WHQL tests with success, and are now acknowledged as "Designed for Microsoft Windows XP." HR Series drivers also are digitally signed for Microsoft Windows XP, Windows 2000 and Windows Server 2003 (32-bit edition), meaning they also comply with WHQL standards.

For more information, including pricing, contact Digigram in Virginia at (703) 875-9100 or visit www.digigram.com.



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We've refined our innkeeper 1(x) line, gussied it up, gave it some great new features, expanded its family AND lowered the cost!

Why take a successful line like the innkeeper 1 and change it? Because we knew we could make it better AND lower your cost!

For starters, we've combined the features of the innkeeper 1 and the innkeeper 1x into a single hybrid that's more than the sum of its parts. As with the original, the new **innkeeper 1x** is a full-featured phone line interface which uses a proprietary dual-convergence echo canceller algorithm. It's designed to achieve excellent separation without any setup, and without sending a noise burst down the line. Plus, we've added an RS-232 connector for remote control applications and made them globally-compliant.

For remote control, we've now got two compatible products.

The **Guest Module 1** gives you remote access to the on-hook/ off-hook and dial features of the innkeeper 1x series digital hybrids, using an 8 pin RJ45 modular cable.

The **RIU-IP** interface contains a web server which allows you to send and receive control data through your web browser. It can be connected to your computer NIC card for direct control, to a switch or hub for network control, or to an ethernet port with internet access for control from anywhere in the world.

Innkeeper 1x is more than a facelift. More than an upgraded feature set. It's a comprehensive, streamlined hybrid environment that gives you the tools you need to control it from anywhere. Visit us on the web or give us a call to learn more about innkeeper 1x.

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World Radio History

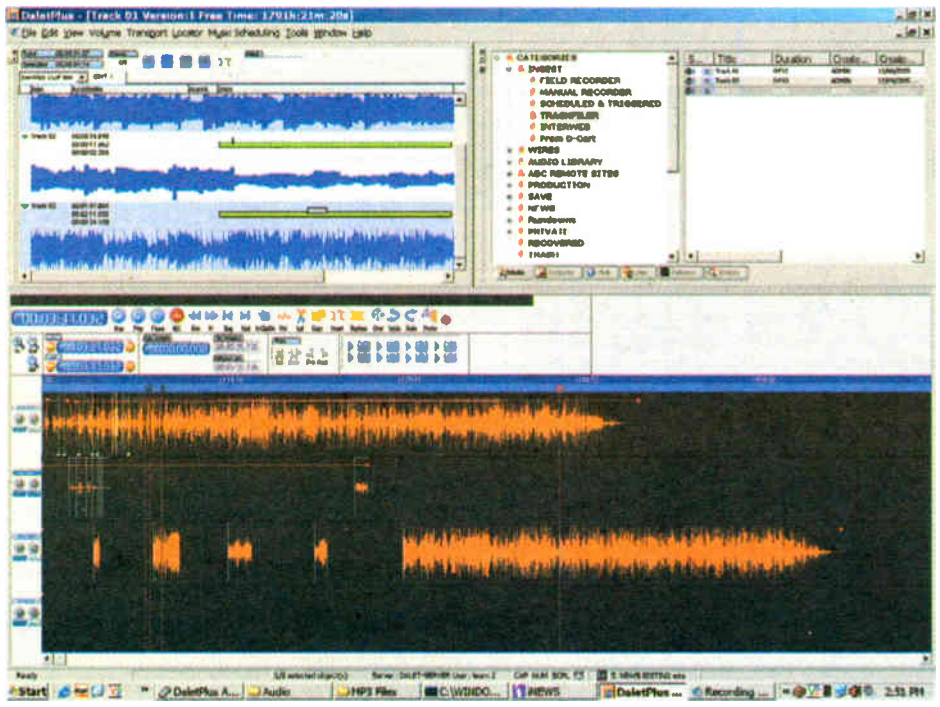
USER REPORT

KILO, KYZX Upgrade to DaletPlus

by John Gray
Chief Engineer
KILO(FM)/KYZX(FM)
Bahakel Communications

COLORADO SPRINGS, Colo. KILO(FM) and KYZX(FM) recently installed Dalet's latest-generation radio broadcast technology, DaletPlus Radio Suite. The upgrade to DaletPlus Radio Suite moved the KILO and KYZX operations from a proprietary audio task specific product set up to a more IT leveraged processed into a single audio file, or as a project in which the original audio and subsequent edits are preserved to allow for future tweaks. Fade-ins and fade-outs can be directly drawn on screen with control points. A clipboard allows editors to temporarily store audio segments and insert them back at any position in an audio file.

The upgrade also added quality to the cataloging process by delivering catered meta-data to multiple channels: HD Radio, RDS and HTML. We didn't have this before. Making the move to DaletPlus



DaletPlus Surfer

music production and programming environment with an emphasis on redundancy.

I have been a user of Dalet products since 1995. The last Dalet upgrade — Dalet 4.3 — was installed at KILO and also KYZX in 1999. While it did carry us through the past decade, it also began to limit us as the audio and IT technology around us evolved. Compatibility issues with emerging formats, support for new hardware, etc., became an increasing challenge for keeping our production and playout operations on the legacy application.

DaletPlus Radio Suite ensures we avoid loss of revenue, and I don't have to roll up my sleeves and mess with it. The upgrade gives us existing Dalet 4.3 features we were comfortable with such as Navigator, Carts and Surfer within a more IT-centric application. It made the transition more palatable.

Surfing files

The DaletPlus integrated digital console can replace small traditional mixing consoles that interface external audio equipment, like CD and DAT players and recorders, tape machines and telephone lines. Editors can interface up to 16 digital or analog sources. External sources are connected via the console to Dalet Surfer, the audio editor. Surfer has the ability to edit an audio file while it is being recorded. Many different sound effects can be used while recording.

Finished products can be saved as a sound file where edits have been

We now have dynamic control of traffic and music scheduling that really accommodates last-minute changes.

also eliminated the debilitating file format restrictions. MP3, PCM, WAV, which were issues with 4.3, are now fully supported in the upgraded system.

Another cool enhancement is the new broadcast platform. It is more robust and gives us increased fallback scenarios. We now have dynamic control of traffic and music scheduling that really accommodates last-minute changes; we operate largely on Live-Assist. The new system also incorporates a thorough "Rights Management" control, which organizes who can and cannot access various features, providing organization and protecting content.

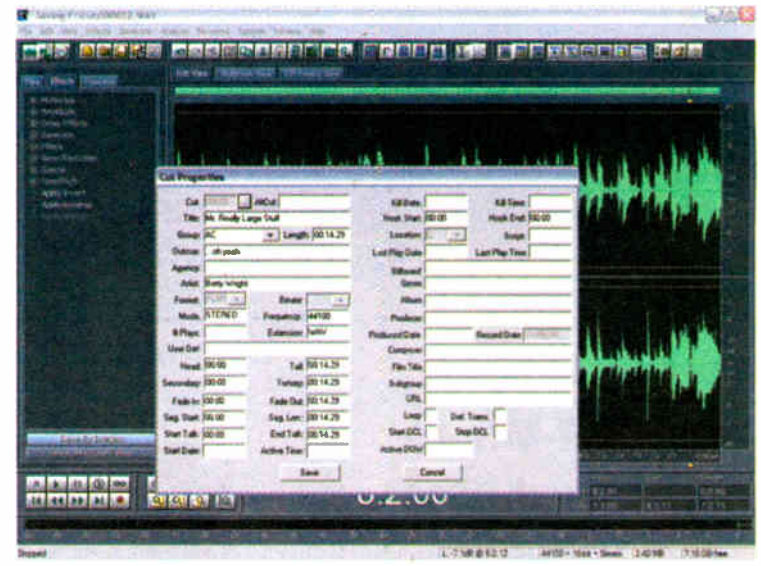
This was a pretty sizeable upgrade so Dalet sent in support to help with equipping the two stations. For such a big upgrade, the transition went off with few hiccups. We are so pleased with the upgrade that we are now upgrading our four Chattanooga stations to DaletPlus.

For more information, contact Dalet in New York at (212) 825-3322 or visit www.dalet.com.

TECH UPDATES

ENCO's CoolDAD Option Links Audition, DAD

ENCO Systems says the CoolDAD option integrates Adobe Audition multitrack audio waveform editor with the company's DAD automation system for faster access to multitrack editing tools from within the automation environment. CoolDAD also integrates Cool Edit/Cool Edit Pro, the predecessor to Audition.



Adobe Audition with a 'Save' dialog showing the ENCO DAD cut properties, allowing a user to save and edit metadata for DAD cuts directly from Audition using the CoolDAD interface.

The option enables users to export audio cuts from Audition into the DAD database. Markers for cues, as well as cut information, can be created during the edit session and exported directly into DAD.

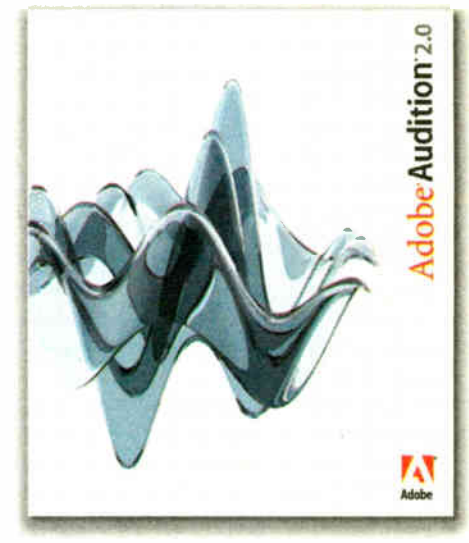
CoolDAD also allows the editing of MPEG-2 files within Audition. Files originating in DAD can be edited in Audition with the toggle of a button that switches from DAD's standard editor to the Audition application. CoolDAD allows large audio files to be segmented to just those areas of interest prior to export.

CoolDAD is available and retails for $495.

For more information, contact ENCO Systems in Michigan at (800) 362-6797 or visit www.enco.com.

Audition 2.0 Displays Mixer Channel Effects

Adobe Audition 2.0 allows users to produce radio spots, create music and restore imperfect recordings. The integrated audio editing software originally was developed as Cool Edit.



Audition 2.0 has a revamped mixer panel that displays all settings and allows up to 16 sends per channel. Effects are displayed on the mixer channels, a change from previous versions. Some 50 effects are available to shape audio according to the producer's needs. The multi-track display will be more familiar to users of previous versions.

Audition 2.0 features a low-latency mixing engine that allows instant audio feedback. The engine allows parameters to be changed and recorded in real time. Punch-ins can be made on the fly to any number of audio tracks. Thirty-two tracks can be recorded simultaneously.

The workspace of Audition 2.0 is customizable, and preferred environments can be saved for later. The software supports common video formats and can synch up clips to sound files in the multitrack view.

Finding audio within a WAV display is aided by two styles of scrubbing. Tape editors will be familiar with the old, "rocking the reels" style of back and forth scrub to find a precise sound. Shuttle scrubbing is available for rapid search of an audio file.

For audio that needs repair, the Lasso tool is provided to isolate and modify or remove sounds within the Spectral Frequency Display. Producers can isolate sounds with a free-form Lasso, or they can use the marquee tool, which provides a rectangular isolation.

Audition 2.0 features a file management system. Adobe Bridge allows users to view media files in a group, and offers audio and video previewing before opening for edit. Audition 2.0 is available as a stand-alone editing product, or as an upgrade from a previous version of Audition.

For more information, contact Adobe at (800) 833-6687 or visit www.adobe.com.

World Radio History

Control Freaks

SRC-8 III

The SRC-8 III is a computer interface to the real world. Connectio through an RS-232 or RS-422 serial port the SRC-8 III can notify your PC software program that any of 8 opto-isolated inputs have been opened or closed and allows your software to control eight SPDT, 1-amp relays. Communication with the SRC-8 III can be accomplished via short "burst" type ASCII or binary commands from your PC (computer mode). Also, two units can be operated in a standalone mode (master/slave mode) to form a "Relay extension cord," with 8-channels of control in each direction. The unit can communicate at data rates up to 38400. The SRC-8 III may be expanded to 32 inputs x 32 outputs.

SRC-32

The SRC-32 is a computer interface to the real world. Connection through an RS-232 or RS-422 serial port, the SRC-32 can notify your PC software program that any of 32-optically isolated inputs have been opened or closed and allows your software to control sixteen SPDT, 1-amp relays and an additional 16 open collector outputs. Communication with the SRC-32 can be accomplished via short burst type ASCII or binary commands from your PC (computer mode). Also, two units can be operated in a standalone mode (master/slave mode) to form a "Relay extension cord," with 32-channels of control in each direction. The unit can communicate at data rates up to 38400. The SRC-32 may be expanded to 128 inputs x 128 outputs.

ESS-1

The ESS-1 provides a cost-effective, small profile solution for standard ser
Designed with the broadcaster in mind, the ESS-1 is equipped with exte
is ideal for applications requiring data support for both RS- 232 and RS-422 co
ESS-1 allows any device with a serial port, Ethernet connectivity and is ide
bridge/tunneling or applications where a COM port, TCP Socket, UDP Socket, or UD
functionality is needed. The small profile of the ESS-1 makes installation hassle-free.

SRC-16

The SRC-16 is a computer interface to the real world. Connection through an RS-232, RS-422 or RS-485 serial port with baud rates up to 38400 the SRC-16 can notify your PC software program that any of 16 optically isolated inputs has been opened or closed and allows your software to control sixteen SPDT, 1-amp relays. Programming is performed using HyperTerminal or your favorite com program. Two units can be operated in a standalone mode (master/slave mode) to form a "Relay extension cord," with sixteen channels of control in each direction. The SRC-16 may be expanded to 64 inputs x 64 relays. Optional external Ethernet and USB capabilities may be added. The SRC-16 is supplied with LED indicators to display input and relay status. Plug-in euroblock screw terminals are provided for ease of wire installation/removal. The half-rack chassis allows two units to be rack mounted on the optional RA-1 rack shelf.

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WRC-4

The tiny TOOLS WRC-4 is a fresh approach to remote site monitoring and control or providing an inexpensive solution to Internet enabling your present remote control system. The WRC-4 combineo with web access and your favorite web browser brings you the following features; A powerful built-in web-server with non-volatile memory; 10/100base-T Ethernet port four each channels of 10-bit analog inputs with a large monitoring range; optically-isolated status (contact closures or external voltages) inputs; normally open dry contact relays; open collector outputs, front panel status indicators, a single front panel temperature sensor and 4-email alarm notification addresses. The WRC-4 is also SNMP enabled. The WRC-4 has carefully been RFI proofed, while including the accessories other manufacturers consider optional. The WRC-4 is supplied with removable screw terminals and loaded with a generic web page that may be easily edited by the end user.

Time Sync Plus

The tiny TOOLS Time Sync Plus provides four separate GPS time referenced outputs. The first is a SPST relay, which pulses at 12:00, 22:00, 42:00, 54:30 each hour and is user programmable in each of four locations for any minute and second each hour. The second output is an active high driver with a 100 ms pulse each second, while the third output is a 4800-baud, RS-232 serial port providing a time zone adjustable hours, minute and seconds time code. The forth output provides an active high driver in the ESE TC89 and TC90 serial time code formats. Indicator LED's are provided to display power/valid GPS data, programming mode and time sync relay operation. A Garmin 12 Channel GPS receiver with embedded antenna is supplied

SRC-2/SRC-2x

The tiny TOOLS SRC-2 interfaces two optically isolated inputs and two SPST relays to a RS-232 or USB port, while the SRC-2x does this via a 10/100baseT Ethernet port. Both the SRC-2 and SRC-2x can notify a user's PC software program that any of two optically isolated inputs have been opened or closed and allows your software to control two SPST, 1-amp relays. The SRC-2x is also able to send an email when either of the two inputs change state. The user may also add up to 48 ASCII strings per input and 16 user defined strings per relay. Communication with the SRC-2(x) is accomplished via short "burst" type ASCII commands from the user's PC. Also, two units may be operated in a standalone mode (master/slave mode) to form a "Relay extension cord," with two channels of control in each direction. The SRC-2 communicates using RS-232 at baud rates up to 9600 and the SRC-2x via 10/100baseT Ethernet. The SRC-2(x) is powered by a surge protected internal power supply. Either unit may be rack mounted on the optional RA-1 mounting shelf.

VAD-2

The tiny TOOLS VAD-2 is a user programmable two-input multi-number voice/pager auto dialer with integrated stereo silence sensor designed for dial out paging and/or voice message notification. The VAD-2 is equipped with two dry contact inputs and stereo silence sensor, which, when tripped, will sequentially dial a pager and/or up to four different phone numbers and play back a user recorded message corresponding to the tripped input. The VAD-2 also provides two SPST one amp relays for the control of external equipment.

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...s up to 96 kHz/24-bit recording across 48 tracks. It has ...ast WAVE audio file support and AAF export for compati... workstations like Pro Tools, Nuendo and Logic. Support for ...ire hard drives are Gigabit Ethernet allows transfer between sys...ems, making the X-48 a suitable for multitrack system for music, post and live recording applications.

Additional highlights include an automated 48-channel mixer, VGA display output, editing functions and DVD+RW backup drive. The company touts 32-bit, floating-point audio file recording and playback with no loss of track count; 80 GB hard drive; and front-panel transport, track arming, project management and metering functions.

The X-48 retails for $5,999.

For more information, contact TASCAM in California at (323) 726-0303 or visit www.tascam.com.

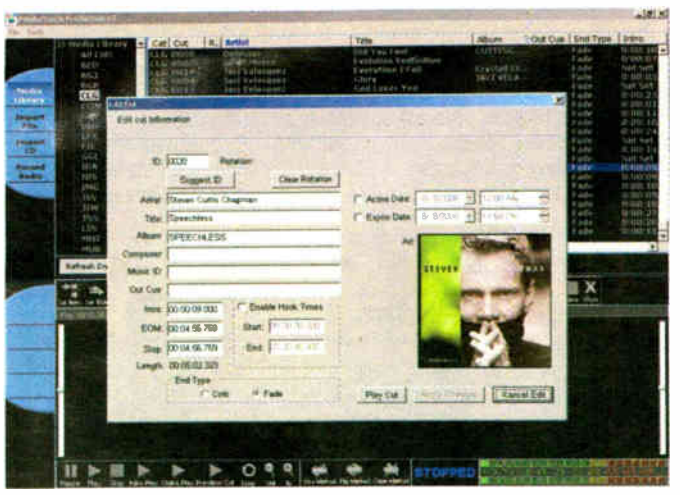
MTP Production 2.6 Has Edit Decision List

OMT Technologies released version 2.6 of its iMediaTouch MTP production software for broadcast audio file creation and management.

The company says the release represents the third generation of transcoder software for importing, exporting, editing and database management of audio files in formats such as MPEG 2, MP3, WMA and PCM. The Dolby AC3 codec set is available at extra cost while the RealAudio codec is included but limited to record, ingest and export modes.

MTP software runs on PC computers with Windows XP Pro, and on most Windows-compatible audio cards using WDM drivers.

For ingest, WAV and MP3 audio files can be imported at high speeds into the audio database. The CD ripper transfers from the CD-ROM with a single pass normalization, head and tail trimming and an Internet database search to corresponding metadata on the audio tracks. Optional album JPEG image search is available.



MTP Production 2.6 Edit Windows

The waveform editor supports mono or two-track editing of most codecs without the need to transfer internally to linear format and re-encoding back to the original codec format, which OMT says keeps editing quality at a high level.

An Edit Decision List window is provided for cut-and-paste assembly of new audio files. Audio editing of long files, such as hour shows, is such that audio is pre-visualized and can be edited and saved as a new long file in seconds. Multiple levels of undo, zooming, time stretch/squeeze, word filling, fade in and out and timing settings are provided.

MTP Production software offers up to six levels of user security, searching on any text string, audition of any audio in the database and a field for storage of album art graphics.

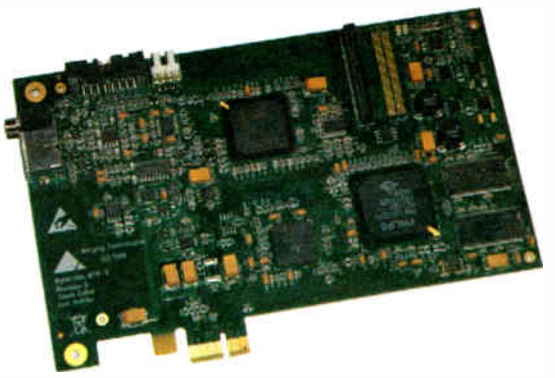
For more information, including pricing, contact OMT Technologies in Canada at (888) 665-0501 or visit www.imediatouch.com.

Pyramix 5.1 Includes Latest Mykerinos DSP Cards

Merging Technologies says new PCI Express-format Mykerinos DSP cards and daughterboard options that allow for more processing capability have made its Pyramix digital audio workstation more powerful.

Pyramix offers simultaneous playback and recording of dozens of audio tracks at resolutions from 16 bit, 44.1 kHz to DXD (352 kHz) and DSD for SACD production. The company says the basis for its recording and processing power is the Mykerinos DSP card.

Version 5.1 includes the sixth-generation Mykerinos line, MYK-X series cards, which permit Pyramix systems simultaneously to mix 48 channels



and their strip tools plug-ins to stereo and surround busses. The MYK-X30 has 1.2 GFlops of peak processing power available, and a memory bandwidth of 1600 MBps. It includes Longitudinal Time Code facilities, and DSD monitoring is now possible via the monitor outputs without prior conversion to PCM.

Users can mix and match existing PCI Mykerinos cards and add further PCI Express MYK-X30s when needed, as most available PC motherboards feature PCI and PCI Express card slots.

Merging also touts 5.1 features such as faster-responding Isis remote control communication; improved compatibility and file interchange with digital recording systems old and new; and Final Cut Pro XML import and export facilities.

For more information, contact Independent Audio in Maine at (207) 773 2424 or visit www.merging.com.

USB Matchbox Adds THAT Corp. InGenius

Henry Engineering says its USB Matchbox and USB MatchPlus products incorporate improved circuitry for the (analog) balanced inputs. Both units use THAT Corp.'s InGenius differential input receiver IC, which emulates the common mode noise rejection characteristic of a transformer. The company says this provides exceptional CMRR performance under adverse conditions, such as if the source is asymmetrical or if one side of a balanced input is grounded accidentally.

The input signal is free of hum, buzz and noise caused by fields induced into long cable runs or other sources of signal interference. The USB Matchbox and USB Match Plus units are used instead of a PC "sound card," and are suitable for applications where digital audio from a PC or laptop computer needs to be interfaced with an analog studio or audio system.

Each unit provides analog I/O (on XLR connectors) at professional +4 dBm levels, with over 20 dB of headroom. A Burr-Brown A/D and D/A converter provides audio that is free of "digital grunge" and other artifacts, Henry says.

For more information, including pricing, contact Henry Engineering in California at (626) 355-3656 or visit www.henryeng.com.

ASI6514 Mixes Multiple Streams, Formats

The ASI6514 PCI sound card from **AudioScience** provides up to 12 streams that are mixed to four stereo outputs, and up to two record streams fed from one stereo input. The company says it also features its "anything to anywhere" mixing and routing. Formats include PCM, MPEG Layer 2 and MP3 with sample rates to 96 kHz.

ASI6514 functionality includes MRX multi-rate mixing technology, which supports digital mixing of multiple stream formats and sample rates. TSX time scaling allows compression/expansion of playback streams in real time, by up to +/-20 percent, with no change in pitch.

For emerging surround sound applications, SSX mode allows multi-channel streams of up to eight channels to be played and mixed.

Additional highlights include 24-bit ADC and DAC with 110 dB SNR and 0.0015 percent THD+N; AES/EBU inputs and outputs with sample rate converters on inputs; dedicated AES/EBU and word clock sync input; SoundGuard transient voltage suppression on all I/O; short-length PCI card format (6.6 inches/168 mm); available Windows 2000, XP and Linux software drivers; and up to four cards in one system.

The ASI6500 series also includes the ASI6544, which provides balanced analog and AES/EBU inputs and outputs; and the ASI6540, which has analog I/O only. The maximum analog input and output level is +24 dBu.

For more information, contact AudioScience in Delaware at (302) 324-5333 or visit www.audioscience.com.

World Radio History

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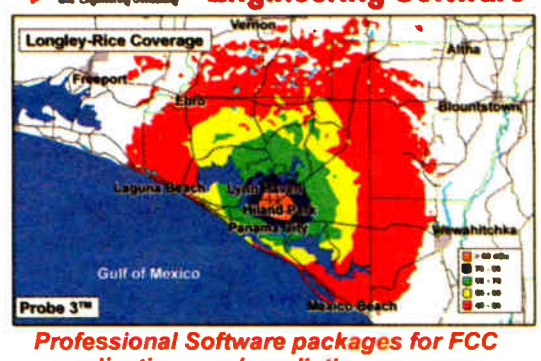

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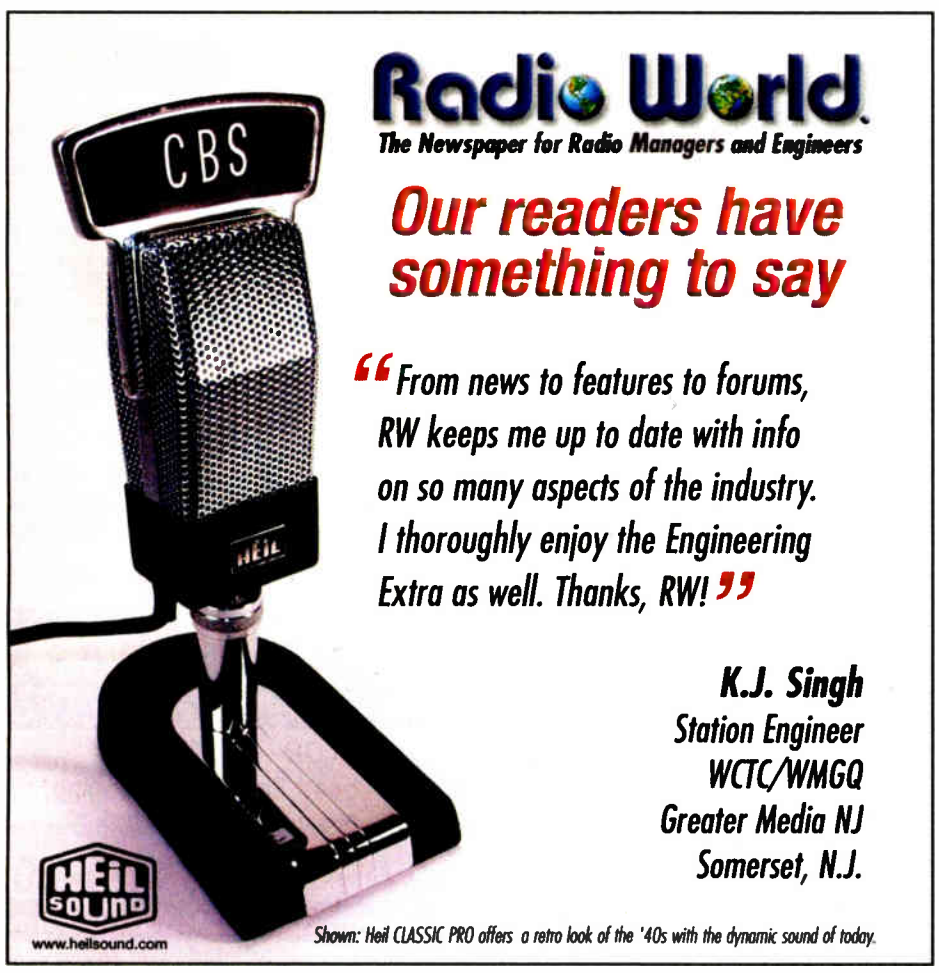

GUEST COMMENTARY

Training Does Not An Engineer Make

If a New Radio Engineer Lacks Aptitude and Skill, Can He/She Truly 'Learn' How to Master the Field?

by John Arndt

Scott Ensley wrote in the Jan. 17 *Reader's Forum* about the "lack of" training for new engineers in radio (*Reader's Forum*, Jan. 17). The discussion was prompted by an earlier *From the Editor* column by Paul McLane.

I'd like to comment. I have been in this field for 28 years, and I will readily admit the business is much more complicated now than when I started. But much of what I'm about to say still holds true.

Training wheels

I became interested in electrical circuits from an early age and was one of those rare individuals who knew they wanted to get into electronics by the ripe old age of 8. I constantly read articles about electronics and related fields, and experimented with building kits and other circuits from scratch early on. By the time I was in my mid-teens, I was servicing electronic organs for a local music dealer and could repair most any items friends asked me to look at.

Bottom line, I had a well-rounded electronic knowledge base by the time I entered engineering college and the aptitude to implement that knowledge.

It was a few years after I graduated from college that I was asked to help a friend of a friend with the local AM radio station, which needed an engineer after the one it had for years retired. The extent of my "training" consisted of the old retired engineer taking me to the transmitter site and showing me around the studios, and then handing me my keys.

The task of taking over the station as chief engineer was daunting, but I easily adapted to the work, as it was much the same as I had been doing for years up to that time, namely repairing audio equipment. The transmitter was different than what I was used to repairing, but by sitting down with the schematics and locking myself in the transmitter shack until the box was fixed, I learned all the idiosyncrasies I needed to know about future repairs on the transmitter.

The short of it is, I had no one to "train" me. I learned on my own to adapt skills I already knew to radio.

Every now and then we are fortunate to get interns in the engineering department who are in engineering school or about to enter college for engineering. Most of them exhibit no skills whatsoever. They don't know how to solder; they don't know the difference from coax to twisted pairs to balanced vs. unbalanced audio lines.

Granted, times have changed, but by my college years, I knew about these things and more. Plus I could solder like nobody's business. I don't mind showing someone the basics of radio and how a modern radio station functions, but with five stations to keep on the air I have no time to teach someone how to solder.

I actually had an intern (during the summer months) ask me why there was a sign at the transmitter site saying "watch for falling ice." I explained that ice formation at the top of the 1,100-foot tower was common, even when there was no snow on the ground. They then proceeded to ask if any ice would be falling while we were there; this was in July in Philadelphia. I told them no, there would be no ice falling in July.

It takes two

If radio engineers were surveyed, most would say they had no formal training in radio engineering, per se. Most successful engineers became proficient in the industry because they entered it with a solid electronics background and education before they ever set foot in a broadcast facility. Once working in the industry, two things are required to work your way quickly up the ranks: aptitude and skill.

If radio engineers were surveyed, most would say they had no formal training in radio engineering.

No one ever "enters" the field as director of engineering for a major-market group. Simply put, there are those with aptitude along with knowledge, and those with knowledge only. Those who succeed in this industry have the aptitude and the knowledge. Those with knowledge only will find it difficult to get into the business of radio engineering, let alone succeed. It's been my experience that aptitude can rarely be taught. You either possess it or you don't.

My response to Scott Ensley and others who want to be in radio engineering is to learn the basics ahead of time. With a solid background in electronics and the aptitude needed in electronic servicing, you should be able to get a job at a medium- to small-market station or group of stations, and learn all you need to know on your own by working in the industry. Once you have mastered the skills for a smaller-market facility, you should find it easy to move up in your career.

Go to all the seminars you can handle. Attend any training courses offered by manufacturers. And get certified by the SBE at the highest level you can attain. The need to increase your knowledge base never ends.

Give me knowledgeable, electronically savvy people "well versed in the basics" with aptitude, and getting them ready for radio will be a snap.

The author is assistant chief engineer for Greater Media Philadelphia. The opinions above are his and not necessarily those of Greater Media or its management.

World Radio History

GUEST COMMENTARY

Reverse Auctions Enable Mutual Support

Process Lets Broadcasters Control Inventory, Helps Advertisers Target Listeners Online

by Dave Newmark and Rockie Thomas

Dave Newmark

Rockie Thomas

More than 72 million people are expected to tune in to Internet radio stations this year, according to projections by research company Bridge Ratings. Here are two reasons why:

1. Frank Coon. Coon values sound more than most. Born blind, he turned to radio as his connection to the world. Along with the music of the Temptations and Hank Sr., he was captivated by the "old-time AM DJs who talked a hundred miles an hour" — and, as a kid, practiced copying them. But he found that his disability made it difficult for him to get work in the industry.

Thanks to adaptive technologies and the Internet, today Coon has his very own radio station: HounddogRadio.net. Listeners from around the world tune in to listen to his mix of country, bluegrass, blues and southern rock.

2. Steve West. Ever since he was a kid in the United Kingdom, West knew he wanted to be in radio. He's followed his passion faithfully, and today is considered a legend at San Diego's XTRA(FM) 91X, where he's been a DJ since the early '80s. But he's most excited about RadioNigel.com, where he spins "flashback alternative" music for about 30,000 people a day, each of whom tunes in for an average of more than three hours at a time.

Like most independent online broadcasters, Coon and West share a passion for music and want to share that passion with others on their own terms. But they say their stations won't survive without an influx of revenue. They both solicit donations from listeners to help keep them afloat, and each incorporates other tactics like selling branded merchandise and getting sponsors. But so far those efforts have not enough to cover hefty bandwidth and licensing fees.

The bottom line is, independent online broadcasters need advertising; and advertisers need them.

Getting organized

Astute industry observers know that Internet radio advertising is not new. In fact, stations have claimed a growing chunk of advertising budgets from big brands like Pfizer, Geico and Procter & Gamble, according to Mediaweek. But for the most part, so far the biggest beneficiaries are the larger, connected players that provide online streams of existing terrestrial radio stations; or the big aggregators like Yahoo Music/Launchcast, MSN Radio, Live365 and others.

But there are an estimated 25,000 independents broadcasting online exclusively, and that's where the listeners are. Bridge Ratings reports that in 2006 nearly 57 million unique listeners tuned in to Internet radio overall; and industry observers estimate that about 42 million of those listeners tuned in to the independent online broadcasters.

Listeners of Internet radio fall into categories that advertisers drool over: targeted, loyal audiences of people who tune in from around the world for the specialized (read: niche) content. They tend to be affluent and tech-savvy. They listen for long periods of time at their desks at home and work. One of Steve West's listeners told him he even tunes in from his car thanks to the mobility of his laptop and Verizon's wireless broadband.

So, there are many thousands of stations that need revenue, and there are advertisers who would pay to gain access to their listeners. What's the problem?

The problem is in the numbers themselves: 42 million people listening to 25,000 stations. It's almost impossible for any one advertiser or ad agency to identify which stations reach the right audiences and make deals with each broadcaster individually. So far, the frontier of independent online-only radio broadcasting has been considered too fragmented to tame. It's built into the name — the broadcasters are all independent. There's been no official organization of the market segment, and there's been no existing standard rating system for the broadcasters.

This is an industry ready for some organization. Enter: the reverse auction marketplace.

Sold to the lowest bidder

The reverse auction marketplace has successfully helped thousands of terrestrial radio stations increase revenue by selling more of their last-minute, remnant inventory. That same model is the answer for independent online radio.

Here's how it works: Advertisers announce that they want to buy airtime. On Internet radio this means either audio or video ads that play when the listener initializes the stream; or audio ads that run periodically throughout the stream, similar to terrestrial.

The advertiser designates desired demographics, station formats and maximum budget. Stations matching the criteria are invited to bid in a reverse auction for that advertiser's business.

A reverse auction turns the traditional auction model on its ear, allowing stations to compete for advertisers' dollars. Where a standard auction invites the buyers to do the bidding and the highest price wins, in a reverse auction the sellers do the bidding and the lowest price wins. In this case, advertisers are the buyers and radio stations are the sellers.

Doug Pick is founder and CEO of a hyper-growth entrepreneurial company that manufactures and sells two of the nation's most popular brands of ear plugs, Hearos (*www.hearos.com*) and Sleep Pretty in Pink (*www.sleepinpink.com*). He's testing independent Internet radio with :30 spots advertising both an established brand and a new line of products — and he's excited about the medium's potential to attract more eyeballs to his Web sites. Known as an innovator in the retail space, Pick sees it as a natural fit to team up with entrepreneurial online broadcasters.

A reverse auction is ideal for independent Internet radio because it organizes an unwieldy process, making it easy for advertisers to target audiences online without the burden of researching and negotiating with thousands of stations themselves.

It gives broadcasters complete control over their inventory. In an auction model there are no long-term commitments. It's always optional; stations can opt-in or opt-out at will. They can sell as many, or as few, ads as they want while still maintaining the "uncluttered" feel of Internet radio.

And most important, it gives advertisers and independent online broadcasters an easy and profitable way to do business with each other.

Creating a marketplace where none currently exists is no easy task, but the payoff will be huge for everybody.

Dave Newmark is founder and CEO of Bid4Spots. Reach him at dave@bid4spots.com. *Rockie Thomas is an Internet radio expert and head of Bid4Spots' Internet radio division. She's at* rockie@bid4spots.com.

◆READER'S FORUM◆

If It Ain't Broke...

I can't say I enjoyed Paul McLane's recent comments ("Saying You're Local Doesn't Make It So," Feb. 14). Paul, you are right, but that doesn't make it any easier to take. I have been lucky to work for some of the best broadcasters in the Cincinnati area, including a lot of "small" stations. Those are often the best, because what makes them special is the way they get involved in their communities.

I don't know how many times I have heard the same things you brought out in your "message." The station is sold, the new owner is going to make it better/more local. Then the reality hits the "locals" that the new owner may have the slickest on-air sound ever but has forgotten where the station is located. He doesn't seem to know what is happening in the community, doesn't seem to know which "local weather" to read and is surprised that the local businesses aren't beating his door down to buy spots.

I recently did some work for a small station in our area that I have helped for the past 25 years. It was sold a couple years ago, but the old owner — who many years after that became more of a friend than client — called needing help. When I got to the station he wanted to talk as much as get work done. He, like Jack in your article, has a long-term interest in seeing the station continue and prosper.

While I connected the second transmitter to the remote control, and installed a changeover switch controller that would work with the remote control, we talked.

My friend made the comment that if he had known how much the new owner was going to change things he would never have sold the station. Seems things are so similar between his story and "Jack's" that they could be the same person. Locals tell my friend they miss the old station and its "old-time" ways. Even though the station has been in operation for 35+ years, the new owner felt the need to "fix" all the things that were wrong — changed programming, did away with a lot of what the local community liked. Now he is having trouble selling spots, doesn't have dedicated listeners and can't understand why the community thinks things have changed. Never mind they no longer have as much local news, don't do the "lost dog reports," and only do the obits spread out between other important items like music. The new owner has owned several other stations over the years, and even started in broadcasting at this station as a DJ/newsman many years ago. He should know what has made the station part of its community. After all, he isn't really an "outsider," nor is he a big owner.

New owners could do well to look at what is working, repair or replace what isn't and continue the traditions the community likes. It is easy to give the community more music. Why not give the listeners more *local*, which they would be glad to sponsor?

Jay Crawford
Cincinnati

World Radio History

◆READER'S FORUM◆

Make Room For Google

Last night I read Randy Stine's excellent article about how Google is entering the radio business ("Google Beta Tests Audio Ads Service," Jan. 17). I read it about 30 minutes after making a reservation for my hotel room at the NAB Convention in April via *www.hotwire.com*.

And so, I thought that Randy could do a follow-up story about how the hotel industry — which has the same issues of limited inventory and inventory that becomes worthless after time goes by — has incorporated online booking services into its marketing. Have services like Hotwire and the rest made its business more profitable? What was the learning curve like? Are there any lessons from the hotel and airline industries that radio can learn?

Thank you, I enjoy your publication very much.

Roger Rafson
Pittsburgh

AE Internet Radio

Just finished reading the interesting piece on AE's Internet Radio ("AE's Internet Radio That Works," Feb. 1). What a neat idea: streaming audio you can take with you.

The price will have to come down quite a bit if they want the Average Joe and Jane buying those units. I don't know if your standard consumer would shell out $300 for something like that, at least not at this time. Maybe one day there will be coast-to-coast WiFi accessibility that will make listening to live streams in the car possible too. The possibilities are endless.

As a side note, the first thing that came to mind when I saw the photo of the AE was Radio Shack's old "Radio Cubes." Remember those? There were three to the set: an AM radio, a weather radio and a cigarette lighter.

Pete Cipriano
New York

I read with great interest James Careless' article on the Acoustic Energy WiFi radio. I ordered the unit as soon as it was available at C. Crane. For a few months I enjoyed the unit; I even went online and added numerous radio stations to the listings for Reciva (the unit's company). Then I moved to Singapore and my campus WiFi is handled via proxy.

It is a good idea to make note of this, as the AE does not work with proxy-based networks. Thank goodness that Torian, a company out of Australia, has come up with a truly portable WiFi radio that does work with my campus proxy network.

Bree Freeman
Advisor for Fusion Radio
Nanyang Technological University
Singapore

A Hand For Burden

"Dick Burden: FM Stereo Revisited" (Feb. 1) is an absolutely fascinating description about and chronicle of the beginning of on-air "high fidelity in living stereo." Thank you, Radio World and Dick Burden, for your lively and illuminating depiction of the utterly thorough and meticulous study, analysis and evaluation that led, ultimately, to the current on-air multiplex SCA stereo standards.

OPINION

Dick Burden: FM Stereo Revisited

Some Personal Writing History on the FM Stereo Standard From a Person Who Actually Performs at the Nouse Tests

by Richard W. Burden

Six systems were tested in July and August of 1960. The committee chose KDKA(FM) in Pittsburgh as the host for the transmitting facility and located the receiving site at a motel in Uniontown, Pa.

Fast-forward nearly 47 years from August 1960 to February 2007. This loyal and dedicated subscriber and reader would be most interested in how Mr. Burden — and other noted and distinguished professional radio engineers — would judge the Ibiquity digital in-band on-channel HD system vis-a-vis, say, the Digital Radio Mondiale system.

We look forward to your editors' and contributors' investigation, study and review of this timely and significant topic, especially those of Mr. Burden.

You should know that of probably a dozen trade publications, plus the daily The New York Times, the only periodical I read from cover to cover — one might say "devour" — is Radio World. In addition to your superb coverage of "hard" news, I particularly enjoy the articles about broadcast equipment from the 1940s, 1950s and 1960s. The very first station at which I worked had an umber gray RCA 76-B console and "matching" RCA 250-K transmitter, along with those "knuckle-cracker" RCA three-speed turntables.

F. Keith Trantow
Rawhide Communications Ltd.
Tucson, Ariz.

A Good Day to Be a Pirate

Late last summer, Senate Majority Leader Harry Reid, a Democrat from Nevada, contacted the FCC seeking to allow an unlicensed broadcaster on the air. Subsequently, a letter from the commission to Radio Goldfield Broadcast owner Rod Moses allowed his 100-watt station to operate, moving from 100.3 to 106.3 FM, even though the operation earlier had been raided and shut down by the FCC.

According to an account in the Pahrump Valley Times newspaper, Moses can operate with special temporary authority until he can apply for an LPFM license in a presumed future filing window. The newspaper heralded this as a victory for "a little guy in a battle against the federal bureaucracy."

Allowing a pirate to stay on the air with only an STA and no license sets a bad precedent. It tells illegals that they might be able to gain legal standing outside the licensing process established by FCC rules. Such an operator now must merely contend that it is programming in the public interest. Oh, and it helps to obtain the backing of a few friends, ideally a key politician who can exert pressure on the right people.

We note that former pirates originally were singled out as *ineligible* to win licenses (indeed, a communications attorney tells us the stipulation technically still resides in FCC rules). But an appeals court tossed that provision as unconstitutional.

Anyway, Radio Goldfield was persuasive enough to win this round. The precedent could open the floodgates. Other pirates who choose this route will have to be measured by the same criteria. We could see this spawning interference complaints and enforcement activity.

Seeking a license to operate a station in an underserved and sparsely populated area like Goldfield and nearby Tonopah would have been the right way to go. But the Class A path takes time and money, and a license might never have resulted. An LPFM station might be appropriate for Goldfield, but no filing window was available; so the operator apparently opted to establish his operation outside the law.

This case spotlights a flawed process by which the commission awards LPFM CP grants and licenses. It treats the country without regard to population or proximity to population centers, with one set of rules and short filing windows. (While windows were opened on a geographical basis, we're aware of no population-based licensing provisions relative to LPFMs.)

We feel there are thousands of small communities not served or woefully underserved with local broadcasting. In areas where LPFM operations can exist without causing interference, the rules should allow a simplified process by which operators like Radio Goldfield can gain licensing.

Beyond this case, we know of at least two others in which the FCC has been — how shall we say this — a tad flexible with its LPFM rules.

In one, an LPFM licensee asked for permission to sell even though the rules say such sales are not permitted. The commission said yes. In another, citing interest in classical music in a particular town, the FCC said it would open a special LPFM window for that town, the goal apparently being to give protesters an opportunity to apply for their own channel.

We find this kind of ad hoc approach to an entire service unwise. It could lead to a mish-mash of decisions that make no sense.

Meanwhile, it's tempting to be sympathetic to Radio Goldfield. Moses has worked in broadcasting for many years and reportedly complied immediately with the FCC when agents showed up; the station appears to have tried to provide a real public service. But rules against unlicensed broadcasting must be applied evenly. RW does not condone pirate radio operations, even by former broadcasters who say all the right things. Enforcement agents don't need this kind of second-guessing. The FCC should avoid the appearance of favoritism or knuckling under.

With frequencies available in areas that could benefit from operations like Radio Goldfield, the commission should consider better and easier ways to establish them. Issuing STAs under pressure by politicians is not the answer.

— RW

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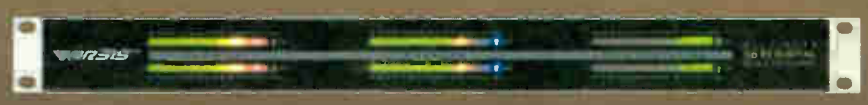

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